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Development Strategies for Chongqing Municipality

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Development Strategies for Chongqing Municipality

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SUMMARY

Chongqing was designated in 1997 as China’s fourth provincial-level municipality after Beijing, Tianjin and Shanghai. Located at the junction of China’s western region and the Yangtze River Economic Corridor, Chongqing is the largest economic center in the upper Yangtze region, and an important industrial and commerce base and hub of land and water transportation in southwest China. Covering a land area of 82,400 square kilometers, Chongqing has a total population of 32.4 million. The municipality consists of 19 districts and 21 counties. The main urban area (9 districts) covers an area of 5,467 km2 and holds a population of 6 million.

1. Roles and development trends in Chongqing since its designation as a provincial-level city.

   a. Major Roles assigned to Chongqing

      When Chongqing was upgraded to a provincial-level city, the city was given three key strategic tasks by China’s central government: i) resettling the residents affected by the Three Gorges Reservoir Project to ensure that reservoir construction proceeded on schedule; ii) developing the local economy; and iii) protecting the eco-environment and improving the quality of life in the project area of the Three Gorges reservoir.

      When China launched its national Initiative of Western Region Development in 1999, Chongqing was considered as the gateway to the country’s western territory. It was therefore assigned the historical mission of bridging the development of coastal areas, the Yangtze corridor, and the western region.

      Chongqing municipality is comprised of a large urban area, an enormous rural area, a huge reservoir area, and vast mountainous territory. When the central government adopted a new development approach of “scientific outlook on development”, Chongqing was designated by the central government in 2007 as a pilot city to explore innovative approaches for promoting rural-urban integration and balanced rural-urban development.

   b. Development Periods

      Chongqing’s development after its transformation into a provincial level city, can be divided into two periods: ten years of rapid growth from 1997-2007 followed by a second period of ten years of consolidation from 2007-2017. Having built up its regional agglomeration capability over the first period (1997-2007), Chongqing’s development focus has switched to building up its capacity for implementing the “scientific outlook on development.” Both of these development periods began with the city’s efforts to respond to economic and financial crises: the Asian financial crisis in 1997, and the global economic slowdown in 2008. Chongqing has set clear development goals for both periods: building an economic growth pole in the western inland region that is different to those in developed coastal areas, and exploring localized approaches for promoting the urbanization and industrialization process in Chongqing. The city’s development in these two growth periods reflects a progressive process of continuously calibrating its development targets and addressing the mismatches between its strategic roles and the capacity that the city actually has to fulfill these roles.

   c. Chongqing’s Accomplishments

      Three major accomplishments can be summarized from Chongqing’s recent development.

      a. Seizing every opportunity and policy advantage available to Chongqing. This includes i) making full use of the advantageous policies related to the task of Three Gorges reservoir resettlement to develop the local economy and to improve people’s quality of life in the project affected region, ii) making full use of the policies under the national Western Region Development Strategy to build Chongqing as a
hub of opening and reform in the western region to facilitate the city’s competitiveness in domestic and global markets; and iii) as a pilot city, making full use of central government incentives and policies for promoting urban-rural integration to further accelerate the city’s reform process, and to establish balanced social security services needed for urban-rural integration.

b. Emphasizing the concept of “people-oriented” development and respecting the natural laws of urban development in defining the goals of CQ’s rural-urban integration strategy. Chongqing has identified institutional reforms and technological innovation as the key measures required to improve CQ’s competitiveness in the region, to improve infrastructure, to promote industrial development, to protect the ecological environment, and to improve the livability of the city.

c. Developing a localized strategic framework that reflects CQ’s situation and needs under the national development guidelines of the scientific development approach. Chongqing’s local strategy framework is focused on people’s needs and wellbeing. The city has explored and launched a package of reforms and related measures to restructure the city’s economy and urban development to better support the improvement of people’s wellbeing. These reforms and pilot practices are a new approach to balancing the local economy, urban growth, and the improvement of quality of life in Chinese cities.

2. Chongqing’s Key Features at this development stage.

- **Current stage of Chongqing’s development**

  Measured by key indicators such as per capita GDP, industrialization rate (secondary GDP as % of total GDP), and urbanization rate (urban population as % of total population), the city of Chongqing is currently at the mid-term stage in the industrialization process. Given the features of its demographic structure and the significant size of its labour pool, the city’s benefits from its demographic bonus will continue. From recent improvements to major urban infrastructure services measured by per capita water consumption, per capita road space, and ratio of wastewater treatment, the city is poised to benefit from broader and deeper investments in more advanced infrastructure over the coming years. Driven by the newly launched scheme of Liangjiang New Area Development, the pace of Chongqing in building a national reform hub in western China is expected to accelerate.

- **Chongqing’s potential advantages and challenges**

  Chongqing has five major advantages for its future development: i) late-developing advantage; ii) policy advantages; iii) locational advantages; iv) institutional advantages; and v) labour force advantages.

  However, Chongqing also faces six major challenges of: i) substantial economic disparities between regions in the municipality; ii) expanding gap between its fiscal capacity and expenditure needs; iii) increasing pressures from rapid consumption of resources available to the city; iv) concerns over detrimental changes to the city’s ecological environment; v) shortage of human capital with required knowledge and skills; and vi) weak capacities for innovation.

3. **Key Features and Policy Considerations of the “Five Chongqing” Scheme.**

On July 20th 2008, the Chongqing Municipal Government officially launched the “Scheme of Building Five Chongqings” (namely, Livable Chongqing, Smooth Transport Chongqing, Forested Chongqing, Peaceful Chongqing, and Healthy Chongqing) as a localized implementation framework under the national guideline of Scientific Outlook on Development.

- The Five Chongqing Scheme is an integrated approach for pursuing balanced development in the municipal territory.
A prime policy objective of the Five Chongqing Scheme is to address the significant urban-rural divide in the municipality, to promote urban-rural integration and to pursue balanced development through more focused infrastructure investment, improved resource allocation, and eco-environment improvement.

- The Five Chongqing Scheme reflects the principle of “people-orientation” in policy making.
  
  The Five Chongqing Scheme focuses on addressing the critical issues that the people of the city care about the most: livability, mobility and accessibility, quality of ecological environment, safety, and health. Responding directly to the needs of improving people’s wellbeing, the Five Chongqing Scheme is consistent with the national strategic principle of “pursuing development in a scientific way”.

- The Five Chongqing Scheme reflects the concept of sustainable development.
  
  The Five Chongqing Scheme codifies the city’s efforts for pursuing sustainable development and building an environment-friendly and resource conserving city that balances needs from various perspectives: improvement of the quality of life, more intensive social and economic development, balanced urban growth, and environmental protection.

- The Five Chongqing Scheme is rooted in Chongqing’s specific characteristics and conditions.
  
  The Five Chongqing Scheme is developed on the basis of the city’s specific conditions; it is a pilot city for combining reform innovations expected by the central government with the city’s specific situation.

4. Strategic Thinking on Chongqing’s Future Development

- Visioning and Development Approach
  
  The vision of Chongqing is to build a model city of “pursuing development in a scientific way” through transition from a traditional growth pattern to a new, integrated development approach featuring a new industrialization process, integrated rural-urban development, balanced industrial and urban development, and lower carbon emissions. To achieve this, Chongqing’s development strategy should take the “314” directives (which is central government’s positioning and expectation to Chongqing’s future development) as guidelines, should continue focus on people’s wellbeing, and consider widening the reforms and enhancing urban innovations as the driving forces for the city’s future growth. The Five Chongqing Scheme is a set of policy measures for achieving the city’s strategic goal.

  In refining its development approach, Chongqing should consider: i) concentrating urban development in planned areas to avoid un-controlled urban sprawl; ii) promoting industrial restructuring to avoid investments in industries that are natural resource-intensive, high consumers of energy, and that are highly polluting; iii) building up innovation capacity to further upgrade the city’s role in the global supply chain; iv) promoting urban-rural integration, improving integration of industrial landuse with other land uses to avoid the development pattern of urban-rural division and disconnection between industrial and urban development; v) promoting the Five Chongqing Scheme at a balanced and synchronized pace to avoid the risk of implementation of some of the five themes being ineffective and eventually undermining the successful achievement of the whole scheme; vi) paying greater attention to environmental protection.

- Development Priorities
  
  - Timely transition of the city’s development focus: Switching the urban development
priority from the core city to the integration of urban and rural areas. Upgrade city’s functioning and quality of development to match with Chongqing’s profile as a regional central city as defined in the national territory development strategy. Timely switching the visioning from building a country-level regional central city to building a continental central city, and building Chongqing as an important hub city of Eurasia.

- Promoting the process of industrialization, urbanization and social service equalization in a balanced and integrated approach, and building Chongqing as a city of social cohesion.

- Promoting integrated and balanced urban-rural development. Allocating higher priority to development in the suburbs and rural areas, switching the urban development focus to the suburban and rural areas, promoting urban-rural integration, and building Chongqing as a rural-urban integrated city.

- Ensuring eco-environment safety of the Three Gorges reservoir area. Strengthening the rehabilitation and protection of ecological environment and mitigation of geological hazard risks in the reservoir area, persuading the central government to designate the Three Gorges reservoir area as a pilot for the trial of innovative compensation mechanism for river basin environment protection, and building Chongqing as an eco-city.

- Establishing innovation mechanisms. Building up capacities for technological innovations, encouraging R&D by enterprises, establishing incubation and service systems for innovation, consolidating public resources to support innovations, setting up enterprise-sharing and inter-regional cooperation mechanisms for promoting innovations, and building Chongqing into an innovative city.

- Implementing the national master plan of development priority zones. Optimizing the urban system in the municipal territory, guiding the urban growth towards a planned spatial structure of “one center six satellites, one circle two wings”, promoting the development of medium and small sized cities, and building Chongqing as a city supported by a well developed urban system.

- Incubating the driving force and supporting mechanisms for the transition of development patterns in Chongqing, and building Chongqing as a vibrant city.

- Building up the city’s soft-power. Building Chongqing into an attractive city through measures to promote cultural development, assigning higher priority to education, developing local skills strategies, and improving city branding and image building.

5. Policy Recommendations for Chongqing’s Future Development

- Explore and widen financing sources to address the constraint of financing.

  Chongqing has used financing from multiple sources to fund the implementation of the Five Chongqing Scheme. However, compared to the substantial investment needs of the scheme, the amount of funds raised from current sources is obviously insufficient. Financing from additional sources of public sector, banking institutions, and non-banking institutions need to be further explored, and the efficiency of fund raising needs to be improved to support implementation of the Scheme.

- Carefully address the constraint of land provision

  There are significant gaps between the amount of land needed for urban construction in Chongqing and what is available. To address this gap, Chongqing should consider taking the measures of optimizing land use planning, extending land reclamation, improving land use density and efficiency, and fully utilizing existing stocks of construction land.

- Prepare and implement local skills strategy for building a hub of talents to address the
constraints of human capital

Chongqing’s local skills strategy should be targeted to the goals of expanding its talent pool, upgrading skills, rationalizing the structure of the city’s skills pool, encouraging more active mobility of skilled personnel, and promoting higher output from the labour force. The implementation framework of Chongqing’s local skills strategy should focus on establishing the institutional infrastructures for human capital management, security and service systems for skilled workers, education and training programs. Chongqing’s talent pools could be further expanded through a combined approach of attracting and retaining skilled migrants and the training of local workers.

- Improve the consistency and matching among various policies to address the constraint of policy and institutional mismatching
  Institutional arrangements, policies and policy measures in the sector of taxation, administrative charges, fiscal system and finance should be assessed and updated to ensure their consistency, in particular the matching of fiscal expenditure responsibilities and fiscal revenues, and the connection between policy goals and implementation.

- Fully exert the advantage of the city’s demographic bonus
  Given its large population and advantageous demographic structure, Chongqing should take measures to fully exert the advantage of its abundant labour force supply and capture locally the benefits from its demographic bonus.

- Allocate higher priority to environment protection
  Improve the awareness of Chongqing’s current eco-environmental quality, and the need for urgent action and public participation in environmental protection by enterprises and city residents. Other efforts needed for further improving the city’s eco-environment include stricter enforcement of environment legislations, more investment in environment protection and urban landscaping.
General Report of Chongqing Development Strategy

On March 14, 1997, approved by the Eighth National People’s Congress at its Fifth Session, Chongqing became the fourth municipality directly under the Central Government of China, following Beijing, Shanghai and Tianjin. The municipality has jurisdiction over 19 districts (Wanzhou, Fuling, Yuzhong, etc.) and 21 counties and autonomous counties (Qijiang, Tongnan, Tongliang, etc.). It has a population of 32.3532 million, and the minority population, mainly consisting of Tujia and Miao peoples, accounts for 6.5 percent of the total population. Situated within Latitude 28°10’ to 32°13’ N and Longitude 105°17’ to 110°11’ E, it covers an area of 82,400 square kilometers, stretching 450 km from north to south and 470 km from east to west. The terrain slopes down to the Yangtze River Valley from south to north, with hills and low mountains mainly in the northwest and central areas and Dabashan and Wulingshan mountains in the southeast. Major rivers are the Yangtze River, Jialing River, Wujiang River, Fujiang River, Qijiang River and Daninghe River. It has a subtropical humid monsoon climate, characterized by hot summer and warm winter, simultaneity of light and heat, a long frost-free period, abundant rainfall and humid and wet weather. The annual average temperature is 18.2°C, and the annual average rainfall is 1104.5 mm. Located in the junction areas between the eastern and western provinces of China, it neighbors Hubei and Hunan in the east, Guizhou in the south, Sichuan in the west and Shanxi in the north. It is the largest economic center in the upper Yangtze River, the most important industrial and commercial center and a convenient hub for land and water transportation in southwestern China.

1. Development stage since the establishment of Chongqing Municipality and the background for the development of “Five-Chongqing” programme

1.1. Development of Chongqing: national strategy requirement

1.1.1. Resettlement in the Three Gorges Project and Development of Chongqing

Approved by the National People’s Congress of China in 1992, the construction of the Three Gorges Hydroelectric Station was started in 1994 in order to exploit the rich hydropower resources of the Yangtze River, enhance the flood and drought control capacity of the Yangtze River Valley, and take full advantage of the shipping potential of the Yangtze River. Impoundment of the Three Gorges Reservoir has submerged a hundred cities and towns, and more than 1.2 million people in the reservoir area are needed to be resettled. In the resettlement process, although the infrastructure construction of the immigration towns for Three Georges migrants is developed rapidly, industrial development in these areas is rather slow. A large number of enterprises close down after relocation, and the problem of industry hollow arises in the reservoir area, where economic growth slows down, and unemployment and social instability began to rise. In addition, the ecological environment in these areas starts to deteriorate. To overcome these problems, the State Council launched feasibility studies on administrative division adjustment of the Three Gorges Reservoir Area, and proposed expanding and upgrading Chongqing to a municipality directly under the Central Government. On March 14, 1997, the Eighth National People’s Congress at its fifth session approved the motion of establishing Chongqing Municipality, with 88 percent of the voters in favor of the motion. On June 14 of the same year, Chongqing Municipality was officially set up, including the four districts formerly administered by Sichuan Province: Chongqing, Wanzhou, Fuling and Qianjiang. Therefore, Chongqing Municipality since its establishment shoulders the major strategic tasks including speeding up the process of resettlement, ensuring the completion of the Three Gorges Project on time,
protecting the reservoir environment, and developing the production and improving people's living in the reservoir area.

1.1.2. West China Development and Development of Chongqing

Since reform and opening up, some coastal regions in China have approached or reached the level of developed countries with gradual improvement of the comprehensive national power and international status of China. However, the economy in the vast western regions is relatively less underdeveloped, with per capita GDP being only about two-thirds of the national average and less than 40 percent of the average level of the eastern regions. If the wide gap between the eastern and the west regions is not paid any attention to, the problem will be likely to influence China’s overall development and plague for a long term the sound economic and social development of China. The Party Central Committee and the State Council, according to the strategic thinking of “Two Overall Situations” in China’s modernization by Deng Xiaoping, made an important strategic decision to develop the western regions in September 1999. On March 2001, Outline of the Tenth Five-Year Plan for National Economic and Social Development was adopted by the Fourth Session of the Ninth National People’s Congress. The outline made it clear that the development of the western regions must bring into full play the functions of the central cities based on the traffic truck lines such as Asia-euro Continental Bridge, the waterways of the Yangtze River and Southwest Ocean-going channel, and gradually form the trans-regional economic belts with special characteristics of west China such as Western Longhai-Lanxin Railway Economic Belt, the economic belt along the upper stream of the Yangtze River, and the economic belt of Nanning-Guiyang-Kunming, promoting the development of other western regions as well as whole west China. As the largest economic center in the southwestern regions along the upper stream of the Yangtze River, Chongqing is located at a junction where the trans-regional economic belts being built, such as Western Longhai-Lanxin Railway Economic Belt, the economic belt along the upper stream of the Yangtze River and the economic belt of Nanning-Guiyang-Kunming, connect with each other. It plays the functions of assembly and distribution for the Yangtze River Economic Belt and West China Economic Zone. It is a bridgehead in the development of west China, shouldering the heavy burden of coordinating the strategic development in the coastal regions, Yangtze River areas and west China.

1.1.3. Coordinated development of urban and rural areas and development of Chongqing

China has experienced the largest and fastest urbanization drive in world history since reform and opening-up. The urbanization rate grew from 17.92 percent in 1978 to 47.5 percent in 2010. From 2000 to 2010, the urbanization rate increased by 11.3 percent, and the number of urban population increased from 460 million to 630 million. However, the urbanization quality is low, and the relationship between urban and rural areas is not balanced. There are a large number of problems, such as faster land urbanization than population urbanization in large cities, excessive expansion of large cities, underdevelopment of small cities and towns, urban villages (village-in-city), and cities besieged by garbage, and there still remain the problems of income gap, consumption gap and property gap between urban and rural areas. When per capita GDP is over 4,000 (USD), China’s economy begins to enter the mid-late development stage of industrialization. Industry is then capable to repay agriculture, and urban areas to support rural areas, thus achieving a coordinated development of industry and agriculture and of urban and rural areas. As a core city in West China, Chongqing has large cities, large rural areas, large reservoir areas and large mountainous areas, of very obvious urban-rural dual structure. It shoulders the strategic tasks including constructing a coordinated development mechanism aiming at encouraging equality, mutual benefit, advantage complementation and common interest between urban and rural areas, exploring the development pattern for common progress of large metropolitan areas together with small and medium cities, and completing the tasks required by pursuant and leap-forward development as well as
coordinated development.

1.2. Development stage since the establishment of Chongqing Municipality and evolution of the strategies

From the establishment of Chongqing Municipality to 2017, we have two “ten-year” development stages: first, the development stage of enhancing regional cohesion in the first decade (1997-2007); second, development stage of upgrading scientific development capacity in the second decade (2008-2017). Both stages start with the financial crisis (the Asian financial crisis in 1997 and the global financial crisis in 2008), and the overall goal is to create in the inland western regions an economic growth pole different from that in coastal areas, and explore paths of unique characteristics to urbanization, industrialization and modernization. The two stages, consistent and integrated with each other, with the second being the furthering process of the first stage, are the process of constant improving the overall goal and strategic deployment of the municipality. The essence of either stage is to address the gap between development goal and reality and the gap between the historical mission and the strength of the municipality.

![Figure 1.1 Development track and tendency of Chongqing Municipality since its establishment](image)

1.2.1. The stage of enhancing regional cohesion and the strategies

The development and function of a city is first of all based on its cohesion and economic strength. Chongqing Municipality at the beginning was confronted with many problems: weak economy, great environment pressure, heavy tasks of maintaining social stability, loose connection between central cities, and quite slow urbanization process due to large rural areas. In the first decade, taking the opportunities of the establishment of municipality, Three Georges Project and West China Development, Chongqing strived to find a path for balanced development of large cities through infrastructure construction, cohesion construction and developing its economic strength.

In the early period after its establishment, Chongqing Municipality gradually defined the strategic objectives of “Three Centers, Two Hubs, and One Base” in fulfillment of the “four tasks” assigned by the Central Government: the resettlement of Chongqing reservoir area of Three Georges Project, the revitalization of Chongqing SOEs, basically solving the problem of food and clothing for the rural poor, and enhancing ecological protection in Chongqing. “Three Centers” means to build Chongqing into the economic center, the culture information center, and the financial center along the upper stream of the Yangtze River. “Two Hubs” denotes the transport hub and the communications hub. “One base” refers to develop Chongqing as a modern industrial base.
Under the guidance of the above strategic objectives, Chongqing formulated a series of strategic initiatives to enhance its regional cohesion. First is the **Poverty Reduction Strategy**. The strategy, starting from 1997, mainly aims at solving the problem of poverty, determining the “basic idea of speeding up development in Qianjiang District”. Second is the **Strategy of Transportation First**. The period from 1997 to 2000 was taken as the “Years for Transportation Construction”. To overcome the problems such as poor infrastructure and weak urban functions, the municipality sets the objective of “Change in Five Years, and Smooth Traffic in Eight Years”, carrying out construction based on the building of an integrated three-dimensional transport backbone network. In 2002, it was proposed to build Chongqing into “the economic center for southwestern regions and the upper stream of the Yangtze River”, further consolidating the position of Chongqing as the biggest transportation hub in the western regions integrating east and west, north and south. Third is the **Strategy on SOE Reforming and Economic Restructuring**. Officially started in 1999, the strategy focuses on the reform of traditional industries, and sets the goal of “speeding up the development of equipment manufacturing industry”. Fourth is the **Talent Development Strategy**. From 1999, the idea of talent development has been introduced into the government personnel system. “Broadening Horizon Project” and “Borrowing Excellent Experience Project” are carried out. Training and introducing of talented persons are actively conducted to take full advantage of talents. Fifth is the **Strategy of Exploring Coordinated Development of Urban and Rural Areas**. The municipality began to explore the problem in 2005. On June 7, 2007, experimental zones for nationwide pilot comprehensive reform for coordinated urban-rural development were established in Chongqing, which thus seizes more initiative in institutional innovation at the national level.

Oriented towards the building of cohesion since its establishment, Chongqing gradually solidifies its base for growing to be the economic center along the upper Yangtze River and as the economic pole in the western regions. It is becoming the commanding heights in West China Development, capable of undertaking the strategic missions entrusted by the Central Government.

![Figure 1.2 Preliminary effect of Chongqing as an economic growth pole in West China](source: China Statistical Yearbook (1999-2009))

### 1.2.2. Development stage of upgrading scientific development capacity and the strategies

Based on the solid foundation built in the first decade of development, Chongqing entered into the new development stage of upgrading its scientific development capacity, that is, promoting more sustainable development, and constantly enhancing its regional advantages so as to strength its role of economic radiation. In face of new situations and tasks, it is necessary for
Chongqing to enhance not only its “hard power” and “soft power”, but also “smart power”. Chongqing has thus implemented a series of new strategic initiatives. First is the strategy of “Five-Chongqing” programme, that is, “Livable Chongqing”, “Traffic-smooth Chongqing”, “Forest Chongqing”, “Safe Chongqing” and “Healthy Chongqing”. The strategy is the cornerstone for the construction of Chongqing as an opening-up highland in West China. It is a good livelihood systems engineering, aiming at improving software and hardware environment, upgrading the taste and enhancing the attractiveness of the municipality. It also targets at accumulating energy for a better future development by creating a human-oriented environment that is safe and beneficial for doing business, and thus attracting more talents and technology and capital investments in Chongqing. Second is the strategy of “Striving for Policy Support”. According to “314” Strategic Deployment of Chongqing by President Hu Jintao, the municipality applied for establishing experimental zones for nationwide pilot comprehensive reform for coordinated urban-rural development, which was then approved by the Central Government. Twelve important major policies were proposed to lead to the formation of Document No. 3 issued by the State Council in 2009, which is a powerful driving force for the development of opening-up inland Chongqing and “Five Chongqings”. Third is the strategy of “Inland Opening-up Highland”. In July 2008, the third plenary session of the Third Chongqing Municipal Committee of CPC made the CPC Chongqing Municipal Committee’s Decision on Further Opening of Chongqing. It is proposed in the decision that Chongqing adopts the strategy of “bringing in and going out” strategy, which aims at a better and faster development of Chongqing through furthering the opening-up to obtain assistance from outside. The “inland opening-up highland of Chongqing” is planned to be built in five years. The construction of “Five-Chongqing” programme is to be accelerated, the pilot comprehensive reform for coordinated urban-rural development is to be better implemented, and “314” overall deployment is to be accelerated in these five years. Fourth is the Strategy of Further Promoting Coordinated Development of Urban and Rural areas. When the problem of absolute poverty in rural areas has been solved, and coordinated development of urban and rural areas has been furthered, Chongqing in time proposes the project of per household income increase of 10,000 Yuan during the period from 2010 to 2012 in the rural areas of the “Two Wings”: the northeast and southeast areas. According to the project, the income of more than 95 percent rural households who are able to work will increase by 10,000 Yuan. This project, along with modern agriculture development, poverty alleviation and development, well-being of the reservoir area, and the construction of “Forest Chongqing”, will bring into a new stage the coordinated and balanced development of urban and rural areas.

Through the livelihood projects such as “Five-Chongqing” programme, the municipality is beginning to exert its regional advantages, leading and radiation role. As the window of West China, it is practicing the historical mission of leading economic and social development in the southwestern regions as well as the upper reaches of the Yangtze River.

2. Primary experiences of Chongqing’s development after its establishment

2.1. Seizing development opportunities, and making full use of policy advantages

Chongqing does not possess any natural advantages either geographically or temporally. However, Chongqing begins to rise up rapidly in the second decade after its establishment. It is because Chongqing has seized each development opportunity, and makes full use of institution as well as policy advantages.
2.1.1. Making full use of institutional advantages of municipalities

Chongqing seizes this opportunity of upgrading into a municipality, and expands its brand name effect as “the only inland municipality”. Making full use of institutional advantages of municipalities, it strives to emancipate minds, seek truth from facts, and resolutely get rid of the ideological constraints and institutional barriers that will influence the development, thus remaining open-minded, energetic and innovative. It always holds high the banner of unity, trying to consolidate and maintain a good situation for the development of Chongqing. It sticks to the policy that takes economic construction as the central task, and gives priority to the development of the municipality. It is good at capturing and making full use of opportunities to constantly improve factor gathering environment and platform in the municipality. It focuses on solving key problems related to overall situation and long-term outstanding contradictions to speed up comprehensive development of the new municipality.

2.1.2. Making full use of the policies regarding Three Gorges Reservoir Area

The Three Gorges Reservoir Area as a special zone has been the focus of attention. In order to ensure the success of resettlement and the development after relocation, a series of special favorable policies have been offered by the Central Government. Chongqing makes full use of these policies, such as post-resettlement support, support for industrial development in the reservoir area, policy for ecological environment protection, policy for social stability and development, and policy for counterpart assistance. In this way, the municipality can complete the resettlement project on schedule, and improve the economic and social development environment as well as the economic and social restructuring of the reservoir area. The accumulation of the total economy is then speeded up, the comprehensive economic strength is enhanced, reform and opening-up of this area is promoted, and people’s living in the area are also improved.

2.1.3. Making full use of the policies regarding West China Development

Chongqing, as the only municipality in the western regions, has made full use of the policies regarding West China Development, and actively integrated the policies to draw up the specific policies and measures that are suitable for Chongqing for its fiscal levy, credit financing, land and resource exploration, internal and external opening, talent and technological innovations and ecological environment protection. When a new round of West China development has started, Chongqing, based still on the “314” Strategic Deployment of Chongqing by President Hu Jintao, is actively seeking the establishment of “Liangjiang New Area” to build a new inland opening highland and gradually perfect the mechanism of internal and external opening. Based on the west, it strives to share national and even world markets, expecting to attend the competition in a wider stage on a higher platform and thus to share more economic resources and development opportunities.

2.1.4. Making full use of the policies regarding pilot comprehensive reform for coordinated urban-rural development

The Central Government approved the proposal to set up experimental zones in Chongqing to carry out pilot comprehensive reform for coordinated urban-rural development, enabling the municipality to take the first try to solve some long-troubled development challenges in a number of important fields. This satisfies the need to address some deep-seated contradictions in the new stage of China’s reform and development, such as regional development inequalities, gap between rich and poor, coordinated development of urban and rural areas, and industry hollow in the reservoir area. This also indicates that Chongqing’s development has entered from the development stage of “laying foundation” and “seeking breakthrough” to the new stage of overall progress. Taking this great opportunity, Chongqing is speeding up its pace of reform and development. Through planning a new mechanism for the interaction between “ring” and “wing” areas, the municipality strives to strengthen the link between
economy and social development planning, urban-rural balanced planning and land use planning. Land Exchange has been established. “Three Concentrations” have been vigorously promoted, i.e., concentration of industrial areas, concentration of farmers’ residential areas on towns, and concentration of land transaction on large-scale management. In the city outskirts, Chongqing takes the measures of integration of urban and rural policies, industrialization of agricultural production, urbanization in rural areas and farmers’ transformation into urban inhabitants. The municipality is also trying to build an integrated urban-rural security system, and adjust national income distribution structure. A variety of other measures are also taken to increase the support and investment for agriculture and urban areas, greatly speeding up the social and economic development of Chongqing in a scientific way.

2.2. Following the law of development, and highlighting people-oriented development

Chongqing Municipality is a mountain area in West China, and the ecological carrying capacity and potential of different regions are quite different from each other. The conflict between economic and social development and supply of resources and environment is thus very obvious. In the process of development, Chongqing strives to follow the objective law of development, giving priority to meeting the needs of people, and carrying out institutional, technological, and methodological innovations to upgrade its regional advantages, reconstruct its economy and improve its infrastructure so as to promote industrial development and maintain ecological balance at the same time.

2.2.1. Establishing the concept of people-oriented development

Early in the “Tenth Five-Year” Plan, it has been made explicitly by Chongqing Municipality that development should be oriented towards people, and the overall planning should be centered around implementing the strategy of West China development. It is highlighted that the “four tasks” assigned by the Central Government are the primary jobs, and the theme of speeding up development must take restructuring as the main orientation so as to essentially enrich the people and prosper the city. It is also emphasized that the process of marketization, industrialization, urbanization, informatization and internationalization in Chongqing must be furthered through technological and institutional innovation, and the construction of Upper Yangtze River Economic Centre, which is able to provide strategic support due to its window and radiation effects, must be accelerated to raise the overall competitiveness. The economic and social development of Chongqing will then enter into a healthy development track. The ultimate goal of economic and social development is to comprehensively improve the quality of people’s living by institutional and technological innovation, and realize sustainable economic and social development.

2.2.2. Setting goals for urban-rural development

The current situation of the development of many cities demonstrates that excessive pursuit of economic growth will cause the isolation between urban and marginalized populations and the aggregation of the marginalized, and thus result in a series of social problems and development cost issues. The key to these problems is the concept of “people-oriented” development for the sake of “space justice” in the process of urban planning and reconstruction. Chongqing takes five measures of “coordination” to manage urban-rural development in the whole municipality: coordinated management of urban and rural employment, coordinated management of migrant farmers’ transformation into urban residents, coordinated management of urban-rural basic public services, coordinated management of national income distribution, and coordinated management of urban-rural development planning. These measures and institutional innovations embody the concept of space justice, as well as the concept of scientific development that aims at comprehensive, balanced and coordinated, and sustainable development.
2.2.3. Constructing ecologically harmonious living environment

Since the 19th century, the urban growth and expansion wreaked havoc on the urban ecology, which gave birth to the conception of planning and constructing “ecological cities”, and further derived many other conceptions such as “sustainable city development”, “green city”, “healthy city”, “garden city” and “scenic city”, etc. From the perspective of “focusing on the people”, Chongqing creatively put forward the “Five-Chongqing” development strategy, the main objectives being to improve the living environment of urban and rural residents, to address the contradictions and conflicts among the people, the economy and the ecological environment, to strive for the maximum improvement of people’s welfare, and to explore an integrated systematic solution among the population, the economy and the ecological environment.

2.3. Innovating the development model, adhering to the orientation of people’s livelihood

Since the reform and opening up, the existing regional and structural contradictions during China’s economic and social development highlighted many livelihood issues, such as employment, housing, schooling, medical care and provision for the aged, etc. Chongqing Municipality attaches great importance and makes great efforts to address these livelihood issues, creating a new livelihood oriented economic and social development path guided by the scientific concept of development.

2.3.1. Constructing the scientific development framework

The development framework of Chongqing can be generally summarized as the “1+5” framework, where “1” means the general guiding principle of insisting on “the concept of scientific development as the guideline, following the methods and principles of implementing reform, opening up, and innovation simultaneously, proceeding from Chongqing’s reality, and exploring a sound and fast development path centering on the improvement of people’s livelihood. “5” refers to the practical innovative exploration in the five important areas and links, including economy, politics, government system, overall urban and rural planning, and governing foundation, reflecting the concept of comprehensive, coordinated and sustainable scientific development.

2.3.2. Adhering to the governing principle of improving people’s livelihood

Chongqing Municipality establishes the improvement of people’s livelihood as its new governing principle, and spares no effort to build a "livelihood oriented government". Governments at all levels consider livelihood development an important condition to promote positive interaction in the economic development. The planning, construction, and steady implementation of the “Five-Chongqing” programme are the very important measures firmly focusing on the improvement of people’s livelihood. Investment in projects targeting at improving people’s livelihood has been increasing year by year (Figure 2.1). In the year 2010, the third Chongqing Municipal Committee of the CPC, at its seventh session attended by all committee members, specially focused on people’s livelihood issues and planned the “ten important livelihood projects”, with a total investment up to RMB 300 billion yuan, benefiting more than 20 million people.
2.3.3. Building the financial basis for the livelihood program

In recent years, Chongqing Municipality emphasizes on the value appreciation of the state-owned assets to provide new financial basis for the government’s livelihood program. Grand livelihood programs need financial resources for support. One of Chongqing’s important experiences is to manage well the operation and appreciation of the state assets, making it the “third revenue” in addition to taxes and funds. According to statistics, apart from the central state-owned assets and the county state-owned assets, the total state-owned assets directly under the control of the municipal government have increased from 170 billion in 2003 to one trillion in 2009, six times up during six years.

2.3.4. Promoting livelihood oriented comprehensive reform

Chongqing’s basic idea of reform is to start from safeguarding and improving people’s livelihood needs, narrowing the gap between urban and rural people's livelihood. Centering on these areas such as employment, housing, schooling, medical care, provision for the aged, and cultural life, etc., it aims to achieve major breakthroughs, make comprehensive promotion, and establish mechanisms to boost the public services government construction and the reform and perfection of the administration mechanism. It has further conducted corresponding comprehensive reforms. On September 14, 2010, the General Office of Chongqing Municipal Government and the Municipal Committee of the CPC issued Opinions on Establishing a Long-term Mechanism to Help the Needy Urban and Rural Residents on Holidays, which stipulates that on the six important holidays (i.e. the New Year, Spring Festival, the May Day holiday, Dragon Boat Festival, Mid-Autumn Festival and the National Day), the municipal level should raise a special fund of RMB 200 million yuan to help the needy. The 83rd executive meeting put forward eight measures to stabilize prices, following which the municipal government again allotted RMB 750 million yuan to subsidize 2.214 million low-income people, financially difficult workers and 2.41 million school students. On August 15, 2010, Chongqing Municipality launched the reform of household registration system in full swing, enabling millions of farmers to move into the city with dignity. It is also the first city in China to include migrant workers who have transferred their household registration in the improved housing support system with public rental housing, economical housing, low-rent housing, apartments for migrant workers, etc.
3. Analysis of Chongqing’s development characteristics and its external environment

3.1. Preliminary exploration and estimation of Chongqing’s development stage

3.1.1. Economic development in the middle stage of industrialization

A Chenery model-based empirical analysis using per capita GDP, industrialization rate, urbanization rate index can establish that Chongqing’s current economic development level is still in the middle stage of industrialization.

![Figure. 3.1 Per capita GDP, industrialization rate, and urbanization rate of Chongqing from 1997 to 2009](image)

Source: calculated and organized according to Chongqing Statistical Yearbook (1997-2010)

3.1.2. Social development in the demographic dividend period

The age structure of Chongqing population indicates that since 1997, the population aged 15 to 64 accounts for about 70%, that labor resources will maintain at a relatively abundant stage, and that the demographic dividend period will continue to last.

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The so-called “demographic dividend period” refers to the period when, after the baby boom and the stage of the high child dependency ratio, there’s a high labor force ratio. At this stage, young working population is very large, and the burden for the society to support children and the elderly is not so heavy. Therefore, it can bring “demographic dividend” to the economic growth.
The population movement situation reveals that Chongqing is a province whose population only flows outward, and therefore the registered household population is larger than the resident population (Figure 3.3), while the net outflow population features young adults who make up the labor force, which shows that other provinces and cities share Chongqing’s population dividend. Starting from the year 2005, the city’s resident population witnessed for the first time a slight recovery, and continued to increase after 2006, reflecting the fact that rapid economic development in Chongqing attracted young workers return to their hometown, which formed a labor base for Chongqing’s rapid development.

### Figure 3.3 Registered population and resident population of Chongqing Municipality

Source: Chongqing Statistical Yearbook (1997-2010)

3.1.3. Urban infrastructure construction entering a steady growth period

The developmental tendency of the urban infrastructure construction indicators such as the daily per capita domestic water consumption, water consumption rate, gas supply rate, per capita road area, the centralized sewage disposal rate of sewage treatment plants, the per capita public green area, the greening rate and the green coverage rate in built-up areas (Figure 3.4)
shows that the growth before 2007 was faster than that after 2007, and that the current urban infrastructure has entered a steady growth period.

Figure 3.4 Urban infrastructure construction indicators in Chongqing from 2001 to 2009
Source: Chongqing Statistical Yearbook (2002-2010)

<table>
<thead>
<tr>
<th>Year</th>
<th>Chongqing</th>
<th>National average</th>
<th>Difference between Chongqing and the national average</th>
<th>Ratio between Chongqing and the national average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>77.4</td>
<td>441.5</td>
<td>364.1</td>
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</tr>
<tr>
<td>2008</td>
<td>82.8</td>
<td>446.2</td>
<td>363.4</td>
<td>1:5.4</td>
</tr>
<tr>
<td>2009</td>
<td>85.3</td>
<td>448.0</td>
<td>362.7</td>
<td>1:5.3</td>
</tr>
</tbody>
</table>

Table 3.1 Comparison of per capita domestic water consumption between Chongqing and the national average (cubic meter/person)

3.1.4. Open inland height construction entering the acceleration phase

Following Shanghai Pudong and Tianjin Binhai, "Liangjiang New Area" became China’s third sub-provincial new area, whose functional orientation not only includes the overall urban and rural development and pilot programs closely related to it, but also contains the functional status as both “open inland height” and “Yangtze River Upper Reaches open height”. With the launch of the construction of the Liangjiang New Area core functional zone, Chongqing Municipality will enter the comprehensive opening acceleration phase implementing the strategy of open inland height.
3.1.5. Overall urban-rural comprehensive matched reform entering the deepening phase

Chongqing’s per capita income ratio of the urban and rural residents (Figure 3.5) is higher than that of Sichuan and the national average level. The overall urban and rural development still has a long way to go, and the overall urban-rural comprehensive matched reform still needs to deepen.

![Figure 3.5 Chongqing, Sichuan, and China's per capita disposable income ratio of urban and rural residents in 1999](source: Calculated and organized according to the Statistical Yearbook of Chongqing Municipality, Sichuan Province, and China (2000-2010))

3.2. Chongqing’s external environment for future development

3.2.1. Seen from the global environment, the world has entered a period of economic recovery and major adjustments

3.2.1.1 The global economic and political patterns have undergone major adjustments and changes, and therefore, Chongqing faces the opportunity of accelerating the all-directional opening-up.

The globalization once dominated by developed countries is now shifting to collaborated domination by developed countries and emerging economies, which further strengthens the developing countries and the emerging economies. With the eastward moving trend of global economic growth centers more evident and the regional economic integrating process in East Asia further accelerating, the China-ASEAN Free Trade Area is expected to surpass the NAFTA and the EU, becoming the world’s largest regional economic group. Under this background, Chongqing must accelerate the all-directional opening-up, and enhance the ability to distribute global resources.

3.2.1.2 Cities all around the world have entered the networking system constructing phase, and Chongqing is facing the opportunity of rapidly raising its international status.

Seen from the development pattern of the cities around the world, the competition among
countries gives way to that among cities, the links of airports further strengthen, and the land networks such as the high-speed railway network, the intercontinental railway network, the highway network, etc. begin to connect with each other, making the world a huge network space. World cities in the modern sense function as the hub of the global economic system, or as organizing nodes of the world city network system. Confronted with the strategic opportunities of rapidly raising its status in the global urban network system, Chongqing may jump from a national economic center to an Asian economic center.

3.2.1.3 A new round of technological innovation is upcoming with breakthroughs on the horizon, and Chongqing faces the opportunity of speeding up the construction of the urban innovation system.

The previous supply oriented innovation will shift to demand oriented innovation. “Smart Earth” which penetrates to all sectors based on information technology and “Smart Grid” which is the combination of information technology and energy systems will become the new power source driving the global economic growth. Represented by the United States, the developed countries in Europe and America have implemented the “re-industrialization” strategy one after another, making great efforts to develop new energy industries in order to shake off the over-reliance on consumption and debt and to look for a new balance of the global economy. Consequently, the global division of labor is facing a large-scale differentiation and integration, and the economic pattern of developing countries manufacturing and developed countries consuming is bound to change. Therefore, Chongqing’s long-time growth strategy of relying on low cost and occupying the bottom of the value chain is facing serious challenges. We need to accelerate the construction of urban innovation system, speed up the construction of the modern industrial system which centers on high-tech industries and the modern service industry, thus gradually promoting Chongqing’s position in the labor division of the global value chain.

3.2.1.4 The world has entered the transitional period of low carbon development, and Chongqing faces the opportunity of speeding up the city’s low carbon development.

With the growing global concern, climate issues have developed into the focus of the international political game and economic competition. Energy conservation and low-carbon energy are becoming the new international trade barrier, and developing countries with high energy consumption are likely to be under great pressure from the “carbon tariff” levied by developed countries. As the world’s most populous developing country and one of the biggest carbon emitters, China faces increasing pressure to reduce carbon emissions. Chongqing has a relatively high carbon emission intensity (Figure 3.6), much higher than the national average and other municipalities. If the momentum of the rapid growth of energy consumption and carbon emission cannot be effectively curbed, it will exert great negative influence on the city’s international image and international cooperation and exchange. Meanwhile, promoting energy saving and carbon emission reduction in turn provides market space and development opportunities for Chongqing to develop energy-saving and low carbon technologies, equipment manufacturing and related service industry, helps to optimize the ecological environment of Chongqing city, and enhances the city’s green competitiveness. Chongqing must intensify the efforts to conserve energy and reduce carbon emission, vigorously advance low-carbon industries, and advocate low-carbon life to accelerate the transformation of the urban industrial structure from high cost, high energy consumption, and high pollution to low cost, low energy consumption and low pollution.
3.2.1.5 Multinational companies are speeding up the integration of global resources and supply chains, so Chongqing faces the opportunity of a new round of international industrial transfer.

After the financial crisis, the continued extension and increasing complexity of the supply chain lead to the increasingly prominent problems such as the high cost of international business management, great difficulty in risk management, etc. Considering this situation as well as concerns for the fact that climate changes will increase the cost of logistics transport, many multinational companies are adjusting their international strategy, accelerating the integration of global resources and supply chains. Getting close to the target market, simplifying management procedures, and concentrating regional industries are becoming the new trend of many multinational companies’ strategy, and the global trend of cross-border transfer of high-end manufacturing activities, and the R & D and service outsourcing will be further strengthened. After the crisis, more emphasis has been put on China’s overall competitive advantages by multinational companies, who not only continue to regard China as their manufacturing base for the global market, but also plan to shift more high value-added industrial activities such as research and development, regional headquarters, advanced service industries, and high-end manufacturing to China to quicken the integration of investment and management in China. As the western gateway open to the outside world and the bridge connecting domestic and foreign markets, Chongqing is faced with the new opportunities of importing international industrial activities.
3.2.2. Seen from the domestic environment, the economic and social development in China is faced with new situation and new tasks

3.2.2.1 Chongqing is urgently required to take the lead in changing the patterns of economic development due to the strong demand for changes in the patterns of economic development.

Being highly dependent on resource consumption, the pattern of the international market growth is difficult to continue. Furthermore, the requirements of the masses for living standards and quality are ever increasing, and the development costs of the conventional patterns are becoming higher and higher, which makes it an inherent requirement of China's sustainable development to speed up changes in the patterns of economic development. It is necessary to speed up changes from material resource consumption to scientific and technological progress, from being investment-driven to being consumption-driven, and from relying on external demand to relying on domestic demand in order to realize coordinated development of economy, politics, culture, society and ecological civilization. Chongqing has to innovate the path to development, effectively improve the quality, benefits and potential of economic development, achieve substantive new breakthroughs and new progress in changes in development patterns, and play an exemplary and leading role in the Central and western regions and even in the country.

3.2.2.2 Chinese economy has entered a new round of growth, which provides favorable conditions for Chongqing to accelerate the transformation of economic development patterns.

In recent years, China's economy has showed significant upward trend of recovery, the stimulating effect of domestic demand on economic growth is growing, total planned investment of new projects is growing rapidly, and the financial and securities markets are active, which shows that China's economic growth has entered a new round of rising cycle. In the new round of economic growth cycle, industrialization and urbanization will still become the main driving force in China's economic growth. Based on the growing attractiveness of Chinese domestic market, and the unchanging trend of inflows of international economic factors such as talent, capital, technology and projects to china, it is probable for Chongqing to make long-term adjustments to some structural contradictions and achieve transformation of economic development patterns.

3.2.2.3 The focus of industrialization and urbanization is shifting to the Central and western regions, which increasing expands the space for development in the western region with Chongqing as the representative.

As the regional revitalization plans are progressing in succession, the focus of industrialization and urbanization is further shifted to the central and western regions, the development of economic regions will gradually change from the original "zone" development to "block" development, the development features of "high in the west and low in the east, and high in the north and low in the south" will become more obvious, and a large number of metropolitan areas with central cities as the cores are taking shape. Chongqing now has taken the lead in the rise of the western region, and should seize the opportunity that the focus of the domestic industrialization and urbanization is shifting to the central and western regions to accelerate the formation of the growth pole in the western region and comprehensively enhance its competitive advantage.

3.2.2.4 Faced with a major adjustment of social structure, Chongqing is entrusted with the tasks to strengthen the construction of the people’s livelihood and firstly become a city with balanced urban and rural development.

In the "Twelfth Five-Year Plan" period, with the deepening of industrialization and urbanization progress, the conflict of social structure and economic structure is gradually
becoming obvious, and a large structural deviation has formed between the social structure at the early stage of industrialization and that at the middle stage of industrialization, and the social structure will face a major adjustment. In order for people to share results of the reform, China's reform will enter, from the stage of economic reform, the stage of comprehensive reform related to a series of content, including employment, income distribution, social security, urban and rural social management, institutions' operations and communities' organization, and the social reform will enter a crucial new stage. Chongqing is the pilot area for comprehensive urban and rural reform in China, and should play an exemplary role in the construction of people's livelihood, especially in cracking the "urban-rural dual-structure".

3.2.2.5 With the acceleration of regional economic integration process, the status of Chongqing will be further enhanced in the western region.

After the two climaxes of regional integration at the early stage of the reform and opening up in the 80s of last century and in the 90s of last century, the third climax of regional integration is coming. Regional cooperation will take on the trend of large regionalization, the hub function of a central city will be further strengthened, and fostering and growing the service function of a central city is not only for the needs of a central city's own development, but for the needs of achieving regional common development and common prosperity. Chongqing must change its modes of opening up and cooperation, speed up the development of flow economy such as the flows of people, goods, capital and information, enhance the elements and resource allocation capabilities in the western Delta and in the western region, and strengthen the status of Chongqing as the leading city in the western region.

Based on the above analysis, Chongqing, in its future development, will not only face the opportunities for increasing its international competitiveness and enhancing its global urban network level, but also deal with the challenges of changing international and domestic environments, and increasing risks and conflicts.

3.3. Chongqing's potential advantages and principal contradictions

3.3.1. Chongqing's five advantages in future development

3.3.1.1 Late-developing advantages. Since the implementation of the reform and opening up policies, the coastal areas have selected the development path for embedding in the international industrial chain from the low end, which is an export processing mode embodied with low cost, high consumption, high pollution, and "two-end out". Though such a development mode has provided development opportunities for these areas, it has also resulted in some problems such as irrational industrial structure, imperfect layout of urban functions, deviation in the path to industrialization, serious environmental pollution, neglect of soft power, and low innovation capacity. Chongqing, as a late-developing inland city, should sum up the advantages and disadvantages in the development of the coastal areas, make full use of its own strengths, get rid of the extensive development mode, and explore a development mode suitable for inland cities at high level to effectively avoid the problems encountered by the coastal areas in their development and achieve pursuant, leapfrog, and comprehensive urban and rural development.

3.3.1.2 Advantage of policies. Within a rather long period of time in the future, Chongqing will maintain its six advantages of policies at state level, namely the policy of coordinated development of urban and rural areas; the policy to promote development of New Liangjiang District and accept international and domestic industrial transfer, the policy for development of Western China, the policy to support innovation and adjustment of industrial structure, the policy for construction and development of the Three Gorges Reservoir Area and the policy for development and planning of Chengdu-Chongqing Economic Zone.

3.3.1.3 Geographic advantage. As the fourth municipality of China, Chongqing is located at the
juncture of economically developed eastern area and western area with rich resources. It is the westernmost city along the Yangtze River Economic Belt for T-shaped development strategy of China, and a central economic city in the upper reach of the Yangtze River. It is a bridge to connect Western China and Eastern China and it plays the role to radiate toward the upper reach of the Yangtze River and southwestern China, able to drive their development. With recovery of the world economy and rise of economic position of China, Chongqing gains the opportunity to turn from a central city of the country into a central city in Asian area. In the appraisal of the best investment cities of Asia by the Times of the United States in 2010, Chongqing surpassed Tokyo of Japan and ranked No.7 in Asia. In the future cities of Asia appraised by the Financial Times of Great Britain, Chongqing ranked No.7 in terms of the best FDI promotion strategic city.

![Figure 3.8: Analysis of Geographic Advantage of Chongqing](image)

3.3.1.4 Advantage of systems and mechanisms. Construction of soft environment such as transfer of governmental functions, improvement of working style and leadership has been the important guarantee for development of Chongqing, and a set of governance system attaching importance to construction of talents and carder team, reform, innovation and livelihood has been formed. In terms of urban management system and operation mechanism, efforts have been making in reforms to drive land circulation, of collective forestation ownership system, medical system, investment and financing system for construction of infrastructure facilities, urban management system and carder performance appraisal system, and sound and uniform urban and rural construction land market and land circulation and intensive utilization mechanism, public emergency management mechanism and government investment mechanism that promotes equal basic public services for urban and rural areas have been set up and improved. In terms of its external image, Chongqing has set up a new, open and civilized image to the outside by its endeavors from comprehensive rectification measures of Ten Lots, overall implementation of open administration and service commitment system to a series of preferential policies encouraging foreign investment.

3.3.1.5 Advantage of labor resource. Chongqing, as an urbanized area of a big city and a vast countryside, is abundant in rural labor population and it has still the advantage of demographic bonus. As far as it is concerned now, advantage of demographic bonus of Chongqing has not been taken good use of. Large quantities of labor force flow out of the city and the trans-provincial flow of this labor force is increasing year by year and the surplus local labor force is decreasing year by year (Table 3.2). Active and effective measures such as change of policy for registered permanent residence and optimization of the employment environment to retain the returned rural
migrant workers, and transfer advantage of demographic bonus into favorable conditions to promote local development, shall be taken.

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<td>324</td>
<td>288</td>
<td>316</td>
<td>348</td>
<td>378</td>
<td>406</td>
<td>431</td>
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<tr>
<td>Total outflow</td>
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<td>443</td>
<td>481</td>
<td>516</td>
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<td>116</td>
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<td>98</td>
<td>74</td>
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</tr>
</tbody>
</table>

Table 3.2 Surplus Labor Force and Trans-provincial Floating Labor Force of Chongqing: 1997~20072 (Unit: 10,000 persons)

3.3.2. Major problems for Future Development of Chongqing

3.3.2.1 The regional gap caused by polarization effect is still great. To see from per-capita GDP in 2009, it was RMB29,541 for 1-hour economic circle, RMB12,942 for northeastern wing of Chongqing and RMB12,649 for southeastern wing of Chongqing, and that of the two wings is not more than one half of that of one-hour economic circle (Figure. 3.9 and Figure. 3.10).

![Figure 3.10: Per capita GDP of One Circle and Two Wings of Chongqing in 2009](source)

Urbanization rate of the whole city was 51.59%, that of the one-hour economic circle was 64.27%, that of northeastern wing was 34.34% and that of southeastern wing was 26.12% in 2009.

In terms of economic aggregate, investment and population, the unbalance between the circle and the two wings was significant (Figure 3.11).

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2 Note: The difference between permanent outflow and total outflow is mainly in that short-term outflow within 1-2 months is added in the total trans-provincial outflow. Source of data: Page 317-319, Blueprint of Chongqing, Development Report of Chongqing, China in 2009.
Figure 3.9 Per capita GDP of All Districts and Counties of Chongqing in 2009 (calculated as per permanent population, unit: RMB)
Source: Statistical Yearbook 2010 of Chongqing

Figure 3.11 Economic Aggregate, Investment and Population Ratio of One Circle and Two Wings of Chongqing in 2009
Source: Calculated and arranged as per relevant data in Statistic Yearbook 2010 of Chongqing
3.3.2.2 The financing gap is increasing year by year. Financial income and financial expenditure of Chongqing have been increasing year by year, but to see from their growth, in recent years, financial expenditure is faster than the growth of financial income and the gap is accelerating on yearly basis (Figure 3.12).

![Figure 3.12 Financial Expenditure and Income of Chongqing from 1994-2009](image1)

**Figure 3.12 Financial Expenditure and Income of Chongqing from 1994-2009**  
Source: Calculated and arranged as per relevant data in Statistic Yearbooks 1995-2010 of Chongqing

3.3.2.3 The pressure for resource consumption is increasing. Since the founding of Chongqing Municipality, rapid social and economic development has increased the pressure for resources and the environment of Chongqing. Its growth rate for energy consumption has been faster than the average level of the country (Figure 3.13), its total energy consumption has been in a high level (Table 3.3), and its per capita average arable land and water resources have been in a decreasing trend (Table 3.4), lower than average level of the country (Table 3.5).

![Figure 3.13: Social and Economic Growth and Energy Consumption of Chongqing](image2)

**Figure 3.13: Social and Economic Growth and Energy Consumption of Chongqing**  
Source: Calculated and arranged as per relevant data in Statistic Yearbooks 1999-2010 of Chongqing and China
<table>
<thead>
<tr>
<th>Year</th>
<th>Total Area of Arable Land (10,000 hectares)</th>
<th>Per Capita Area of Arable Land (hectare/person)</th>
<th>Total of Water Resource (100 million cubic meters)</th>
<th>Per Capita Water Resource (cubic meter/person)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>251.92</td>
<td>0.089</td>
<td>332.5</td>
<td>1175.3</td>
</tr>
<tr>
<td>2002</td>
<td>246.58</td>
<td>0.0876</td>
<td>545.85</td>
<td>1939.8</td>
</tr>
<tr>
<td>2003</td>
<td>234.76</td>
<td>0.0837</td>
<td>590.74</td>
<td>2107.5</td>
</tr>
<tr>
<td>2004</td>
<td>228.74</td>
<td>0.0819</td>
<td>558.77</td>
<td>2000.6</td>
</tr>
<tr>
<td>2005</td>
<td>226.27</td>
<td>0.0809</td>
<td>509.78</td>
<td>1821.9</td>
</tr>
<tr>
<td>2006</td>
<td>224.2</td>
<td>0.0798</td>
<td>380.32</td>
<td>1354.4</td>
</tr>
<tr>
<td>2007</td>
<td>223.91</td>
<td>0.0795</td>
<td>662.96</td>
<td>2357.6</td>
</tr>
<tr>
<td>2008</td>
<td>223.59</td>
<td>0.0788</td>
<td>576.93</td>
<td>2040.3</td>
</tr>
<tr>
<td>2009</td>
<td>223.76</td>
<td>0.0783</td>
<td>455.91</td>
<td>1600.3</td>
</tr>
</tbody>
</table>

**Table 3.4 Ownership of Arable Land and Water Resources of Chongqing**

Source: Calculated and arranged as per Statistic Yearbooks 2000-2010 of Chongqing

<table>
<thead>
<tr>
<th>Year</th>
<th>Per Capita Area of Arable Land (hectare/person)</th>
<th>Per Capita Living Water (cubic meter/person)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chongqing</td>
<td>Average of the country</td>
</tr>
<tr>
<td>2007</td>
<td>0.0795</td>
<td>0.0984</td>
</tr>
<tr>
<td>2008</td>
<td>0.0788</td>
<td>0.0917</td>
</tr>
<tr>
<td>2009</td>
<td>0.0783</td>
<td>0.0912</td>
</tr>
</tbody>
</table>

**Table 3.5 Comparison of Per Capita Area of Arable Land and Living Water Against the Average of the Country**

Source: Statistic Yearbooks 2000-2010 of Chongqing and China
3.3.2.4 The change of the biological environment is great. In accordance with the research results of Research Team of Chongqing Science and Technology Commission, changes of the biological environment of Chongqing and the Three Gorges Reservoir Area are mainly manifested in: water reserving operation of the Three Gorges Reservoir causes substantial change of the environment in the reservoir, the fragile natural habitat is seriously interfered by human factors, migration of population causes diversified biological problems, the contradiction between development in the reservoir and bearing capacity of resources and the environment is acute, old, new and combined pollutions are overlaid and integrated, the influence of change of environment in the reservoir area on health of population is more serious, a brand new biological environment has been resulted from hydro-fluctuation belt at the tail of the reservoir and accumulated sand and mud in the river course, changes of the natural environment and the engineering environment accelerate urban and rural environment disasters in the reservoir area, and the potential impact of rapid urbanization on the biological environment in the reservoir area is great. Due to rapid development of economy, the above changes will cause combination of general pollutants in the environment with hazardous and harmful pollutions, and coexistence of point source, and scattered multi-point source with runoff pollution and rural area source pollution, overlaying of living pollution and industrial discharge and combination of old, new pollution and secondary pollution make the fragile natural ecology in the reservoir area be more complicated after powerful artificial interference.

3.3.2.5 Talent resource is in shortage. In first decade after Chongqing became a municipality, nine-year compulsory education has been implemented in Chongqing actively and significant results have been achieved in developing education and improving cultural quality of the population and talent foundation has been laid to some extent. In 2006, average education duration of the population over 6 years old in Chongqing was 7.7 year, 1.1 years increased than 6.6 years in 1997 (Table 3.6). However, compared with average level of the country, there is still a gap to the average level of the country, in particular, the gap of college graduates or above maintains at about 2%.

<table>
<thead>
<tr>
<th>Year</th>
<th>1997</th>
<th>2006</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chongqing</td>
<td>The whole country</td>
<td>Chongqing</td>
</tr>
<tr>
<td>Primary school</td>
<td>54.7</td>
<td>40.66</td>
<td>42.19</td>
</tr>
<tr>
<td>Junior middle school</td>
<td>24.2</td>
<td>32.06</td>
<td>33.45</td>
</tr>
<tr>
<td>Senior middle school</td>
<td>3.2</td>
<td>10.38</td>
<td>10.93</td>
</tr>
<tr>
<td>College or above</td>
<td>0.1</td>
<td>2.74</td>
<td>4.49</td>
</tr>
</tbody>
</table>

Table 3.6 The Proportion of Educational Population in the Population of six Years Old and above in Major Years in Chongqing (%)
Source: Calculated and arranged as per Statistic Yearbooks 1998, 2007 and 2010 of Chongqing

Apart from these, structural contradiction of talents in Chongqing is outstanding. For instance, lack of talents in tertiary industry influences development of citizen service sector, and is hard to support development of modern tertiary industry.

3.3.2.6 Innovation capability of the city is insufficient. Since Chongqing was upgraded to be municipality, CPC committee and government of Chongqing have been making great efforts in pushing forward the strategy to rejuvenate the city with science, technology and education and

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3 Data comes from research on protection of biological environment of Chongqing and scientific and technological development issues for the Three Gorges Reservoir Area led by Science and Technology Commission of Chongqing.
enhance the city with talents. A series of major measures have been implemented to push forward scientific and technological progress, a group of major scientific and technological results of high level have been produced, a group of advantageous enterprises with high innovation capability have been cultivated, the construction of scientific and technological talent teams have been enhanced and comprehensive level for scientific and technological progress has been improved rapidly. However, compared with advanced areas, its overall level for scientific and technological development is still lagged behind, which is mainly manifested in the following aspects: Input of R&D fund is insufficient (Figure 3.14 and 3.15), self reliant innovation capability is not strong, core competitiveness of industry is weak, agricultural and rural economic scientific and technological level is low, conversion rate of scientific and technological results is not high, high-level innovation talents are in great shortage, in particular, the atmosphere of study and innovation is not thick, which influence its continuous scientific and technological innovation capability.

Figure 3.14 Comparison of Proportion of R &D Expenditure in GDP of Chongqing against that of the Whole Country
Source: Calculated and arranged as per Statistic Yearbooks of Chongqing and China

Figure 3.15 The Proportion of R&D Fund of Research and Development Institutes of the Whole Country and Municipalities in GDP
Source: Calculated and arranged as per data of DRCNET
4. The Relation between the Five-Chongqing Program and the Prospective Development Strategy of Chongqing

4.1. Connotation of Five-Chongqing Program and the Implementation Effects

4.1.1. A livable Chongqing: Simultaneous improvement of living quality, public space and service facilities

From April of 2009 on, the construction of a Livable Chongqing has been started in Chongqing, and the framework consisting of theoretical and engineering levels has been established. The theoretical framework is a 3332 construction system, namely three aspects of living conditions, public space and service facilities, three levels of main urban areas, county towns of other districts, townships and villages, three projects for cities and rural areas, and two categories of indexes of the city and rural area. The engineering framework is guided by the theoretical framework, and it consists of the projects to improve living quality, optimizing public space and improving service facilities and phased progress has been made (Table 4.1).

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Aspect Index</th>
<th>1997</th>
<th>2008</th>
<th>2009</th>
<th>2012</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living quality</td>
<td>Average living area for urban citizen of the city (sqm/person)</td>
<td>8.65</td>
<td>27.34</td>
<td>27.41</td>
<td>26</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Ratio of house price against income for double-worker family of the main urban areas</td>
<td>—</td>
<td>—</td>
<td>11.91</td>
<td>5</td>
<td>6.5</td>
</tr>
<tr>
<td>Public space</td>
<td>Gross urban volumetric rate of main urban areas (%)</td>
<td>—</td>
<td>—</td>
<td>0.96</td>
<td>0.85</td>
<td>&lt;0.95</td>
</tr>
<tr>
<td></td>
<td>Square area per person (sqm)</td>
<td>—</td>
<td>—</td>
<td>0.07</td>
<td>0.6</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>Greenland rate for completed areas of the city (%)</td>
<td>18.91</td>
<td>30.93</td>
<td>33.44</td>
<td>—</td>
<td>37</td>
</tr>
<tr>
<td>Living service facility</td>
<td>Concentrated sewage treatment rate of the city (%)</td>
<td>—</td>
<td>76.66</td>
<td>83.94</td>
<td>100</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>Harmless treatment rate of living garbage (%)</td>
<td>—</td>
<td>—</td>
<td>88</td>
<td>100</td>
<td>&gt;93</td>
</tr>
<tr>
<td></td>
<td>Number of days of air quality meeting class II standard (day)</td>
<td>—</td>
<td>296</td>
<td>303</td>
<td>365</td>
<td>305</td>
</tr>
<tr>
<td></td>
<td>Average commercial facility area per person (sqm/person)</td>
<td>—</td>
<td>—</td>
<td>0.01</td>
<td>1.2</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Number of toilets per 10 thousand persons (toilet/10000persons)</td>
<td>0.99</td>
<td>—</td>
<td>2.40</td>
<td>4</td>
<td>—</td>
</tr>
</tbody>
</table>

Table 4.1 Landmark Indexes and Targeted Value for a Livable Chongqing

Source: Calculated as per relevant data in the Statistic Yearbook 2010 of Chongqing
4.1.2. A traffic-smooth Chongqing: Simultaneous improvement of air, land and water transportation facilities and construction of main lines and traffic network

In terms of the construction of a Traffic-smooth Chongqing, an expressway network, a high-speed railway network, a rapid light-rail network, an inland river transportation network, an air hub and an airline network are planned and constructed in accordance with the development goal to “access to main urban area within half an hour, to Chongqing within four hours, to neighboring areas within six hours and go to the sea within eight hours”. In September of 2010, the 2000-kilometer two-ring and eight-direction main expressway network was completed all-roundly. By then, density of expressway of Chongqing per 100 square kilometers reached 2.46 kilometers, ranking No.1 place in Western China and number of inter-provincial exits reached 10. The construction of a Traffic-smooth Chongqing opened the internal and external channels of Chongqing basically, and it is of great significance to realization of positioning and layout of a series of national strategies including 314 Overall Planning by HU Jintao, Secretary-General of the CPC Central Committee, No.3 Document of State Development Planning Commission (2009) and New Liangjiang Area, and it will have far-reaching influence to the construction of the comprehensive traffic hub and promoting social and economic development in the upper reach area of the Yangtze River.

4.1.3. A forest Chongqing: the city, districts and countries push forward the five great projects together

Centering round the principle of “a forest Chongqing and a clear Three Gorges”, the slogan of a “Forest Chongqing” has been put forward by Chongqing. The total scale for construction of forests is 22million mu (unit of area), of which newly increased forest area is 13.03 million mu and renovated area of low efficiency stands is 8.77 million mu, and urban green land to be built is 180,000mu. By 2017, its forest coverage rate will be 45%, forest coverage rate of the completed urban area will be 38%, green land rate will be 36%, forest coverage rate of roads will improved to 80%, forest coverage rate of water system will reach 80% and soil erosion area controlled and prevented each year will be 2,500 square kilometers. A state-level forest city will be built in the urban area (nine districts in the main urban area), and a municipal-level forest city will be built in the 31 districts (counties or autonomous counties). 95 ecological forest towns and 3000 green villages will be built, and per capita annual income of farmers in forestry will be over RMB 1,000. The whole city will be forested in hills, gardening in communities, wood network built in farmlands, greened along roads and flowers and fruits planted in courtyards.

4.1.4. A safe Chongqing: Importance will be attached to systems and mechanisms and the joint prevention and control system will be improved gradually

The main goal to build a Safe Chongqing is to build Chongqing into a municipality with high security where people live and work in peace and contentment and investors are safe, leading in Western China and reaching first class throughout the country. In 2009, the construction of a Safe Chongqing was started in Chongqing to ensure security by accepting visits and complaints from people, and to improve the dispute resolution mechanism. On the basis of citizen visiting work in the second half of 2008, carder visiting work was conducted and a lot of outstanding contradictions and problems that influenced stability had been solved, which accorded with wills of people, dissolved their complaints, improved their livelihood and maintained stability. The emphasis was laid on social security, production, food and drugs, houses and traffic conditions. In 2009, sense of security of people was improved significantly to 94.3%, creating the top level of record for this survey. 55 law popularization activities were carried out in Chongqing. Many projects were implemented, various law propaganda activities and law education and trainings were carried out to push forward legal construction and a good legal environment was created.
4.1.5. A healthy Chongqing: attach equal importance to fitness and healthcare and push forward the basic Medicare, strengthen grass-root medical institutions and build mechanisms together

A healthy Chongqing involves four systems in the policy for the new medical care reform, namely public health system, medical service system, medical guarantee system, guarantee system for medicine supply, establishing and improving basic medical and health system to ensure people enjoy significantly improved and guaranteed medical and health services, health quality of citizens exceed average level of the country and health guarantee level of citizens leads in Western China. More sports resources will be assigned to rural areas and communities. The emphasis will be on pushing forward eight projects, namely sports and fitness of rural people and communities, mountain climbing footpath for public fitness, sports and fitness squares of towns and townships, public fitness service systems, youth sunshine sports, cultivation of reserve talents for competitive sports and reform of system of competitive sports.

4.2. Five-Chongqing Program is the strategic measure to practice scientific outlook on development by Chongqing

On July 20, 2008, the development goal for the Five-Chongqing Program was put forward at the third meeting of the third session by municipal committee of Chongqing for the first time and it became a strategic decision of Chongqing. The construction goal of the Five-Chongqing Program is to achieve scientific development of Chongqing. To build a livable Chongqing where common people can afford good and large houses, to build a green Chongqing where more trees are planted and people breeze more fresh air, to build a traffic-smooth Chongqing where there’s no traffic jam in the main urban area, and there’s an asphalt road to each rural village, to build a Safe Chongqing where security of common people is guaranteed, to build a healthy Chongqing where children grow up healthily, old people live long and all the people live a healthy life physically and mentally.

4.2.1. The Five-Chongqing Program reflects overall considerations to urban and rural development.

Urban and rural social and economic development, construction of infrastructure facilities, resource allocation and biological environment protection and so on should be planned scientifically in accordance with new and integrated urban and rural economic and social development pattern so as to push forward rational configuration of productivity, change dual structure of urban and rural areas and strive to realize common prosperity. For instance, in terms of construction of a livable Chongqing, environmental construction of urban area is underway along with the construction of new Bayu residence in rural areas, in terms of construction of a Forest Chongqing and a Traffic-smooth Chongqing, trees are being planted and roads are being built in urban and rural areas, and in terms of the construction of a Safe Chongqing and a healthy Chongqing, more resources are assigned to rural areas.

4.2.2. Five-Chongqing Program reflects the principle to place people in the first place

The prime goal of the Five-Chongqing Program, as an important measure to push forward scientific development of Chongqing all-roundly by all people in Chongqing, is to place people in the first place and improve livelihood of the people. The construction of a Livable Chongqing is to highlight comprehensive environment construction in terms of social civilization, economic affluence, environment beauty, resource bearing capacity, living convenience and public security, and it will surely improve social, environment and space quality of Chongqing remarkably. The construction of a Traffic-smooth Chongqing, as the fore-runner for economic development and direct manifestation of the urban civilization, will further strengthen Chongqing’s position as a
traffic hub, alleviate traffic jams, breach of traffic regulations by motor vehicles and pedestrians, and make Chongqing be a city without traffic jam. The construction of a Forest Chongqing is the synonym of Chongqing to push forward its ecological construction and build it into a livable city, and it will surely turn Chongqing from a big furnace into a big oxygen bar. The Five-Chongqing Program is the scientific outlook on development in practice and localization of scientific outlook on development in Chongqing.

4.2.3. The Five-Chongqing Program reflects sustainable development

The Five-Chongqing Program grasps the top priority for development, and an overall planning has been made in economy, politics, culture and society with living condition, traffic conditions, biological environment, security and health level of citizens as the core to upgrade infrastructure environment, optimize social environment and improve biological environment for its development and promote its harmonious development both physically and mentally constantly. The construction of the Five-Chongqing Program reflects continuity of human development and development of the nature and the society, and need for development of Chongqing people are always united with its economic and social development and that of natural environment. The construction of the Five-Chongqing Program attaches great importance to resource conservation and environment protection, special efforts are made in planning and construction of the Three Gorges Reservoir Area, biological functional area in mountainous area in southeast of Chongqing, development of environmentally friendly and resource saving economy, construction of green and livable homestead so that economic development is harmonious with population, resources and the environment, economic benefit is harmonious with ecological benefit and social benefit, human residence environment is excellent, biological system is stable, biological culture is rich, biological security of the Yangtze River valley is guaranteed, the human kind can coexist with the nature harmoniously and sustainable development capability of Chongqing can be enhanced.

4.2.4. The Five-Chongqing Program reflects current situation of Chongqing

The 12th five-year plan of Chongqing points out that Chongqing should be built into a livable, traffic-smooth, forest, safe and healthy city with the practical measures of Chongqing’s characteristics formed in reforms and innovations by carrying out basic requirements of scientific outlook on development, combining its specific conditions. The prospective development goal of Chongqing is to transform from an important growth pole in Western China and a central city of China into an important pivot in Asia and Europe and a central city in Asian area. The Five-Chongqing Program is an important measure to push forward and realize the prospective development strategy. The construction of a livable Chongqing is of great influence to investment promotion. The construction of a Traffic-smooth Chongqing sets solving traffic jam of the main urban area as the key point, sets building of a backbone traffic network as the foundation, attaches equal importance to railway, land, air and water transportation, planning, construction and management, and strives to build Chongqing into one of the smoothest cities throughout China. The construction of a Forest Chongqing is not only an important measure to transform development mode and an important platform to build an environmentally friendly society, but also an important strategy to build a central city in Asia with a beautiful human environment and a stable ecological system. The construction of a Safe Chongqing aims at satisfying the more direct and the most fundamental requirements and provide solid social security guarantee for implementing 314 Overall Planning and pushing forward overall urban and rural reform and development. The construction of a healthy Chongqing starts from five aspects of physical health, dietary health, behavioral health, birth health and mental health, enhance physique of people, improve health guarantee level of citizens and make sure it ranks in the front level in Western China, cultivate healthy behaviors and habits of citizens and promote their spiritual health.
4.3. Five-Chongqing Program is an important measure to build Chongqing into a happy city

4.3.1. The construction framework of the Five-Chongqing Program conforms to the connotation of a happy city

In terms of the connotation of a happy city, it is a city incorporating advanced materialistic, spiritual, political and ecological civilizations which provides affluent materials, rich spiritual life, colorful cultures and a beautiful environment. To see from the construction framework of the Five-Chongqing Program, it conforms to the connotation of a happy city. A Livable Chongqing will improve residential environment of Chongqing fundamentally and make sure residents live comfortably and securely. A Traffic-smooth Chongqing focuses on traffic efficiency, and make sure there’s no traffic jam in the main urban area and there’s an asphalt road to each village. A Forest Chongqing focuses on the biological environment, and enhances the construction of biological civilization by improving forest coverage rate so that people can live in a beautiful environment. A Safe Chongqing focuses on human and property security of people and enhancing their sense of security and A Healthy Chongqing focuses on physical and mental health of residents, makes sure children grow up healthily and the old live a long life. The Five-Chongqing Program links and forms a framework system to build a happy city.

4.3.2. The ultimate goal of the Five-Chongqing Program is to build a happy city

To achieve the goal of a Livable Chongqing, construction of relevant projects are started from improving residential quality, optimizing public space and improving service facilities; To achieve the goal of a Traffic-smooth Chongqing, the construction approach of simultaneous construction of air, land and water transportation facilities and simultaneous improvement of construction of main lines and traffic network is adopted. To achieve the goal of a Forest Chongqing, the work mechanism to push forward five great projects by the city, the districts and counties all-roundly is formed. To achieve the goal of a Safe Chongqing, a joint prevention and control system attaching equal importance to systems and mechanisms and their gradual improvement is built. To achieve the goal of a Healthy Chongqing, the working method to attach equal importance to fitness and medical care is selected to ensure basic medical care, strengthen grass-root medical institutions and build mechanisms simultaneously. Fundamentally, the ultimate goal of the Five-Chongqing Program is to improve happiness index of residents, turn Chongqing from a survival city into a city for development and for enjoyment and finally into a happy city. As shown by survey results, happiness index of residents of Chongqing ranks front throughout China.

4.4. Five-Chongqing Program is an important guarantee for building an open highland in China’s hinterland

4.4.1. The Five-Chongqing Program aims at breaking through the development bottleneck of Chongqing

Compared with developed coastal cities, Chongqing is weak in its foundation and strength, and it was opened to outside late. Being located in southwestern hinterland, it is the combination of a big city, vast rural areas, great mountainous areas and a large reservoir area, its investment environment for opening to the outside world is inferior by comparison, so a unique road shall be created to speed up and improve its investment environment. The fundamental goal of the Five-Chongqing Program is to improve the investment environment apart from improving livelihood of people. The Five-Chongqing Program is put forward to deal with the weak points of investment environment of Chongqing, aiming at breaking them through one by one and cultivate the advantages of the comprehensive investment environment with Chongqing’s characteristics. The construction of a livable, traffic-smooth and forest Chongqing will improve the hardware environment effectively. For instance, the construction of a Traffic-smooth Chongqing will enable
access to the main urban area within half an hour, strengthen radiating functions of the main urban area, drive development of districts and counties effectively and will be good for absorbing main elements to gather. A safe Chongqing and a healthy Chongqing are two elements to improve software investment environment. Finally, the Five-Chongqing Program will improve quality of Chongqing as a metropolis and absorb and gather relevant industries, capital and talents.

4.4.2. The Five-Chongqing Program aims at improving opening-up environment.

In terms of a livable Chongqing, development of commercial houses will be stabilized and public rental houses will be built in accordance with dual-track system of market supply plus governmental guarantee so that house issue for various talents and labor force can be solved and housing problem for groups of people of medium and low income can be solved. In terms of a traffic-smooth Chongqing, the construction task for expressways, railways, air, water and pipeline transportation as well as light-rail traffic will be completed all-roundly so as to achieve the goal of access to main urban area within half an hour, to Chongqing within four hours and to neighboring areas within eight hours. In terms of a forest Chongqing, forest coverage rate of the city will be further improved in accordance with the progress to produce trees of ten years within one year, to produce forest of a hundred years within ten years and Chongqing will be built into a state-level forest city, a city of biological garden and a model environment protection city. In terms of a safe Chongqing, casualty rate for various safety accidents will be reduced and resident’s security index will be improved. In terms of a healthy Chongqing, equal medical and health services of complete coverage will be promoted.

5. Strategic Thought on Future Development of Chongqing

5.1. Prospect and Thought

5.1.1. Prospect of the City

With 314 Overall Planning as the guideline, people’s livelihood needs as the orientation, a happy city as the strategic goal, a trans-continental central city as its functional positioning, eulogizing revolutionary history and combating against the black society as the breakthrough, deepening the reform and expanding the opening up to outside as the motive force, the Five-Chongqing Program as the major measure, innovations of the city as the support, solve the problem for unconventional development of the urbanized area surrounded by vast rural area and large reservoir area, select a construction road featuring new-type industrialization, integrated urban and rural areas, integrated industry and the city and low-carbon development, transform the development pattern all-roundly and build it into a happy city to practice scientific outlook on development.

5.1.2. Overall Thought

5.1.2.1 Stick to focused development all the time and prevent from the expansion mode without key points of the city. Integrate resources and speed up the planning and construction of major projects of comprehensive urban and rural experimental area, bonded port area and New Liangjiang District, highlight perfection of functions, focus on key industries, key areas, key gardens, key projects, enhance innovation of policies and transform relatively dispersed industrial layout, layout of towns and construction of project into concentrated ones. Build the system of towns of stars surrounding the moon type with the metropolis area as the core, and new suburb cities and new cities and towns as the nodes and an urbanized strategic space layout featuring
one core with six centers and one circle with double belts will be formed during the 12th five-year plan period.

5.1.2.2 Speed up adjustment and transformation, prevent from the extensive mode of development of high consumption, high emission and high pollution. Stick to 321 industrial development principle, give to full play of the basic role of the market in resource allocation, develop advanced manufacturing industry, cultivate newly emerging strategic industries and speed up the development of productive service industry actively. With various industrial gardens as the carrier, select low-carbon development mode and new industrialization development road and form a conglomerate, grouped and concentrated development pattern.

5.1.2.3 Enhance innovation capability and improve added value of products constantly. Employ innovations in various aspects of economic and social development, initiate vitality of innovation bodies, improve the contribution of human resources in economic and social development, create an environment beneficial for innovations and pioneering undertakings and transform the motive force for development by innovation driving instead of by inputting of resources.

5.1.2.4 Speed up to improve livelihood, prevent from the development mistake to “treat livelihood of people inferior to economy, social force inferior to market force and spiritual life inferior to materialistic life”. Push forward integrated development of urban and rural areas, overall consideration to urban and rural areas, speed up to push forward the construction of new cities, new towns and new countryside, build the infrastructure system, public service system and urban and rural management covering urban and rural areas, and break down dual structure of urban and rural areas. Guided by the thought to enrich, benefit and secure people, improve their livelihood, further improve income of residents of urban and rural areas, improve the social security system, carry out labor laws strictly, built a harmonious labor relationship actively, change the key development point from focusing on developing economy to focusing on both economy and livelihood and push forward stable and harmonious development of social undertakings.

5.1.2.5 Deepen reform and opening up and prevent from the mode with two ends at outside and embedding into low end of international industrial chain. Show geographic advantages, accept the radiation from developed areas actively, connect to coastal areas and gather external key resources and introduce new concepts and new modes by all-round and deep reform and expanding opening up to internal and external worlds. Speed up extrinsic growth based on intrinsic growth and achieve continuous, sound and rapid development of regional economy. With the construction of the open strategic highland of the hinterland, stick to the opening mode with one end inside and the other end outside, achieve all-round opening up to internal and outside worlds and improve the positioning of Chongqing in the international industrial chain.

5.1.2.6 Accelerate the integration of industrialization and urbanism to prevent the construction pattern of urban-rural division and separation of industrialization and urbanism: Combination of small cities & towns development and industrial structure adjustment are pressed ahead with greater effort, with focus on new cities and special towns, so as to accelerate the pace of increasing integration of new industrialization and new urbanization, facilitate the organic unity of urban system construction and industrial layout adjustment, guide the local population to gather in new cities and towns, orderly advance the migrant population to inhabit the nearest towns, and invite talents in central areas to start their undertakings and lives in small cities and towns. Urban-rural integration shall be accomplished definitively, with cultural expansion and functional upgrading as the core, and urban-rural development and industrialization and urbanism integration as starting point.

5.1.2.7 Vigorously promote the interactive development of “Five-Chongqing Programme” to avoid the pattern of “single city rapid growth”: “Five-Chongqing Programme” has different features with the identical significance. “Livable Chongqing” is characterized with the inhabitation,
designed to attract excellent talents at home and abroad; “Traffic-smooth Chongqing” is characterized with efficiency, designed to achieve the smooth and convenient urban traffic, boost commercial efficiency, and reduce commercial costs; “Forest Chongqing” is characterized with greening, designed to improve the ecologic environment of the whole city and even upper reaches of the Yangtze River and enhance the urban competitiveness through the large-scale forestation; “Safe Chongqing” is characterized with security, designed to build the harmonious and stable social environment with greater effort, and develop a urban atmosphere corresponding to the open economy; “Healthy Chongqing” is characterized with health, designed to improve the physical and mental health care for all the citizens, and establish the important foundation for further opening-up and moderately prosperous society. “Five-Chongqing Programme” is integrated to form a framework to improve people’s livelihood. Only “Five-Chongqing Programme” develops together, the high-speed developmental trend shall be shaped up, as five carriages to jointly drive it to grow.

5.1.2.8 Highly emphasize environmental and ecologic protection to stop the development pattern of “while construction while destruction” and “first pollute the environment and then take counter-measures”: Headstream management and long-term operative mechanism construction are attached more importance, to encourage the lifestyle transfer from high energy consumption and carbon emission to green development and low carbon livability, so as to facilitate the comprehensive economic and social growth, based on structural optimization, efficiency improvement, consumption reduce, and environmental protection. A national ecologic model city shall be built, with focus on the ecologic protection of the Three Gorges reservoir area, and with aid of “Forest Chongqing” construction, to eventually achieve a target, i.e. setting up an “ecologic defensive line for the upper reaches of the Yangtze River”.

5.2. Development Priorities:

5.2.1. Further advance the joint development of “Five-Chongqing Programme” to build happy city:

5.2.1.1 The construction of “Five-Chongqing Programme” is transferred from urban development as priority to urban-rural integration. At the present stage, the construction of “Five-Chongqing Programme”, i.e. livable, traffic-smooth, forest, safe, and healthy, is overall pushed forward in central areas. The next stage is to continue promoting the construction of “Five-Chongqing Programme”, and spread development priorities to districts and counties, so as to further promote the urban-rural development as a whole, and overall improve the entire image, functional performance, and developmental quality of this central city.

5.2.1.2 The breakthrough point of happy city construction should be identified, with the following specific measures: firstly, happy city framework should be perfected to accelerate happy city construction pace; secondly, tangible results of civil engineering should be enhanced to evaluate the developmental achievements through happiness of people; thirdly, relative policies for business start-up & people prosperity, employment & public welfare, and social insurance & public security should be implemented; fourthly, urban culture and value construction should be consolidated to satisfy the public spiritual and cultural requirements; fifthly, the citizen society should be cultivated with greater effort, to promote the political democracy establishment; sixthly, urban developmental dynamic mechanism should be reconstructed to force the city upgrading for better public livelihood and well-beings.

5.2.2. Timely advance the strategic shift of development priority to build intercontinental city:

Chongqing should accelerate the completion of national central city over these 10 years, with the medium and long term mission to transfer from national central city construction to intercontinental city construction. The rise of Chinese economic position allocates national
central cities, such as Chongqing, the responsibility to collect global resources elements. Policies for Western China development and supporting reform pilot area for urban-rural comprehensive integration provide very liberal policy environment to Chongqing. The cohesive and radiation force of Chongqing shall emerge with the qualitative leap, after the foundation reinforcement stage of “eleventh five-year plan” and functional enhancement of “12th five-year plan”. Therefore, Chongqing is entirely possible to become the key strategic base to across Asian and Europe.

5.2.3. Collectively advance industrialization, urbanization, and social equalization to build a integrative city

During the first decade after the founding of Chongqing municipality directly under the Central Government, the integrative degree of industrial development and town construction in Chongqing was low, and urbanization level always fell behind the industrialization level with 10 to 25% gap, the biggest of which is 25% in 2000. Therefore, during the second decade, integrative development of industrialization and urbanization should be further accelerated.

5.2.3.1 Firmly push state-of-the-art manufacturing development forward: The industrial structure should be adjusted continuously, industrial zones should be focused to be developed, and industrial developmental energy should be released and promoted further.

5.2.3.2 Integrate small cities & towns construction and industrial development: Urbanization construction should be pushed forward collaboratively; real estate development, infrastructure construction, and supporting construction of public service should be increased, in accordance with urban planning system requirement.

5.2.3.3 Adhere to the priority of “people’s well-being”: The pace of public service equal target should be accelerated to advance various social undertakings to be developed with balance, and promote the social harmony and stability with greater effort.

5.2.4. Promote urban-rural in-depth development to construct a city with urban-rural integration

Urban-rural integration and balanced development should be complied with, suburbia and rural areas should be emphasized in the construction for modernization, and the construction center should be further moved to suburbia and rural areas.

5.2.4.1 Increasingly support urban-rural integration construction to deepen the reform of institutional mechanisms for urban-rural integration: A new mechanism should be established with the collaboration of various cities (counties) governments, government – market linkage, internal and external resources integration, and organic connection construction and management. The core of new mechanism is “led by government, oriented by district government, supervised under New City Management Committee, specifically operated by New City Build (Development) Company, Cooperated with township government, and involvement of different domestic and international enterprises.”

5.2.4.2 Make steady progress for heartland reform in rural areas and deepen market reform of land factors allocation: The stability and improvement of rural land contract relationship with land right confirmation as the core should be overall moved forward, to further improve the system of increase and decrease connection of urban and construction land policy, and complete the system of contracted land management right transfer, and steadily push rural collective construction land circulation forward.

5.2.4.3 Accelerate the public services equalization and deepen the reform of urban- rural institutional mechanisms: System framework which promotes public resources to be allocated evenly between urban and rural areas should be established and completed, to steadily push
public service to be equalization, and gradually set up the basic social insurance system to connect rural and urban areas with open rules, so as to eventually shorten the gap between urban and rural areas.

5.2.4.4 Steadily promote the construction of small cities and towns and deepen the reform in system and mechanism for transformational development of small cities and towns: The system framework should be perfected for transformational development of small cities and towns, to actively explore the small cities and towns’ developmental mode and roadmap corresponding to Chongqing.

5.2.5. Ensure the reservoir ecology to be safe and establish ecologic city

Yangtze River, whose entire drainage area occupies 18.75% of total land area, flowing through 19 provinces autonomous regions and municipalities, is a key area for Chinese forest development and ecologic conservation. The ecologic conditions of Three Gorges reservoir area and upper and middle reaches of Yangtze River have direct relationship with the security of Three Gorges reservoir area and the livelihood of people in Yangtze River basins.

5.2.5.1 Make efforts to guarantee the safety of reservoir area: Harmonious and stable new reservoir area should be established with joint efforts, to achieve that people here have guaranteed lives, jobs, and hopes to cast off poverty and set out on a road to prosperity, with overall implementation of follow-up plan of Three Gorges.

5.2.5.2 Strengthen ecologic construction and environmental protection of reservoir area: Principles of prevention, source control, stressing both prevention and management, comprehensive treatment, and tightening supervision should be implemented to ensure that water quality of Three Gorges reservoir generally keeps in the class II.

5.2.5.3 Increase the geographic disasters prevention and control for the reservoir: Major natural disasters early warning and response system should be established and completed.

5.2.5.4 Seek to national support to list the Three Gorges reservoir as a comprehensive experimental zone for ecologic compensation: Forestation donation events, such as “Action to green Yangtze River and Chongqing”, should be promoted to be normalization. “Circulation payment” should be increased, and multi-channel, multi-level, and multi-form ecologic compensations shall be carried out.

5.2.6. Establish innovative system to build creative city

Innovative system of city should be advanced to accomplish the efficient allocation of the existing resources. Besides, it is the inevitable choice for Chongqing’s future sustainable and steady development to create a cooperative and interactive institutional mechanism among innovative subjects and among regions.

5.2.6.1 Enhance hi-tech innovative capacity: Firstly, national strategy and social welfare needs should be highlighted, e.g. the in-depth research on scientific and technological key task programmes for heartlands related to the national welfare and the people’s livelihood, such as livable city, health care, ecologic environment, high-end manufacturing, and intelligent city, should be enhanced. Secondly, collaborative mechanism between ministry-level department and city and between research institution and city should be further increased, to build a complete scientific research base and open sharing system for research infrastructure. Thirdly, the innovative demonstration application engineering should be implemented to expand the commercialization and applications of research findings.

5.2.6.2 Stimulate the innovative activity of the enterprise: Firstly, innovative subject of the enterprise should be cultivated. The enterprise should be guided and driven to raise the
investment for R&D of new technology and absorption and digestion of technology imported by China. The enterprise should be supported to build own R&D team and institutions. Meanwhile, national key laboratory, engineering laboratory, and engineering (technology) research center should be tried to set up in the qualified enterprises. Secondly, research institute, academia and industries cooperation should be moved forward. Some enterprises with advantages in our city should be promoted continuously to jointly develop key technologies, so as to establish a enterprise-oriented strategic alliance of technologic innovation in hi-tech industries.

5.2.6.3 Perfect innovative service system: Firstly, mechanism of investment and finance should be perfected and innovated to develop a new service system with capital markets and venture capital as the guide, business investment as the key, and governmental inputs and preferential policies as the support. Secondly, integration of the technology and finance should be strengthened to build financial service chain for the complete period of business growth. Thirdly, public finance and taxation land support policy should be improved to increase the financial and tax support level for strategic emerging industries, and carry out the preferential policy for entrepreneurial firms. Fourthly, the innovative carrier construction should be strived to promote and enhance “linkage of three zones” i.e. campus, industrial zone, and community, and drive various districts and counties to increase innovative carrier constructions.

5.2.7. Optimize the urban system to establish the network city

Five-Chongqing Programme is regarded as the priority to boost the level of urbanization and build a new pattern of regional development.

5.2.7.1 Urban system should be optimized, urban space should be redistributed properly, and big, medium, and small cities concentration and coordinative development should be advanced, with the main city as the core: Urban comprehensive service function, such as traffic hub, finance, trading, and logistics in the main cities, should be enhanced. Liangjiang New Area, New Western City, Eastern area, and Southern area shall be the core functional areas and predominant areas of strategic emerging industries in Chongqing. Meanwhile, regional central city shall endeavor to be built as a larger economy with powerful industries, sound urban system, many factor concentration, and high degree of internal and external opening.

5.2.7.2 Optimize the spatial layout of “one -circle and two-wing” to form the urbanization strategic spatial pattern, i.e. “one-core, six-heartland, one-circle, and two-wing” (see Figure 5.1): Overall strategy of regional development should be implemented insistently, to put the following issues to be the priority, i.e. facilitate the areas on “two-wing” to be accelerated for development, and shrink the developmental gap between areas on the “circle and wings”, so as to constitute interactive development mechanism.

5.2.7.3 Implement the national principal functional area planning: The economic development, population distribution, and resources and environmental supporting capacity should be considered overall, to build a growth pattern with clear orientation, factor allocation equilibrium, and space intensive gathering.
5.2.8. Take initiative for cultivation of motivation mechanism for urban transformation development to build Chongqing into a dynamic and vigorous city

As indicated from development experience and construction mode of such global cities as London, New York and Tokyo and such continental central cities as Shanghai, the rise of global and continental central cities have experienced diverse modes of development as growth transformation and exogenous catalyzation. The mode of development of growth transformation mainly refers to the mode of development by which a city leading in economy and advantageous in resources is made to realize upgraded functions by industrial transfer and upgrading on the basis of self development; The mode of development in exogenous catalyzation mainly refers to the mode of development by which a city is made to realize opening up of urban economy, integration of global and continental central city network by incorporation of transnational corporations, introduction of international capital, injection of flow economy, and global merchandise sourcing in the course of development. On the basis of its reality and its city development path, Chongqing shall, in the course of transformational development, integrate two paths of development efficiently, to wit, growth transformation and exogenous catalyzation, and realize transformation of its role from the central city in west China to a national central city, then an Asian regional center by internal clustering and external connection to upgrade its international and domestic importance, service capability and city capacity.

5.2.8.1 Internal-transformation Driven At present, the economic development in Chongqing is mainly based on labor-intensive and resource-consuming mode. It still faces such difficulties as imbalance in economic, social and cultural development, increasingly serious environment and resource restrictions and sharp imbalance in urban and rural areas, regions and social classes. It is urgent for Chongqing to accelerate transformation, improve its self-innovation ability, further
promote opening-up home and abroad, and generate endogenous development power. The key point is to quicken industrial structure transformation, establish a new industrial system mainly composed of advanced manufacturing, strategic emerging industries and modern service industry; speed up urban development key transformation to realize equal importance attached to hard environment and soft one; speed up development focus transformation to realize overall urban and rural integration and regional integration.

5.2.8.2 Opening-up and in-depth driven The post-financial crisis era has witnessed considerable changes in international trade environment, which brings along both opportunities and challenges for the external environment of urban development. By this token, Chongqing shall further opening-up strategy home and abroad, improve influence and control power in city network in China and Asia, develop driving force of Chongqing to be built into a regional center in Asia by enhancing foreign exchange and positive interaction. Efforts shall be exerted to further attract transnational corporations, famous domestic enterprises, famous regional, national and international industrial associations, well-known domestic and foreign clubs to be located in Chongqing; build Chongqing into an economic core area in Asia; further innovate modes of attracting trade and investment from overseas and enhance domestic and external communication.

5.2.9. Further improve soft strength of urban development and build a glamorous city

The soft power of urban development serves as the fundamental condition for development of Chongqing, with the following nine aspects concluded as its main content, factors, status and functions:

5.2.9.1 Core idea condensation project as a steering force It mainly relies on in-depth practice of Scientific Outlook on Development and “314” overall deployment to steer future development direction of Chongqing.

5.2.9.2 City spirit cultivation project as a binding force Synergize forces of Chongqing for development on the basis of such factors as accumulated urban historical culture, perfect city pattern, improved quality of citizens and reshaped city spirit are united.

5.2.9.3 Education-priority development project as a fundamental base Foster development potential of Chongqing by innovating educational system, perfecting educational structure, enlarging investment in education and optimizing educational collocation.

5.2.9.4 Technological innovation driven project as a driving force Improve development impetus of Chongqing by improving innovation ability, setting up carrier platform, reforming scientific system and forming innovative team.

5.2.9.5 Cultural development and prosperity project as an anchoring force Gradually unfold charm of Chongqing by booming culture, developing cultural industry, optimizing cultural system, and enforcing cultural exchange.

5.2.9.6 Talent team cultivation project as an supporting force Stimulate vigor and vitality of Chongqing by improving population quality, improving talent structure, optimizing talent management, and perfecting talent mechanism.

5.2.9.7 Environment development and optimization project as a safeguarding force Emphasize charm of Chongqing by optimizing such factors as political environment, legal environment, market environment and social environment.
5.2.9.8 City image shaping project as a manifestation force Build up city image of Chongqing by defining city positioning, forming specific signage of the city, standardizing city governance, opening-up home and abroad.

5.2.9.9 City capacity upgrading project as a transformation force Improve capacity of Chongqing by enhancing city strength, planning urban and rural development in a coordinated manner, promoting transformation upgrading and strengthening city capacity.

6. Countermeasures and suggestions for future development of Chongqing

6.1. Actively expand financing channels and resolve capital restriction problems

In the construction process of “Five-Chongqing” programme, a number of financing modes have been adopted. But due to demand of a large sum of capital, extended financing channels shall be made available by extension of capital quantity on the one hand and efficiency of capital pooling on the other.

6.1.1. Explore government financing channels

One way is to issue special national treasury bonds secured by public rental houses for the purpose of construction of such public rental houses; the other is to try to issue local government bonds. Although no local government is allowed to issue bonds, the Central Government has issued bonds for and on behalf of local governments, which is deemed as a probe in this respect. Chongqing government shall create necessary conditions and spare no efforts to apply for issuing local government bonds to enhance the government’s financial capacity.

6.1.2. Expand financing channels via financial institutions

The government shall try to seek loans from Asia Development Bank and absorb corporate capital through financial institutions. In the first half of 2009, total profits of industrial enterprises above designated size in Chongqing decreased by 26.2%, balance of RMB savings by enterprises increased by 59.4%. This indicates insufficient cash flow into real economy by industrial enterprises above designated size and failure of a large sum of funds in production and circulation of real economy but sleeping in bank accounts instead, slowing in circulation. Financial intermediaries may be encouraged in motivating savings to investment. With reasonable portfolio of investment risks and gains, low-risk financial products related to “Livable Chongqing” may be further designed.

6.1.3. Extend financing channels via non-financial institutions

Intangible properties such as auction of the naming right of infrastructure such as park and road, may be used to raise funds. Accelerated realization may be made on nongovernmental operation by BOT on public facilities built or in construction. Because the “Five-Chongqing” large-scale investment in public facilities has increased the accumulation of concealed risk of government liability, BOT is a good mechanism to balance the relationship between market and government, fully unfold the advantages of market and government, effectively improve the efficiency of support of public infrastructure and release the pressure of government capital.
6.1.4. Expand social financing channels

Donation channels can be set up and fund is raised through the way of advocating social donation. Main donors include not only individuals but also state-owned enterprises, foreign-owned enterprises, joint venture corporations, private enterprises and other corporations. For inspiration government may grant certain economic or mental return to the enterprises and individuals with donation of a big sum. Government may issue “Five-Chongqing” construction lottery. As an industry of public interest and fund-raising, it has made greater contributions for the sports, environment protection and education in China. “Five-Chongqing” construction is also of public interest. Through issuing lottery, government can not only raise fund effectively, but also have no pressure of paying profit-sharing or repaying the capital and interest which is faced when taking issuing stocks and bank loans as methods to raise fund.

The fund-raising system of “Five-Chongqing” construction fund

6.2. Smoothly solve the conflict between supply and demand of the land and solve the land-restraint problems

With the economic and social development, the demand of land resource has been increasing continuously. Then the conflict between supply and demand of the land will be a bottlenecked restriction faced in speeding up transformation upgrading of economic development and promoting coordinated development. Deepen adjusting and optimizing land resources so as to settle the conflict between supply and demand of land.
6.2.1. Plan scientific layout and strictly supervise “controlled land”

Stick to the principle of controlling increased amount, reasonably arranged layout, intensive utilization of land and farmland protection. Reasonably define the scale of construction land. Take the planned land as leading controlled land and regulate the purpose of land utilization strictly. Establish efficient managing mechanism of approval, support, utilization, supplementing and check, further regulate land management, and strengthen the supervision and restriction on land users.

6.2.2. Enforce land renovation and organize “land increased” recultivation

Vigorously develop comprehensive land renovation such as cultivation of barren mountains, barren hillsides and desolate sands; abandoned mine reclamation; abandoned housing land reclamation; disaster-struck arable land reclamation and agricultural land arrangement.

6.2.3. Optimize land-use structure and use “land saved” intensively

Implement “suppressing the second industry and developing the third industry” in main urban area; move the low value-added enterprises with high pollution, high release and high risk to take more land for modern service industry development; promote the integration of industrial projects to industry-focusing area; optimize land-use structure in urban area; improve the rate of land-use; encourage city development towards high sky and underground; build up tall office buildings and develop building economy.

6.2.4. Strengthen the power of general survey and efficiently use storage capacity of “land resumed”

Haul-the-net general survey on the vacant land shall be conducted in the whole area; and achieve the condition of in-place survey, no blind angle, in-place disposal and no tail-like problems.

6.2.5. Improve quality of farm land and transform “controlled” farming land

In accordance with the principle of “unchanged nature of fund, unchanged channels of management, planning as a whole, each performing its own functions, and cohesive forces”, to start with transformation of low and medium yield field, the government integrates various funds and improves the quality of farm land powerfully.

6.3. Explore and establish talent highland and solve problems of talent restraint

On the basis of “five-high” requirement which refers to high density of distribution of talents, high level of the quality of talents, high correspondence of the structure of talents, high vigor of the talent flow and high efficiency of the production of talents, we shall make good medium and long term talent scheme for Chongqing; set up framing system of talent institution, safeguarding system of the talent highland, system of talent service, system of educational training for talent; accelerate the transformation of the increase of talents from increase to keeping and increasing; reserve sufficient talents; establish a scheme of combination of talent attracting and talent fostering.

6.3.1. Strengthen talent scheme of long and medium term

On the basis of the process, characteristics and regular patterns of respective regions and counties, improve development scheme of modern talents with forward thinking; focus on
development of talents who are innovative or short of; set targets, assignments and measures of medium and long term; enhance government’s ability of regulating and controlling towards talent development.

6.3.2. Establish talent highland

Take various measures to attract talents; attract talents gathering in Chongqing by measures of corresponding government award, flexible pay system, larger development space, good corporate culture and improved social guarantee.

6.3.3. Perfect talent cultivating system

To the undergraduate students, set up practice base in important enterprises and reserve modern talents according to the plan; to the employed, fully implement quality improvement project of modern talents; improve working ability and level of the staff by means of systematic training, professional training, practice on duty and further study, and thus promote the improvement of the quality of overall development.

6.3.4. Implement “thousand-talent project” in an all-round way

To match and implement the national “thousand-talent project”, three “thousand-talent projects” are carried out in full swing in Chongqing. One is to introduce and implement the “thousand-talent project” to bring in high-level talents from overseas, and at the same time speed up conducting application and evaluation of local “thousand-talent project” to further promote introduction of high-level talents from overseas. Then, implement the “thousand-talent project” of pioneering talents and the construction of innovative team; on the basis of “Five-Chongqing” construction, select and foster 1,000 pacemakers and teams in three to five years through steering towards nine important industries like advanced manufacturing and modern service industry. The last is the project of implementing “chief technician” fostering scheme. The government will select and cultivate 1,000 chief technicians in three to five years and foster a highly-skilled talent team for the development of important industries.

6.4. Improve system compatibility and harmony and solve problems of system restriction

With regard to future concerns at systematic level, a compatible system arrangement and policy portfolio shall be made available in taxation, charge, financing and banking, and system compatibility and harmony shall be improved unceasingly.

6.4.1. Improve vertical compatibility of systems

Improve the adaptability of systems of Chongqing and ministries and commissions of central government, compatibility of systems of Chongqing and its districts and counties, and adaptability of superior authorities and subordinate authorities.

6.4.2. Improve horizontal compatibility of systems

Improve harmony of systems between sectors and branches and boost effective connection of relevant systems applicable to the “Five-Chongqing” target to form combining forces of systems.

6.4.3. Improve compatibility of financial resources, office powers and authorities

Financial disparity results in serious imbalance by local governments in provision of such general public services as education, public health, social security, road, and urban public utilities.
Efforts shall be exerted for compatibility of financial resources and offices of powers and authorities between governments to create favorable conditions for equalized general public services among different regions.

6.4.4. Improve compatibility of process and target

To expedite construction of the “Five-Chongqing” target, incentive policies shall be made available. For instance, an incentive policy may be introduced on environment protection by implementation of cost treatment policy on permitted discharges and emissions and imposition of punitive policy on excessive environment pollution beyond the permitted to provide policy flexibility on government administration.

6.5. Fully explore advantage of demographic dividend to find a solution to labor shortage

In recent years, coastal regions in China, leading in Chinese economic development, has been experiencing the bottleneck of labor shortage, the reason is that increase of labor supply in China is slower than that of labor demand resulting from fast economic growth. In contrast with the faster growth rate of labor force in China than its demand in the past, the labor supply has declined whereas no reduced demand has occurred, hence the reverse situation. In effect, demographic dividend has not yet lost its advantageous position nationwide. As forecast by experts, by 2015 demographic dividend in traditional sense will have lost its advantage gradually, while such turning point will delay in occurrence in vast inland. As a commanding point for opening up in inland, Chongqing shall seize the very opportunity to sufficiently explore demographic dividend for a solution to bottleneck of labor supply.

6.5.1. Explore “the first demographic dividend” sufficiently

Judging from the experiences of China and the rest of the world, primary use of the initial dividend aims to promote transfer of labor force from agriculture to non-farming industries and achieve conversion of employment structure and employment status, to wit, the use of abundant labor resources. Demand for in-depth use of initial demographic dividend is put forward to convert the mode of consumption and social status of such payroll employment, and sufficiently explore consumption contribution, public services and facilities of urban residence. Urbanization, conversion of farmers to citizens, and equalization of public services to be boosted mean the in-depth exploration of initial demographic dividend. With regard to Chongqing, such demographic dividend is higher than average national level. In 2009, urbanization rate in China reached 46% while non-farming residents accounted for 33% only, between which lies the 13% margin. Urbanization rate in Chongqing reached 50.6% while non-farming residents accounted for 29.0%, between which lies the 21.6% margin, 7.6% higher than the average national level. Accordingly, Chongqing shall accelerate change of the mode of economic growth, speed up promotion of urbanization, conversion of farming workers into citizens and equalization of public services, and explore advantage of initial demographic dividend in a sufficient and deepened manner.

6.5.2. Promote localization of demographic dividend

Chongqing has long been one of major destinations for rural migration workers. To relieve employment pressure, its local government had diverse policies to encourage inter-provincial mobility of migration workers, which leads to the transfer of local advantage in demographic dividend to other regions and abnormal phenomenon of migration labor shortage incurred by

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4 Cai Fang: shortage of migrant laborer is not migrant laborer panic, the second demographid dividend still has advantage. March 3, 2010 09:07 Source: Shanghai Securities News
major provinces in supply of migration workers in recent years. Hence, major change shall be
made on Chongqing policies concerning future population and employment by focusing on
system innovation and persuading stay by farmers who have returned home to ensure Chongqing
free from suffering of labor shortage. With regard to path of solution, priority shall be given to
boosting local economic development, expanding employment channels and providing local labor
force with more job opportunities to facilitate localization of demographic dividend.

6.5.3. Study and probe into “the second demographic dividend”

After all, the initial demographic dividend will be exhaustive while the potential of the
second demographic dividend will be boundless. The second demographic dividend refers to the
new source of economic growth explored by virtue of the changed demographic structure under
the demographic structure of aging. Internationally, median of ages, which indicates the age limit
of 50% of population is applied to scale extent of aging. It is calculated that median of ages in
Chongqing in 2006 is 39.3, indicating that as many as a half of total population of Chongqing are
older than 39.3 years old, while the median of ages in China in the same period is 36.2, from
which the extent of aging in its demographic structure can be concluded. Accordingly, Chongqing
shall initiate study as soon as possible on how to acquire the second demographic dividend by
institutional arrangement, which, from the perspective of policy, shall mainly include a pension
and security system that contributes to accumulation, institutional barrier for improved function in
labor market and elimination of labor mobility, and conversion of the advantage of Chongqing in
quantity of labor force to its human resource strength by means of improved standard of
education and enhanced training of labor force.5

6.6. Erect environment priority concept for solution to environmental bottleneck

Environment protection constitutes an important part in the process of economic growth
and social progress, which will engender immediate impact on Chongqing in sustainable
development in economy and society, and will be of much significance to sustainable
development in the entire west region in China even nationwide.

6.6.1. Convert ideology of general public and enhance environmental awareness

Provide public access to eco-environment in Chongqing via news media, and enhance
eco-environment awareness and sense of crises of business enterprises and citizens to enable
them to realize significance and urgency of sustainable development who then will be voluntarily
engaged in eco-environment treatment and protection. The outlook of “pollution before treatment”
shall be converted that has long been developed by competent authorities at all levels, business
enterprises and general public to achieve synchronization in environmental protection,
development and construction.

6.6.2. Build and improve laws and regulations and strengthen environmental investment

China has promulgated a number of laws and regulations regarding environment
protection, which focus more on environment pollution and less on eco-environment protection.
Efforts shall be exerted to improve laws and regulations to reach the target of “make law, follow
the law, uphold the law, and hold violators accountable”. Efforts shall further be exerted to
enhance investment on environment protection adequately, further consummate infrastructure,
increase construction of concentrated gas supply, sewage network and road network, ban small-

scale furnace and household coal stoves to lessen emission of pollutants.

6.6.3. Take initiative in development of urban afforesting and greening to improve urban eco-environment

Initiate greening and afforesting projects on bare soil, dismantled illegal land fixtures and attachments, wild and unclaimed mountains and slopes, group landscape isolations. Further enhance urban greening and afforesting projects on metropolitan rim eco-forests, eco-forests as urban group landscape isolation, riverfront eco-forests, urban eco-parks, urban eco-parks along metropolitan central ridge, community eco-gardens.
## APPENDIX: Portfolio of Potential Projects for the Five-Chongqing Programme

### 1. Projects for Livable Chongqing Programme

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>Livable Chongqing Project 1: Low-renting public housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Construction of low-renting public housing. Within ten years from 2010, houses of ten million square meters each year will be completed in the first three years, and another ten million square meters will be completed in the next seven years, which add up to 40 million square meters. The cost of low-renting public housing per square meter is expected to be about 2,500 Yuan.</td>
</tr>
<tr>
<td>Location</td>
<td>Urban areas of Chongqing</td>
</tr>
<tr>
<td>Investment Estimation</td>
<td>Initial investment budget: 75 billion Yuan in the first three years and 25 billion Yuan in the next seven years. (The investment budget is current value in RMB, and the following is the same.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>Livable Chongqing Project 2: Bayu new residence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Transformation and building of houses in rural areas. From 2010 to 2012, 300,000 houses will be transformed and 150,000 houses will be built; during the Twelfth Five-year Plan period, 300,000 houses will be built. Transformation: about 12,000 Yuan for each house, including six thousand Yuan from financial support. New construction: cost per square meter is from 300 Yuan to 700 Yuan, area of each house is from 100 to 150 square meters.</td>
</tr>
<tr>
<td>Location</td>
<td>Rural areas</td>
</tr>
<tr>
<td>Investment Estimation</td>
<td>Initial investment budget: 10.8 billion Yuan from 2010-2012; 20 billion Yuan during the Twelfth Five-year Plan period. (Area of 120 square meters and cost of 500 Yuan of each house will be used for calculation.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>Livable Chongqing Project 3: Liangjiang Happiness Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>It approaches Zhaomu Mountain Forest Park in the north and connects Bailin Park in the south with an area of 291 mu, the area of the square is 80,000 square meters and it will be basically completed in September 30, 2011.</td>
</tr>
<tr>
<td>Location</td>
<td>Northern new area</td>
</tr>
<tr>
<td>Investment Estimation</td>
<td>Initial investment budget is 120 million Yuan.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>Livable Chongqing Project 4: Large-scale Recreational Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>In the next five years, eight recreational parks will be built or expanded, including Jin’ao Temple Park, Dadukou Forest Park, Diaoyuzui Ecological Leisure Park, Baiju Temple Ecological Park, Diaoyuzui Binjiang Park, Chinese Calligraphy Park, Love Park, and Shuangshi River—Anzi Mountain Park will be expanded.</td>
</tr>
<tr>
<td>Location</td>
<td>Dadukou district</td>
</tr>
<tr>
<td>Investment Estimation</td>
<td>Initial investment budget is more than five billion Yuan.</td>
</tr>
</tbody>
</table>
## Livable Chongqing Project 5: Community Park

**Description**
In the next five years, community parks will be built or expanded, each park will cost about 600,000 Yuan to one million Yuan.

**Location**
every district and county

**Investment Estimation**
Initial investment budget is more than Yuan.

---

### 2. Projects for Smooth Transport Chongqing Programme

#### Traffic-Smooth Chongqing Project 1: Expressway Network

**Description**
In 2011, Zhongxian county to Wanzhou of passageway along the river and Tongliang to Yongchuan of three ring roads, 146 kilometers, investment of about ten billion Yuan. In 2012, Hechuan to Changshou of three ring roads, Wanzhou-Lichuan of provincial egressroute and Wuxi to Ankang, 170 kilometers, investment of about fourteen billion Yuan. During the Twelfth Five-year Plan period: expressway of one thousand kilometers will be completed to form “three-ring, ten-direction and two-connection” expressway network.

**Location**
Zhongxian county-Wanzhou, Tongliang-Yongchuan, Hechuan-Changshou, Wanzhou-Lichuan, Wuxi-Ankang

**Investment Estimation**
Initial investment budget for 2011 and 2012: 24 billion Yuan; Initial investment budget for the Twelfth Five-year Plan period: around 80 billion Yuan.

#### Traffic-Smooth Chongqing Project 2: Rural Highway Network

**Description**
By the end of the Twelfth Five-year Plan period, the patency rate and the accessibility rate of administrative village will reach 90% and 100% respectively, rural highway of kilometers need to be built.

**Location**
Rural areas

**Investment Estimation**
Initial investment budget:

#### Traffic-Smooth Chongqing Project 3: Railway Construction

**Description**
By the end of the Twelfth Five-year Plan period, Xiangfan-Chongqing No.2 Line, Lanzhou-Chongqing Railway, kilometers

**Location**
Xiangfan-Chongqing No.2 Line, Lanzhou-Chongqing Railway

**Investment Estimation**
Initial investment budget:
### Traffic-Smooth Chongqing Project 4: Revitalization of Logistics Industry

**Description**

During the Twelfth Five-year Plan period, 175 revitalization projects of logistics industry will be implemented with emphasis on three bases and four harbor districts.

**Location**

Three bases: railway terminal of Xiyong Tuanjie village, aviation hub of Jiangbei Airport, Nanpeng highway hub of Banan district  
Four harbor districts: Cuntan, Guoyuan, Eastern Harbor, Huangqian Harbor

**Investment Estimation**

Initial investment budget: 160 billion Yuan

### Traffic-Smooth Chongqing Project 5: Comprehensive transportation transfer hub in the city

**Description**

From 2010 to 2013, projects of Lianglu, Xiyong, Yudong and Chayuan will be completed; from 2013 to 2015, Xipeng project will be completed; from 2016 to 2020, projects of Baishiyi and Yuzui will be completed. The seven projects cover an area of 450,000 square meters, and the total construction area is 290,000 square meters.

**Location**

Lianglu, Xiyong, Yudong, Chayuan, Xipeng, Baishiyi, Yuzui

**Investment Estimation**

Initial investment budget: 2.1 billion Yuan

### 3. Projects for Forest Chongqing Programme

#### Forest Chongqing Project 1: Forest city in urbanized area featured with “two rings, four mountains, ten belts and a hundred parks”

**Description**

In urbanized area, “two rings” refers to forest ring roads of inner ring and outer ring expressway; “four mountains” refers to Jinyun Mountain, Zhongliang Mountain, Tongluo Mountain and Mingyue Mountain which are forest barriers; “ten belts” means to construct forest belts on expressway and railway, on both sides of the rivers, around the reservoir, among city groups; “one hundred parks” means to build one hundred parks, including leisure park, forest park, wetland park and farmhouse forest park.

**Location**

Two rings, four mountains, ten belts

#### Forest Chongqing Project 2: “Construction of forest city in non-urbanized area featured with “one hundred belts and one hundred parks”

**Description**

“One hundred belts” means to construct more than one hundred forest belts around districts, countries and cities, on both sides of highway, railway and rivers, and around the reservoir. “One hundred parks” means to construct more than one hundred forest parks or bases.

**Location**

around districts, countries and cities, on both sides of highway, railway and rivers, and around the reservoir
<table>
<thead>
<tr>
<th>PROJECT</th>
<th>Forest Chongqing Project 3: “Four lands and four besides” rural forest project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>It approaches Zhaomu Mountain Forest Park in the north and connects Bailin Park in the south with an area of 291 mu, the area of the square is 80,000 square meters and it will be basically completed in September 30, 2011.</td>
</tr>
<tr>
<td>Location</td>
<td>“Four lands” refers to barren mountain and land, forest land with low quality and low efficiency, farmland on steep slopes, vacant land in farmland; “Four besides” refers to beside the village, house, river and road.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>Forest Chongqing Project 4: Forest Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Many large parks in cities with an area of more than one thousand mu were built, including Hong'en Temple Forest Park in Jiangbei district, Dadukou Chinese courtesy Park, Longtou Temple Forest Park, etc.</td>
</tr>
<tr>
<td>Location</td>
<td>every district and county</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>Forest Chongqing Project 5: Forest Culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>By promoting five projects of “urban forest, rural forest, channel forest, water forest and nursery stock base” and taking serial activities as carrier, responsibility awareness of loving greenery, creating greenery and protecting greenery among the public was enhanced, and the first ecological culture association at provincial and municipal level was established. By closely sticking to the construction of forest ecology, publicity and education activities of ecological culture based on “green declaration”, “green revolution”, “green pilgrimage”, and “green monument” were introduced. Through magazines, websites, series of books, feature films, and singing Song of Forest Chongqing, ecological culture platform was set up. Asia-Pacific Orchid Meeting, China Orchid Expo, Chongqing Forest Tourism Festival and other local forest festivals and meetings with distinctive local features were held.</td>
</tr>
<tr>
<td>Location</td>
<td>every district and county</td>
</tr>
</tbody>
</table>

4. Projects for Health Chongqing Programme

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>Healthy Chongqing Project 1: Sports activities project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Before 2012, in terms of construction of public sports facilities, four thousand-meter plastic track in one thousand schools, one standardized stadium, one gymnasium, one swimming pool and two footpaths for mountaineering or footpaths along the river for each county will be completed.</td>
</tr>
<tr>
<td>Location</td>
<td>schools, every county</td>
</tr>
<tr>
<td>Investment Estimation</td>
<td>Initial investment budget: 7.3 billion Yuan</td>
</tr>
</tbody>
</table>
5. Projects for Peaceful Chongqing Programme

**PROJECT**  
**Healthy Chongqing Project 2: National sports clubs for teenagers**

- **Description**: Before 2012, 80 national sports clubs for teenagers will be completed.
- **Location**: The whole city
- **Investment Estimation**: Initial investment budget:

**PROJECT**  
**Healthy Chongqing Project 3: Project of water quality monitoring sites**

- **Description**: Before 2012, two hundred water quality monitoring sites will be completed.
- **Location**: villages, towns and rural areas
- **Investment Estimation**: Initial investment budget:

**PROJECT**  
**Healthy Chongqing Project 4: Public health infrastructure and basic medical service system**

- **Description**: Before 2012, 510 health clinics in villages and towns will be reconstructed and expanded, standardized construction of 5,000 village clinics will be completed, and 112 Community Health Service Centers will be reconstructed and expanded.
- **Location**: villages, towns and rural areas
- **Investment Estimation**: Initial investment budget:

**PROJECT**  
**Corporate financing of security products**

- **Description**: Content: loans are used by enterprises producing protective barriers of different types and materials which are applied in railway, highway, and sidewalk. Scale of the project: medium or large scale enterprises producing security products
- **Location**: Chongqing
- **Investment Estimation**: BT operation mode will be adopted to establish state-holding or state-owned enterprise which owns chartered right of project financing, production and construction. Banks will provide the enterprise with financial loans and the government will sign a contract of BT investment with this enterprise. The government will contribute 30% of the capital from safety funds and 70% of the capital will be offered by bank financing which is guaranteed by the government. The government will pay in installments in proportion according to the BT contract. The government will conduct supervision during the whole process of BT investment to guarantee successful financing, construction and generation of benefits.
- **Expected Benefits**: Investment in installment of protective barrier will be 200,000 Yuan per kilometer. In the next three years, protective barrier of 12,828 kilometers will be installed in Chongqing with total investment of 2.5 billion Yuan. Owing to the position of Chongqing given by central authorities, and simultaneous improvement of safety level, investment in the construction of highway and railway will be expanded continually. Therefore, protective barrier has a large market demand, and considerably potential economic benefit.
Basic framework of upgrading the soft power of Chongqing city

Content
- Core idea condensation project
- City spirit cultivation project
- Education - priority development project
- Technological innovation driving project
- Cultural development and prosperity project
- Talent team cultivation project
- Environment development and optimization project
- City image shaping project
- City capacity upgrading project

Status
- Lead
- Cohesion
- Foundation
- Drive
- Support
- Brace
- Guarantee
- Manifestation
- Transformation

Factor
- 314 Overall deployment of Scientific Outlook on Development
  - Urban historical culture
  - Urban formation pattern
  - Urban residents' quality
  - Urban spirit outlook
- Innovate education system
- Improve education system
- Improve innovation ability
- Build carrier platform
- Reform technological system
- Build innovation team
- Foster cultural career
- Develop cultural industry
- Optimize cultural system
- Strengthen cultural communication
- Improve population quality
- Improve talent structure
- Improve talent management
- Improve talent mechanism
- Optimize environment of government affairs
- Specify urban orientation
- Form urban identification Standardize
- Intensify urban strength
- Plan urban and rural development as a whole
- Promote transformation upgrading
- Intensify urban function

Function
- Guiding function on city development
- Cohesion function on city joint force
- Cultivation function on city
- Upgrading function
- Function on city glamour release
- Function on city vitality inspiration
- Function on city attraction intensification
- Function on city image
- Function on city level

Guarantee
- System guarantee: city management system, educational management system, scientific management system, cultural management system, talent management system, economic management system etc.
SECTOR REPORT OF LIVABLE CHONGQING

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SUMMARY

In the process of urbanization and industrialization, building a "Livable Chongqing", practicing the concept of putting people first so as to improve people's living environment, is the objective requirement to improve people's living standard and happiness index in urban and rural areas. It's also a magnificent measure to promote sustainable development in Chongqing, optimizing development environment, building an opening-up highland and the economic center in the upper Yangtze region. Besides, it will be the ultimate choice for Chongqing to promote coordinated development between urban and rural areas and pilot to build a well-off city in western regions.

The construction of "Livable Chongqing" can be divided into two periods. Moreover, according to its main content, achievements and prospects, it can be subdivided into four parts, say establishing goals (2008~April 2009), building in an all round way(April 2009~2012), basically completed (2013~2017), improving and perfection (after 2018).

Recently, building a "Livable Chongqing" is in the third part and has made significant achievements. First, living standard gets improved. Per capita housing space in the city increases year by year, and housing security system is comparatively improving. Secondly, public places become better. Environment, especially air quality continues to improve, and garbage and sewage treatment abilities are strengthened, and the effective of squares and greening construction is obvious. Third, public facilities are improved, such as urban and rural commercial service facilities, public cultural service system and recreational facilities.

Overall, "Livable Chongqing" enjoys a high position of developing mode, with innovative system construction, experienced mode promotion and ensured policy and measures. A good situation is formed by scientific top design, highly emphasis laid by leaders, well-organized department, enthusiastic participants and good cooperation among departments. Combined with phased characteristics, the following respects are mainly embodied. First, constructions highlight inclusiveness, in accord with the scientific development. Secondly, developing targets highlight harmony, in accord with people orientation. Third, engineering projects highlight suitability, in accord with demand orientation. Fourth, development steps highlight Periodicity, in accord with goal orientation. Fifth, systematization is highlighted, in accord with ensemble orientation. Lastly, operability is highlighted, in accord with project orientation.

The promoting mechanism of "livable Chongqing" has formed its own features. To begin with, a mechanism for overall coordination among city, districts and counties has been built. Secondly, policies of tax cuts and exemptions have been made. Thirdly, measures to integrate department function and resource have been carried out. Fourth, approval procedures are normalized and improved to control construction cost. Fifth, promoted engineering support of careful planning and motivated. Sixth, many financing channels are formed, say from government, enterprise and public.

"Livable Chongqing" has not only made periodic progress, but also formed the promotion mode with Chongqing's characteristics. In the process of deeply future promotion, we will face bottleneck restriction such as funding gap, talent supply gap and so on.

In the process of "livable Chongqing" development, there exit problems such as low living standard, significant differentiations between urban and rural areas, insufficient service facilities, lag in residents' service development, etc.

Based on "Livable Chongqing" building's present situation, the general idea of "livable Chongqing" building in the future should insist on planning, construction and management to improve the image and quality of the city in all aspects. Around the mainline of "coordination of
urban and rural, transformation development, livable city", optimize spatial distribution of "A circle and two-wing", innovate linkage mode such as planning, capital, policy, industry, project, administration and so on, promote "five Chongqing" linkage development, perfect Chongqing's six major functions: living, modern service, shopping and entertainment, sports and leisure, tourist and sightseeing and public life, focus on seven major areas, strengthen eight major point.

Among them, seven major areas included. 1st, build scenery belt along rivers, mountains corridor ecology belt, green belt along artery traffic and forest belt, build urban landscape which reflect Chongqing's history, mountains and water meticulously. 2nd, build landmark major functional architecture with modern standard to show function and image of the city. 3rd, optimized urban spatial distribution gradually, reduce old city population, add large residential areas in the outer ring region of the main city, build squares and parks, develop and use underground space more efficient. 4th, according to the request for more trees, road is flat, steer is clean, traffic is light, easy to go", conduct environment comprehensive governance thoroughly. 5st, beautify city buildings, norm city adds, optimize city lighting landscape. 6st, promote the urban management level, enhance modern management methods, strengthen and perfect comprehensive law enforcement. 7st, build amorous feelings town that is simple, natural, neat, beautiful and has distinct characteristics and perfect functions.

Eight major areas included. 1. The system mechanism. Under the framework of system mechanism of “livable Chongqing", perfect the promotion mechanism of “decision-making layer, execution layer and coordination layer” and the cooperation mechanism of “city, districts and counties”, strengthen the coordinating function of the leading group office of "livable Chongqing". 2. Policy and law. Make full use of development policy for western region, Three Gorges immigration policy, the three districts (urban and rural experimental area, bonded port, liangjiang new district) policy and so on. Establishment of a perfect local regulation system will ensure a steady progress to build a “livable Chongqing”. 3. Planning and designing. According to the request of “world’s vision, international standard, times spirit, Chongqing’s characteristics", persist on high starting point planning, guide the deepening of city’s creative design, ascend the building level of “livable Chongqing". 4. Funds and projects. The key of “livable Chongqing" lies in funds and projects. Combined with phased goal, a few “livable Chongqing" building project is needed with corresponding fund. 5. Quality standards. According to the standard of “reliable quality, rational layout, complete function, beautiful environment, safe living and domestic first-class”, plan and build high quality residential quarter, ascend the city's overall quality and livable level. 6. Coordination of urban and rural. “Livable Chongqing" is not only different from the endogenous type like “Sunan mode" but also different from the erogenous type like “Shenzhen mode”, Chongqing's features of “large city, large rural, large mountains, and large reservoirs determine its unique development mode to coordinate urban and rural areas, domestic and foreign. 7. Talent team. As the process of “livable Chongqing" becomes faster, bottleneck restriction of managerial talent team and professional talent team is more obvious. Enhance the speed and validity of professional talents’ education and training. 8. Platform and supporter. Around the phased goal of “livable Chongqing", build practice platform, innovate system platform, optimize finance platform, enrich information platform, perfect service platform, expand developing space of “livable Chongqing".

To ensure the steady advance of “livable Chongqing", a few strategic measures can be taken. 1st, focus on building “livable Chongqing", promote linkage development. 2nd, adopt various ways of financing, expand financing methods. 3rd, promote integration of urban and rural housing insurance and integration of urban and rural living environment; make overall consideration on urban and rural livability. 4th, promote rebuilding of old housing and comprehensive remediation simultaneously, promote real estate and affordable housing simultaneously, promote new housing and community service simultaneously, improve the living quality further. 5th, focus of work changes from ensure supply to promote consumption, spatial layout change from concentrated layout to concentrated layout combined with dispersible layout,
serve talent change from emphasize increment to emphasize both stock and increment, improve service system further.
SECTOR REPORT OF LIVABLE CHONGQING

1. Background of raising "Livable Chongqing" strategy

Livable is the pursuit of common humanity and important goal of construction of modern city and new socialist countryside. As the development of urbanization, the improvement of residents' living standard, people's requirements for the quality of material life and spiritual life continuously improve, livability of a city is urgently needed. Since Chongqing has been provincial-level municipality in 1997, urban and rural residents' living standard has improved a lot, public space improved obviously, service facilities gradually perfect, construction of living environment made important achievements. But there exist some outstanding problems such as low quality of construction in the city, messy construction in rural areas, and relatively lag of services. To content citizen's pursuit of livability and realize harmony among human, nature and society, we must try to take effective measures and solve these problems.

In the process of urbanization and industrialization, building "Livable Chongqing" is the objective requirement of applying "putting people first", optimizing living environment gradually, improving the quality of life and the happiness index of urban and rural residents; the major measure of promoting the capacity of sustainable development of Chongqing, optimizing development environment, building the hub of opening and the economic center in the upper Yangtze region, promoting Chongqing to develop better and faster; the inevitable choice of promoting development between urban and rural areas, among regions, taking the lead to achieve the goal of building a moderately prosperous society in all respects in western regions.

2. Judgments on "Livable Chongqing’s development period

The constructing of "Livable Chongqing" can be divided into two periods. According to the main job content, achievements and prospects, we subdivide it into four periods. They are establishing goals (2008~April 2009), building in all aspects(April 2009~2012), basically completed (2013~2017), ascension and perfection(after 2018). Now, "Livable Chongqing" is in building in all aspects.

2.1. Period of establishing the goal of "Livable Chongqing"

2008~April 2009 is the period of establishing goals of building "livable Chongqing". In this period, CPC Chongqing Municipal Committee and Chongqing Municipal People's Government draw up clear general requirements and clear goals and tasks.

The general requirements of "livable Chongqing" is that under the guidance of scientific outlook on development, around the core concept of "putting people first", regard improving living quality, optimizing public space, perfecting service facilities as a main line, take overall consideration on main city, districts and counties, on urban and rural areas, construction and management, build a "livable Chongqing" of comfortable life, beautiful environment, complete function, prosperity and harmony.

The goal of "livable Chongqing" is: 2009~2012, advance "livable Chongqing" in all aspects, major index reach first-class in western regions. Per capita housing area of urban residents reach 30m2/person; proportion of "Bayu new house" reach 40%; housing price-income ratio of dual-career families in main city can be controlled to 6. 5 and cubage in main city descend to 0. 95.
Square area per person reaches 0.16 m²; greening rate in built up area reach 37%; centralized processing rate of waste water reach 85%; Living garbage disposal rate reach 93% and above, the rate air quality reach secondary standard reach 305 days; safety rate of rural drinking water reach 100%. 2013~2017, "livable Chongqing" continues to consolidate improve, major index reach first-class in China. Per capita housing area of urban residents reach 35m²/person; proportion of "Bayu new house" reach 60%; housing price-income ratio of dual-career families in main city can be controlled around 6.5 and cubage in main city descend to 0.89. Square area per person reaches 0.16 m²; greening rate in built up area reach 39%; centralized processing rate of waste water reach 90%; Living garbage disposal rate reach 94% and above, the rate air quality reach secondary standard reach 312 days; safety rate of rural drinking water reach 100%.

In period of establishing goal, we establish a framework including theory and engine. The former mainly includes living conditions, public space and service infrastructure, main urban area, other districts and counties, towns and villages; three major projects for respective construction of urban and rural areas; two major indexes of urban and rural areas. The system of "livable Chongqing" is under the guide of theoretical frame, including improving the quality of residence, optimizing the public space, improving the service infrastructure.

2.2. Full construction stage and its results

The time from April, 2009 to 2012 is the full construction stage of "livable Chongqing". From April, 2009, the government has totally started the construction of "livable Chongqing" according to the overall plan. And now it has made some phase progress, the development results of the construction of "livable Chongqing" is remarkable which can be seen from some symbolic indexes (Table 1).

<table>
<thead>
<tr>
<th>aspect</th>
<th>index</th>
<th>2009</th>
<th>Standard value</th>
<th>2012</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of living</td>
<td>The house area per capital urban residents(square meter per person)</td>
<td>27.41</td>
<td>26</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>The house price to income ratio of two-career families</td>
<td>11.91</td>
<td>5</td>
<td>6.5</td>
<td>—</td>
</tr>
<tr>
<td>Public space</td>
<td>Gross floor area ratio of the main urban cities (%)</td>
<td>0.96</td>
<td>0.85</td>
<td>Less than 0.95</td>
<td>Less than 0.89</td>
</tr>
<tr>
<td></td>
<td>Square area per capita (m²)</td>
<td>0.07</td>
<td>0.6</td>
<td>0.16</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Rate of urban green space in built-up areas (%)</td>
<td>33.44%</td>
<td>37%</td>
<td>39%</td>
<td></td>
</tr>
<tr>
<td>Living service facilities</td>
<td>Urban sewage centralized treatment rate (%)</td>
<td>83.94%</td>
<td>100</td>
<td>85%</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>Harmless treatment rate of garbage (%)</td>
<td>88%</td>
<td>100</td>
<td>over 93%</td>
<td>over 94%</td>
</tr>
<tr>
<td></td>
<td>The days of air quality meet the secondary standard (day)</td>
<td>303</td>
<td>365</td>
<td>305</td>
<td>312</td>
</tr>
<tr>
<td></td>
<td>per capita area of commercial facilities (m² per person)</td>
<td>0.01</td>
<td>1.2</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>The number of public toilets with 10 thousand people</td>
<td>2.40</td>
<td>4</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Table 1 symbolic index and desired value of “livable Chongqing”
Sources: calculate according to the data of Chongqing Statistical Yearbook 2010
2.2.1. Quality of living has been improved

In recent years, the government of Chongqing has made effects on the policies such as “strictly controlling real estate investment, strictly planning and approving, declining the exploit cost, improving housing security”, and has effectively improved the quality of living both in urban and rural.

1) The house area per capital of Chongqing urban residents is increase year by year. Since Chongqing became a municipality, the house area per capital of urban residents has increased year by year. In 1997, the number of house area per capital of urban residents was 8.65 square meters per person, and in 2009, 27.41, increased nearly 3.2 times, and the number has reached the standard value of 26 square meters which published in <Scientific evaluation criterions of livable city> in 2007 by Chinese ministry of housing and urban-rural development (chart 1).

2) The system of housing security is fairly complete. Beginning from 2010, Chongqing is the first city to construct public rental housing on a large scale and makes great effects to set up a system of housing security which taking public rental housing as its main part. The plan is to construct 30 million square meters until 2012, which include 20 million square meters in the main city and 10 million in outer suburb, and until 2020, construct 40 million square meters. Chongqing breaks many limits such as urban and rural, household register, the conditions of applying public rental housing is also lower than other areas. The public-rental-houses are built mixed with common dwelling houses in 21 large-scale residential areas, and built with the same qualification and standard as the commodity houses. Their plans and constructions completely consult the plans and constructions of commodity houses; the transport is convenient, public facilities are well equipped, the environment is good, and there also have professional property management companies to provide management and services. Public rental housing, with low-rent housing, affordable housing, transformation housing, and other indemnificatory housing, form the system of housing security, which can mainly help 30% of all residents fulfill the target of “having a roof over the head”. 

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*Chart 1* house area per capital of urban residents from 1997 to 2009

Sources: Chongqing Statistical Yearbook 2010
2.2.2. Public space is constantly optimized

When evaluating the public space environment of a city, the frequently-used symbolic indexes are square area per capita, rate of urban green space in built-up areas, urban sewage centralized treatment, harmless treatment rate of garbage, the days of air quality meet the secondary standard, and the safe drinking water coverage in rural areas, etc. Because of the four polices propelled by Chongqing government, which named as “blue sky”, “blue water”, “green land”, “tranquility”, the proposed indexes have been improved remarkably, which can be seen in the development tendency and stage of Chongqing.

1) Ambient air quality is continued to get better. Since Chongqing carried out the air quality daily statistic in 2000, the ambient air quality has continued to get better. In 2009, the number of good air quality days was 303 all the year around, the proportion was 83%, reached the highest level in recent years. Compared with 2000, the proportion increased 31.5% (Chart 2).

![Chart 2 Proportions of air quality meet the secondary standard](image)

Source: Chongqing Ten Yearbook, Chongqing Statistical Yearbook 2010

2) The treatment ability of garbage and sewage are improved year by year. In 2009, harmless treatment rate of garbage of Chongqing reached 87.9%, 3% higher than the government's work target. Till the end of 2009, Chongqing has operated 28 garbage disposal sites; the designed treatment ability was 8355 tons per day. Among these sites, there are two in the main city and the designed treatment ability is 2700 tons per day; there are 14 sites in Three Gorges Reservoir Area and the designed treatment ability is 3130 tons per day. The number of the harmless treatment of garbage is 2.1784 million tons, treatment quantity in one day is 8964.6 tons, and the ability is in a leading position in our country.

3) The effects of the construction of squares and green spaces are appearing. Chongqing’s park green space per capital is 11.25 square meters, raking number 8 in the whole 31 cities of China, higher than the average level which is 10.66 square meters. In the newly increased green spaces, Chongqing is implementing 8 projects, which are city parks, grouping belt forestation, demolishing dangerous and constructing green space, vertical planting, urban sprawl greening, four mountains greening, road planting and the fluctuating zone greening, when these projects finished, the ratio of green space will reach 38.81%.

2.2.3. Service facilities are gradually completed

When evaluating the conditions of service facilities of a city, the frequently-used symbolic indexes are the per capita area of wholesale and retail trade, urban road area per capital, number of hospital beds with ten thousand people, per capital library collection, number of teachers per
capital, number of public toilets with 10 thousand people, etc. In recent years, Chongqing has aimed in the layout rationalize, functional diversification, service facilitation, standardized management, construction systematization, gradually established the service facilities and system which can meet the demand of the urban and rural residents.

1) The commodity service facilities are improved rapidly. In recent years, Chongqing Commerce committee has emphasized the establishment of business model communities and propelled the development of the communities’ commerce. Through the measures such as completing the development plan, making the construction standard, setting up service system, exploring management and promotion mode, supporting chain enterprises establish branch in communities, and propel the normalized operation of the enterprise, the government aimed in setting up business model communities and promoting the community commerce’s development into the direction of layout rationalize, functional diversification, service facilitation and standardized management. By the end of September, 2010, there have been 13 national-grade business model communities all around Chongqing.

2) The system of public cultural services is gradually improved. According to their own characteristics, every district and country completes the system of public cultural services. The representative districts and countries are: Banan is setting up a comprehensive culture center which is the biggest and the most complete of its functions in Chongqing; Yuzhong has constructed a “ten minutes culture service circle”, which emphasized to provide follow-up first-rate service and foster new growth point as creative industry; Nanchuan holds rural folk art performances to rich the culture life of residents; Youyang country organized 18 rural film projection teams, and the teams totally screened the films 2535 times in 39 towns and 280 rural schools, and the number of viewers reached 759.6 thousands.

3) The cultural and recreational facilities have a steady progress. Every district and country steadily propels the construction of the cultural and recreational facilities. The representative districts and countries are: Shuangqiao has fulfilled that every family connect with radio and television, and has established one branch center, two town-service-points and 21 village-service-points, the culture information resources covers the whole area. Bishan decides to reconstruct the welfare centre to be a first-rate comprehensive welfare center which has two functions: old folk's home and children welfare association.

Because it hasn’t reached the stage of function promotion and establishment, so we don’t discuss it now.

2.3. Current development evaluation and the follow-up targets of “Livable Chongqing”

2.3.1. Evaluation of “livable Chongqing” at this stage

The government of Chongqing has organized relevant departments to do lots of investigation about “livable Chongqing”. They evaluated the current situation about the “livable Chongqing” according to designed two types of indexes system and evaluation criterion, and they got the average score: the main city is 68 points, other districts (“one-hour economic circle”, Wanzhou and Qianjiang) are 63 points, the towns and countries are 59 points, and the levels separately are: ordinary, ordinary, worse.

2.3.2. Targets of “Livable Chongqing” in follow-up phase

The follow-up phase targets of “livable Chongqing” are: by 2012, the main city reaches the level of “preferable”, 60% of other districts and 30% of the towns and countries reach the level of “preferable”; Chongqing gets to be one of the most livable cities in the western China; by 2017, the main city reaches the level of “good”, all other districts and the towns reach the level of
"preferable" and above, 80% of other districts and 60% of the towns and countries reach the level of "good": Chongqing gets to be one of the most livable cities all around China (the evaluation results see table 2).

<table>
<thead>
<tr>
<th>Main city</th>
<th>Other districts</th>
<th>Towns and countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>current situation</td>
<td>Ordinary</td>
<td>Ordinary</td>
</tr>
<tr>
<td>Goals by 2012</td>
<td>preferable</td>
<td>60% preferable</td>
</tr>
<tr>
<td>Goals by 2017</td>
<td>good</td>
<td>80% good</td>
</tr>
</tbody>
</table>

**Table 2** the evaluation results and development goals of the construction of “livable Chongqing”
Source: the construction website of “livable Chongqing”

3. Summaries on development experience and promotion of “Livable Chongqing”

3.1. Development experience of “Livable Chongqing”

Totally speaking, the "livable Chongqing" development model is with a high degree of orientation, an innovative system construction, an experienced forward mode and a secure policy measures. It has basically formed a good situation which "the top-level design is scientific, the leaders attach great importance to, the lead units actively organize, urban and rural residents enthusiastic participate and all levels of departments actively cooperate".

The staged characteristics of the forward of Chongqing mode are reflected in the following aspects:

1) The livable construction displays inclusiveness and accords with the guidance of scientific development. The livable construction of Chongqing is propelled both in cities and countries; the main cities are as major and also take account of countries, the inclusiveness development idea is distinct.

2) The development goals display concordance and accord with the guidance of people’s livelihood. The goals of the construction of livable Chongqing are offering good living condition and meeting the demand of people’s dwelling and work. They are accord with the guidance of people’s livelihood.

3) The construction projects display suitability and accord with the guidance of demand. Along with the development of economy and society, residents are no longer satisfied with “Home Ownership”; they pay more attention to the comfortableness, convenience, concordance, security of lives and the excellent environment. The plan and construction of “livable Chongqing” and three types’ construction projects are accord with the guidance of demand of the residents.

4) The development steps displays periodicity and accord with goal orientation. The construction of “livable Chongqing” is staged, step by step and steadily propelled. Every stage has specific staged goals, and it accords with the goal orientation of the forwarding of important projects.
5) Systematization is highlighted, in accord with ensemble orientation. “Livable Chongqing” is a whole, so in the procedure of programming, construction and management, it emphasizes the system planning and the overall forward. The construction accords with overall orientation.

6) Operability is highlighted, in accord with project orientation. The construction of “Livable Chongqing” is supported by the projects. The three projects constructed in cities and countries are accords with project orientation.

3.2. Promotion mechanism of “Livable Chongqing”

3.2.1. Cities and districts join hands and set up coordinating operation mechanism.

In order to push the construction of Chongqing, Chongqing government sets up “the leading group of construction of livable Chongqing” which the team leaders are municipal government major leaders and in charge of the command and decision-making. The group has a Livable Chongqing construction leading group office which in charge of the organization, coordination, guidance, examination, inspection of the construction of livable Chongqing. The government of every district is the responsible mainstay, establish relevant organization and leading organ, take charge the work of land and fund, and carry on the projects.

3.2.2. Supportive policies of relieving the taxes and dues and accelerating the procedures.

In order to push the construction of “livable Chongqing”, Chongqing Municipality takes some supportive policies of relieving the taxes and dues and accelerating the procedures by “green passageway”. The first is about the public benefit projects, prior ensure annual relocation index and land supply; local governments can keep part of the sales tax, urban maintenance and construction tax, additional education fee, corporate income tax and stamp duty; and implementing policy privilege about the administrative fees and management fees. The second is opening up “green passageway” to the construction of public benefit projects of “livable Chongqing”, simplifying procedures, improving efficiency; finishing the government affairs which is about the administrative examination and approval and administrative impose in the possible shortest time.

3.2.3. Safeguard measures of Resource Integration and Functional departments

To promote the construction of livable Chongqing, Chongqing strength policy support, promote the function and integration of resources. For the construction of Livable Chongqing, the city integrated the resources of construction department, environmental department, business department, the tourism sector, the social security sector, Poverty Alleviation Office, Agriculture Committee and other departments. Integrated use of various department’s human, material and financial resources and intelligence resources, to scientific planning of urban and rural housing construction, improve the living environment, improve services and facilities, and protect the ecological environment and promoting the coordinated development of livable urban and rural areas.

3.2.4. Protection system of construction cost reasonable and approval Process specification

In order to achieve the goal of building a "livable Chongqing ", Chongqing Municipal Government has taken strict control measures on housing construction: (1) The government strictly controls the total amount of real estate investment, provides for an annual real estate investment in Chongqing cannot exceed 25% of the city's investment in fixed assets. This can avoid a lot of hot money into real estate, resulting in the real estate bubble. In accordance with the national housing standards (30 square meters per capita), strict examination and approval of the
city, county planning. (3) Reduce housing costs, the government strictly control the land cost, so land prices do not exceed house prices, for affordable housing, land sale price cannot exceed the house price of 1/6, for middle and low real estate, land price does not exceed the house price of 1/10.

3.2.5. Careful planning, promote the development of the engineering support

To promote the construction of livable Chongqing, the Chongqing municipal government carefully planned the 2009-2012 three major projects in the city and three projects in rural areas. Three major projects the city is the main city and other district's 21 city construction projects, including the promotion of commodity housing, improve housing security system, and improve the quality of housing construction and comprehensive renovation residential environment, improve community services and expand public space, comprehensive management of urban environment, creating urban landscape features and improve the services and facilities, abundant cultural and recreational facilities, Improve municipal services and facilities and other projects. The three major projects in rural areas include 8 major construction projects items, namely Bayu new home construction, alteration inhabitable houses in rural areas, improving rural roads, village governance capacity of the environment, protect the health of water, improvement of communication facilities, supporting commercial facilities, promote the preferential agricultural measures and other projects.

3.3. Investment and Finance for "Livabe Chongqing" Construction

To protect the building "livable Chongqing" funding requirements, the city mainly through state support, municipal finance investment, corporate finance, social participation, etc. to raise funds.

1. Form the city, district, government, community co-financing Investment pattern

   In the last three years, the "livable Chongqing" building has invested a total of 876.1 billion. The spatial distribution of investment from the point of view, the main city invested 525.5 billion, accounting for about 60%; the county 350.6 billion, accounting for 40%. Funding sources from the point of view, social investment 592.8 billion, accounting for 66.5%; government invested 283.3 billion, accounting for 33.5%.

2. Key construction project funds mainly from the "Eight Investment Groups"

   Chongqing City in 2009 identified a total of 100 key construction projects, total investment of 356.2 billion. In 2010, the city plan to invest 50 billion, of which 85% of the funds raised by the eight investment groups, and the financing sources and financing methods to achieve diversity: development bank financing, commercial bank financing, bond financing, equity financing, trust and financing and so on.

3. State-owned capital operation budget become an important part of Investment in public infrastructure

   Through state-owned capital operation budget, the state-owned enterprises in Chongqing investment in infrastructure construction for the 300 billion -400 billion each year, therefore Chongqing can reduce a large part of infrastructure investment, which can, increase investment in social security, education and health services and public services.
4. Constraints to promote "Livable Chongqing" and its problems

4.1. Constraints of "Livable Chongqing" development

From the building process of "livable Chongqing" to see, it will face a shortage of construction funds, manpower constraints and other bottlenecks.

1. The problems of construction funds: a large funding gap

In recent years, Chongqing has a rapid development of infrastructure construction. The infrastructure investment in 2008 was 120.3 billion Yuan, 154.3 billion Yuan in 2009, up 28.3%. It is estimated livable Chongqing, forests Chongqing, smooth Chongqing, peace Chongqing, health Chongqing and other "the five Chongqing " construction will take four years, the cost will reach 1.3 trillion Yuan. The Eight investment company in Chongqing (City Investment Company, Real Estate Group, a high incidence of companies, Yu Fu companies, Development Investment companies, travel companies, governmental Investment Group etc.) has more than 500 billion loans, of which the district (county) loan balance is more than 60 billion. Chongqing, in 2010, its total investment will reach 530 billion Yuan, compare with the budget revenue 98.2 billion Yuan in 2009, the gap is huge. So Chongqing government revenue and expenditure is difficult to reach equilibrium. Take the Public rental housing as an example, funded mainly through government funding, issuing bonds, commercial bank credit, provident fund loans, housing rents and other means to rise. According to a rough calculation, building 20 million square meters of public rental, land cost 500 billion Yuan, of which 200 billion Yuan is government investment, the other need to raise in the market. Because local government financial resources are limited, so how to form sustainable financing and repayment patterns is the test Chongqing has to face in the construction of public rental. Take the Real Estate Group's three public rental project as an example, which has a total construction area of 60 square meters, the project's total investment of 120 million, of which the government injected 2.4 billion, 5.38 billion bank loan and enjoy the central and local financial subsidies 1.12 billion Provident fund loans 1.5 billion, a total of 10.4 billion, there are still 1.6 billion funding gap. So funding is a major constraint.

2. The talent is in short supply, the total gap is large

Resident Services shortage of talent, leading the resident service level is not high. When the resident services develop to a certain stage, it will require the injection of professionals to promote industry upgrading. In a survey of enterprises, we found that in all the enterprises
surveyed, 82.0% think that the 2010 competition is fierce in their industry (34.8% think the competition is very fierce, the other 47.2% believe the competition is fierce). As the market competition becomes increasingly fierce, how to establish their own brand, get a better reputation in the market is the problems the enterprises have to face. Thus the need of enterprises for talent has become more urgent. Survey shows that in the shortage of funds, lack of competitiveness, talent shortage and other factors restricting the development of enterprises, 50.6% of enterprises believe that the talent shortage is the main restricting factors in the development of the enterprise (Figure 3).

4.2. Issues in the process of building a "Livable Chongqing"

From the process of building "livable Chongqing" to see, there are still have the problem of living quality is not high, significant differences between urban and rural areas, inadequate facilities, resident services slow development, project funding arrangements unreasonable and so on.

4.2.1. Living quality is still not high

1. Integrated living environment is lagging behind

Compare the four municipalities' general living conditions index and their ranking in the country (see Table 4). We can see Chongqing is relatively backward, the quality of life index, which is reflecting the integrated living environment, ranked only 42. The individual indicators are ranked 10 cities after in the country, of which: the ecological environment ranking 48; shopping environment ranked 35; living environment ranking 33; living conditions and educational environment rankings are 21; travel facilities ranked 13; health entertainment ranked 11.

<table>
<thead>
<tr>
<th></th>
<th>Environment</th>
<th>Living environment</th>
<th>shopping environment</th>
<th>travel facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Index value</td>
<td>ranking</td>
<td>Index value</td>
<td>ranking</td>
</tr>
<tr>
<td>Beijing</td>
<td>0.922</td>
<td>3</td>
<td>0.841</td>
<td>32</td>
</tr>
<tr>
<td>Shanghai</td>
<td>0.909</td>
<td>4</td>
<td>0.866</td>
<td>32</td>
</tr>
<tr>
<td>Tianjin</td>
<td>0.688</td>
<td>12</td>
<td>0.863</td>
<td>24</td>
</tr>
<tr>
<td>Chongqing</td>
<td>0.649</td>
<td>21</td>
<td>0.84</td>
<td>33</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Education environment</th>
<th>health and recreation</th>
<th>ecological environment</th>
<th>quality of life index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Index value</td>
<td>ranking</td>
<td>Index value</td>
<td>ranking</td>
</tr>
<tr>
<td>Beijing</td>
<td>0.784</td>
<td>3</td>
<td>0.753</td>
<td>4</td>
</tr>
<tr>
<td>Shanghai</td>
<td>1</td>
<td>1</td>
<td>0.743</td>
<td>5</td>
</tr>
<tr>
<td>Tianjin</td>
<td>0.403</td>
<td>8</td>
<td>0.438</td>
<td>20</td>
</tr>
<tr>
<td>Chongqing</td>
<td>0.294</td>
<td>21</td>
<td>0.523</td>
<td>11</td>
</tr>
</tbody>
</table>

Table 4: China's municipalities, integrated residential environment and the ranking among cities in the country

2. Housing quality indicators are relatively poor

The residential quality in Chongqing has the following problems: the housing function is not complete, a small number of urban green space, building capacity of excessive, downtown buildings are too close, the volume is much higher than the national average, thus reducing the quality of life of residents. According to relevant data, in 2009, the per capita public green area in Chongqing was 3.96 square meters; the green coverage area is 44,240 hectares, the green coverage was 38.48%. The data ranked 11 in the country's provincial cities, just above the
national average (38.22%) of 0.26 percentage points, far below the level of coastal areas (see Table 5).

<table>
<thead>
<tr>
<th>Ranking</th>
<th>areas</th>
<th>Green coverage (%)</th>
<th>urban green space area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The National</td>
<td>38.22</td>
<td>1993,168</td>
</tr>
<tr>
<td>1</td>
<td>Beijing</td>
<td>47.69</td>
<td>61,695</td>
</tr>
<tr>
<td>2</td>
<td>Jiangxi</td>
<td>44.36</td>
<td>37,596</td>
</tr>
<tr>
<td>3</td>
<td>Jiangsu</td>
<td>41.99</td>
<td>214,989</td>
</tr>
<tr>
<td>4</td>
<td>Hainan</td>
<td>41.88</td>
<td>48,947</td>
</tr>
<tr>
<td>5</td>
<td>Shandong</td>
<td>41.18</td>
<td>146,993</td>
</tr>
<tr>
<td>6</td>
<td>Guangdong</td>
<td>40.75</td>
<td>401,604</td>
</tr>
<tr>
<td>7</td>
<td>Hebei</td>
<td>40.02</td>
<td>60,923</td>
</tr>
<tr>
<td>8</td>
<td>Fujian</td>
<td>39.71</td>
<td>41,330</td>
</tr>
<tr>
<td>9</td>
<td>Shaanxi</td>
<td>38.76</td>
<td>23,426</td>
</tr>
<tr>
<td>10</td>
<td>Ningxia</td>
<td>38.75</td>
<td>14,525</td>
</tr>
<tr>
<td>11</td>
<td>Chongqing</td>
<td>38.48</td>
<td>32,451</td>
</tr>
</tbody>
</table>

Table 5: The list of the top 11 provinces in green coverage rate
Source: "China Statistical Yearbook -2010"

3. Price earnings ratio far beyond international standards
July 2010, Chongqing's price earnings ratio is 11.9, in the four municipalities of China ranked second (see Table 6). In accordance with international criteria, the price earnings ratio in the 3-6 range is reasonable, the price earnings ratio of Chongqing far beyond international standards.

<table>
<thead>
<tr>
<th>sequence</th>
<th>City</th>
<th>Per capita income (Yuan)</th>
<th>Average price (Yuan / M2)</th>
<th>Price earnings ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tianjin</td>
<td>55244</td>
<td>8958</td>
<td>8.11</td>
</tr>
<tr>
<td>2</td>
<td>Chongqing</td>
<td>24007</td>
<td>5720</td>
<td>11.91</td>
</tr>
<tr>
<td>3</td>
<td>Shanghai</td>
<td>76801</td>
<td>19168</td>
<td>12.48</td>
</tr>
<tr>
<td>4</td>
<td>Beijing</td>
<td>69483</td>
<td>22310</td>
<td>16.05</td>
</tr>
</tbody>
</table>

Table 6: The price earnings ratio of municipalities
Source: Chongqing Sohu http://cq.focus.cn/zdir/fangjiapk/index.php, the data of 100 square meters of residential, house prices in July 2010 as an example.

4. Living environment of low-income families relatively backward
As of 2010, Chongqing City were still have 2.3% and 1.3% of the low-income and lower income families to use public water, 4.5% of the low-income housing have no health facilities, 67.9% of the low-income housing without heating equipment, 2.8% still use coal in daily life, the proportion of the survey were higher than the city average. Therefore, the Chongqing urban housing and the supporting facilities need to adjust the layout, urban infrastructure and public services supporting the need for further improvement.
4.2.2. Livable Building have significant differences in urban and rural areas

In the Chongqing region, rural and urban co-exist, in addition to differences between urban and rural management system, the urban-rural dual economic structure not only hinder a unified market economy formation and coordination of social and economic development, but also resulting in the conflict between the urban and rural areas, workers and peasants, rich and poor and the government and farmers. This constitutes Structural barriers in building the livable city. The differences between urban and rural areas mainly as follows:

1. Improved urban environment and serious environmental pollution in rural area exist simultaneously

In recent years, Chongqing has made great progress in the urban environment pollution control and ecological protection, but the rural environment situation is not optimistic, embodied in: Environmental awareness, production technology and production methods, environment infrastructure and public service system, environmental institution-building, environmental protection legal system are all lagging behind.

2. Urban-rural income gap between urban and rural areas has led to large differences in living conditions

1997-2009, urban and rural living standards are all improved, but the increase rate of rural residents is far below the town. The per capita disposable income of the average annual household of Urban residents growth of 17.2%, while average annual per capita income of rural residents increased by 12.7%. In 2009, the urban-rural income ratio is 3.8:1; higher than the national data (3.3:1), and rural income is lower than the national average level of farmers (5,153 Yuan) (Figure 4).

![Figure 4: The households’ disposable income of urban and rural residents](Source: "Chongqing Statistical Yearbook -2010")

3. The difference between the consumption structure of urban and rural residents in large differences in living standards

1997-2009, the Engel coefficient of urban and rural residents respectively, from 46.7% and 65.8% down to 37.2% and 49.1% (see Figure 5). Engel coefficient of rural residents is higher than urban residents nearly 12 percentage points, just 10 a few percentage points lower than the internationally accepted poverty threshold (60%). In addition to the housing consumption slightly higher than the urban residents, the other indicators of rural residents were lower than the urban residents; especially the education and cultural services, which is lower than the 4.4 percent of
urban residents (see Table 7). In general, the overall living standards of rural residents approximately equal to the level of the 90 20th centuries in the city.

![Figure 5: The Engel coefficient of urban and rural households’ case](source: "Chongqing Statistical Yearbook -2010")

<table>
<thead>
<tr>
<th>Consumption Expenditure (%)</th>
<th>City Residents</th>
<th>Town Residents</th>
<th>Rural Residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td>37.2</td>
<td>37.7</td>
<td>49.1</td>
</tr>
<tr>
<td>Clothes</td>
<td>12.5</td>
<td>12.4</td>
<td>6.3</td>
</tr>
<tr>
<td>Family equipment products and services</td>
<td>8.2</td>
<td>8.6</td>
<td>6.7</td>
</tr>
<tr>
<td>Medical care</td>
<td>8</td>
<td>8.1</td>
<td>7.7</td>
</tr>
<tr>
<td>Traffic and communication</td>
<td>10.1</td>
<td>9.8</td>
<td>8.3</td>
</tr>
<tr>
<td>Education entertainment culture service</td>
<td>12</td>
<td>11.1</td>
<td>7.6</td>
</tr>
<tr>
<td>Living</td>
<td>8.7</td>
<td>9.2</td>
<td>12.9</td>
</tr>
<tr>
<td>Miscellaneous goods and services</td>
<td>3.3</td>
<td>3.1</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 7: the annual consumptive compounds per capita of urban and rural residents family (2009)  
Source: "The Yearbook of Chongqing 2010"

4. The development gap in basic public service facilities between urban and rural is big

The difference between urban and rural is not only shown in the income and consumption level, the basic condition, distribution of educational resources, public health, public service, labor safeguard in rural are far less than urban. Most township hospitals in rural are not reach the standard, the number of occupational physicians per thousand is 0.7 people (the number of nation is 1.5 people). The percent of junior high school level in the rural labor force is 91%. Because of the obvious inequality in education, job, living, labor safeguard, welfare, working condition and so on between urban residents and rural residents, the demand of farmers cannot fully release. The difference between urban and rural, the backwardness of the rural economy will directly affect the development process of the livable city.
4.2.3. Insufficient supply of service facilities

Since Chongqing administered, especially the country implied active financial policy and Western Development Strategy, the basic facilities improved significantly, but also have some problems.

1. Overall level of Chongqing basic facilities is low

Compare with other municipalities, the overall level of Chongqing basic facilities is low. In 2009, in our four municipalities, the urban water penetration rate in Chongqing was 94.6%, urban gas penetration rate was 91.83%, and the two rates were separately below the national average 3.9 and 8.6 percentage points. These two indexes of other three municipalities were 100%. The number of transport vehicles per million people in Chongqing was 7.85 standard units, was below the national average (11.12) 3.27 standard units, and did not reach the 1/3 of Beijing's level, and was about half of Tianjin and Shanghai's level. The number of urban road area per capita was 9.78 square meters, was less 3 square meters than national average (12.79 square meters). The number of public toilets per million people was 2.4 seats, was less 0.75 seats than national average (3.15 seats), and was lower than Beijing and Shanghai, basically the same with Tianjin. This shows that Chongqing is still in backwardness situation in the infrastructure construction (Figure 6).

![Figure 6 Every Chinese municipalities urban facilities level in 2009](image)

Source: "China statistical yearbook 2010", Table 11-14

Compare with other provinces, the infrastructure in Chongqing is at the lower level. In 2009, in 31 Chinese regional cities, the urban water penetration rate in Chongqing was 94.6%, and ranked 21, was lower 1.52 percent than national water penetration rate (96.12%). The urban gas penetration rate was 91.83%, ranked 13, and was slightly above national average level (91.41%). These two indexes of other three municipalities were 100%. The number of transport vehicles per million people in Chongqing was 7.85 standard units, ranked 28, and was just higher than Hainan, Neimeng, Shanxi, was lower 3.27 standard units than national average level (11.12). The number of urban road area per capita was 9.78 square meters, ranked 27, and was higher than Heilongjiang, Guizhou, Beijing and Shanghai. The number of public toilets per million people was 2.4 seats, ranked 21, and was less 0.75 seats than national average (3.15 seats). So, Chongqing is still in backwardness situation in the infrastructure construction (See Attached Table 1). We
used the clustering analysis in SPSS software, analyzed the urban facilities level in Chinese various areas of 2009, and got the clustering results as following. The results also showed a relatively hysteretic development trend in Chongqing urban infrastructure construction.

| First kind | Beijing |
| Second kind | Hebei, Jiangsu, Zhejiang, Shandong, Guangdong |
| Third kind | Tianjin, Liaoning, Shanghai, Fujian, Qinghai |
| Forth kind | Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Hubei, Guangxi, Hainan, Chongqing, Sichuan, Xizang, Shanxi, Xinjiang |
| Fifth kind | Neimenggu, Henan, Guizhou, Yunnan, Gansu |

Table 8: The clustering analysis of the urban facilities level in Chinese various areas (2009)
Source: the original data is from “China statistical yearbook 2010”, Table 11-14

2. Pressure of finance construction capital expenditures is big.

The financial fund in infrastructure construction is increasing year by year, but the investing demand is huge, the fund recovery speed is slow, the capital supply and demand contradiction is significant. Although the infrastructure construction has “multiplier effect” and it may bring several times of social total demand and national income than investment, the early fund recovery speed is slow, and there are some social commonweal project in the fund which do not produce investment returns directly, and that causes the heavy debt burden to district finance and governmental investing part.

4.2.4. Residents service development lags behind

According to the sampling survey results of Chongqing ChenDiao Crops conducting to urban residents about residents service in the early 2010, residents service mainly have those problems: unreasonable layout, the small scale of the service enterprise, service personnel lack and so on.

1. Layout of residents’ service in Chongqing is unreasonable, and the distribution is too concentrated in one hour circle, value the main city and contempt the “two-wing”.

The sampling survey results show that the distribution of the surveyed 88 residents’ service enterprises is too concentrated, that there are 74 residents’ service enterprises in one hour circle, accounting for 84.1% of surveyed enterprises, among which there are 53 residents’ service enterprises in the main city nine districts, accounting for 71.6% of residents’ service enterprises in one hour circle. The two-wing area residents’ service distribution is less, the number of which is just 14, which accounts for 15.9% of surveyed enterprises. The area distribution is shown as Figure 7:

2. Scale of Chongqing residents’ service enterprise is small, and the degree of branding, scaling, chaining are low.

The sampling survey results shows that the number of personal investing enterprises and other forms investing enterprises is maximum, accounting for 83.0% of surveyed enterprises, and among which there are 57 personal investing enterprises, accounting for 64.8% of surveyed enterprises. Again from the perspective of residents service enterprises’ scale situation, among the surveyed 88 enterprises, there are only 3 whose total capital are more than 100 million Yuan, accounting for 3.4% of surveyed enterprises, and there are only 14 whose employment are more than one hundred, accounting for 15.9% of surveyed enterprises, and there are only 6 whose total
operating income are more than 10 million, accounting for 6.8% of surveyed enterprises. Those show that residents service enterprises are as small scale, personal investing the main subject, and that there are few large enterprises, and that the degree of service branding, scaling, chaining are low.

![Figure 7: The distraction of Chongqing residents’ service](source: Chongqing ChengDiao Crops)

4.2.5. Arrangement of project funds is highlighting the hard and lighting the soft

From the perspective of the completion of key projects, the percentage of the arrangement of project funds to livable Chongqing construction in 2009 is just 34.4%, and the percentage of the directly relevant to the construction is less than 25%. Among the funds, there are only 7.1 billion which are used in the business services soft environment construction of business circulation and social culture traveling, only accounting for 4.4%, and the remaining 95.6% are used for improving living hard environment construction and transformation (see Table 3).

<table>
<thead>
<tr>
<th>INDEX</th>
<th>Planned total investment (10 million Yuan)</th>
<th>Completed investment (10 million Yuan)</th>
<th>Percentage (%)</th>
<th>The proportion of completion of the project (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key project of the city</td>
<td>1550</td>
<td>1620</td>
<td>100</td>
<td>104.5</td>
</tr>
<tr>
<td>City facilities</td>
<td>200</td>
<td>253</td>
<td>15.6</td>
<td>379.3</td>
</tr>
<tr>
<td>Ecological environment and prevention of geological disasters</td>
<td>100</td>
<td>139</td>
<td>8.6</td>
<td>138.8</td>
</tr>
<tr>
<td>Social culture traveling</td>
<td>25</td>
<td>63</td>
<td>3.9</td>
<td>251.2</td>
</tr>
<tr>
<td>Business circulation</td>
<td>10</td>
<td>8</td>
<td>0.5</td>
<td>79.4</td>
</tr>
<tr>
<td>City demolition and urban renewal</td>
<td>55</td>
<td>95</td>
<td>5.9</td>
<td>173.1</td>
</tr>
<tr>
<td>Livable Chongqing construction related project totals</td>
<td>390</td>
<td>558</td>
<td>34.4</td>
<td>143</td>
</tr>
</tbody>
</table>

Table 3: The completion of Chongqing key projects (2009)
Source: the data calculated the data in 103 page of the “Chongqing statistical yearbook of 2010”
5. Strategy and key issues for construction of livable Chongqing

5.1. General idea about livable Chongqing construction

The general idea about livable Chongqing construction is insisting on planning, construction, management multi-pronged approach, and overall improving the image and quality of the city. Around "urban and rural, transformation development and livable city" lines, optimize "a circle two-wing" space layout, innovate "planning league, capital league, policy league, industrial league, project alliance, administrative league" and many linkage mode, promote the "five Chongqing" linkage development, perfect rural residence, modern service, shopping entertainment, sports, tourism, public life these six functions in Chongqing, focus seven areas, strengthen eight grasp, which are grasping system and mechanism, grasping policy and laws, grasping planning and design, grasping funds and projects, grasping quality and standards, grasping urban and rural, grasping talent team, grasping platform carrier.

5.2. Key issues of livable Chongqing construction

1) **Beautify urban characteristic scenes.** Construct scenery along with rivers, mountains corridor ecological belt, green way along the traffic trunk lines and city group forest segregation, build carefully city scenery reflecting Chongqing history context and landscape blend. Beautify the city building façade, standard city advertising, optimize urban lighting landscape.

2) **Construct city image carrier.** Construct a batch of modern standard of major functional architecture landmark, showcasing the urban function and image.

3) **Optimize urban space layout.** Optimize urban space layout step by step, ease old city population, build large gathering area in main city outer ring region, build a batch of city square and city parks, strengthen the rational development and utilization of urban underground space.

4) **Deepen environment comprehensive management.** According to the requirements of "more trees, flat roads, clean streets, unimpeded cars, convenient traveling", deepen environment comprehensive management.

5) **Promote rural livable engineering.** Construct BaYu new home steadily, mend the pace of rural reconstruction and residential environmental renovation.

7) **Ascend urban and rural management level.** Enhance modern management methods, strengthen and perfect comprehensive law enforcement, ascend the management level of urban and rural living environment.

8) **Build featured town.** According to their different characteristics, build featured town of distinctive characteristics, simple natural, neat and beautiful, perfect function.

5.3. Eight ways to build a “Livable Chongqing”

1) **System and mechanism.** In the existing livable Chongqing construction system mechanism framework, perfect "decision-making, directors, coordination layer" three layers of promoting mechanism and city, area (county) teamed force mechanism, further strengthen the coordinating function of “Livable Room”.
2) **Policy and laws.** Make full use of the western development policy, the three gorges immigration policy, three areas (urban and rural test area, Free Trade Port Area, two rivers new area) policy etc. favorable policies, constantly perfect local regulations system, ensure steady progress of livable Chongqing construction.

3) **Planning and designing.** According to the "world view, the international standard, the spirit of the age, Chongqing characteristic" requirements, insist on the high starting point planning, constantly deepen the urban creative design guidance, ascend livable cities construction level.

4) **Funds and projects.** Livable Chongqing construction lies in the available capital, landing project. Combine the phased livable Chongqing construction goal, arrange reasonably corresponding construction funds every year, select a group of livable cities construction project.

5) **Quality and standards.** According to "quality reliable, rational layout, the perfect function and beautiful environment, living safety, domestic first-class" standards, plan and construct residential area of high quality, upgrade the city's overall quality and livable level.

6) **Urban and rural.** The construction of livable Chongqing is not only different from endogenous "southern Jiangsu model", but from exogenous "Shenzhen model", its "big city, large rural, mountainous areas, large reservoir "urban character determines that Chongqing should choose the combination of rural and urban areas, and unique model of development.

7) **Talents.** In the process of building a “Livable Chongqing”, lack of talents and professionals have became an increasingly prominent bottleneck. Thus, the education and training for managerial talents in urban construction and creative designing professionals should be enhanced.

8) **Grasp platform carrier.** Around the livable Chongqing staged construction goal, rationalize practice platform, innovate system platform, optimize financing platform, enrich information platform, perfect service platform, expand livable cities construction space development carrier.

5.4. Strategic measures of livable Chongqing

5.4.1. Focus on “Five Chongqing", promoting linkage development

From the concept of livable cities, "Five Chongqing" is inseparable. Rural development in 2007 issued a "livable city scientific evaluation criteria", it said that the evaluation elements of the livable city including social civilization degree, the economic prosperity degree, beautiful environment degree, resource load degree, living cheap degree, public safety degree, etc. Basically include the "Five Chongqing", livable city should be the city of comfortable and convenient, ecological and environmental sustainability, public safety, social harmony and stability, live and work in peace and contentment.

From the practice of livable Chongqing, "Five Chongqing" complements each other. "Five Chongqing" is a complicated systematic project, both have different emphases, but also seamless. "Livable Chongqing" focused residential, mainly to improve the living conditions and create a people-oriented living environment, attract domestic and foreign talents; "Unblocked Chongqing" emphasis on efficiency, mainly to improve the traffic environment, and urban traffic smooth and convenient, improve business efficiency, and reduce business costs.

"Forest in Chongqing," focused on greening, the main improvement of the ecological environment, to create green cities, through large-scale forestation and improving the ecological environment of the city and the Yangtze River, raising the city's competitiveness;” Peace Chongqing" focus on safety, mainly to improve public security, and create a harmonious and stable social environment, form compatible with the open economy of urban atmosphere;"Health
Chongqing" focused on health, major improvements in the human body environment, improve the health of the whole community, expanding opening up and building an important foundation for well-off society."Five Chongqing" is a broad concept of livable cities; livable Chongqing raise the level of the overall laid a solid foundation.

From the linkage means of “Five Chongqing”, the, specific to a "joint planning, joint capital, joint policy, industry joint, project joint, administration joint, and other linkage methods, integration of domestic and foreign, the city outside and inside, the urban and rural resources, including resources of institutions and mechanisms, policies and regulations, financing, technology intellectual, development of space, and jointly promote the construction of "Five Chongqing", and constantly improve promoting mechanism, to shape the total image of Chongqing, the city core competitiveness Improved, more attractive to domestic and foreign has played a significant multiplier effect, and gradually play "Five Chongqing" linkage effects.

5.4.2. Take a variety of financing methods, continue to expand financing channels

"Livable Chongqing" building process, has taken a variety of financing methods, but because of large capital development needs, still need to expand financing channels, the amount of funding on the one hand, the other is to improve the efficiency of fund raising.

1) The expansion of government financing. First, use public rental housing as a repayment guarantee, issue "public rental" national debt; the second is trying to issue local government bonds, while local governments are not allowed to issue bonds, but the central issue has been on behalf of local bonds, is on the move the exploration, the Chongqing government should actively create conditions for sustained efforts to apply for issuing local government bonds to improve government finances.

2) Financial institutions to expand financing channels. In addition to the one hand, the Asian Development Bank for loans, but also for the World Bank and European Investment Bank loans. On the other hand, absorption of enterprise funds through financial institutions. In the first half of 2009, the total profit of above-scale enterprises is down 26.2% in Chongqing, RMB deposits increased 59.4% in corporate deposits, indicating that the current scale enterprises lack of loan capital into the real economy, a lot of money isn’t into the real economy of production, distribution and other aspects, is still in circulation in the bank situation, the velocity of money more slowly. Financial intermediation can increase the intensity of mobilization savings to investment, through rational combination investment interest and risk, further design low investment risk financial products associated with "Livable Chongqing" should have a market need.

3) Non-financial business organizations to expand financing channels. One can use the intangible assets funding, such as auction naming rights of parks, roads and other infrastructure facilities. The other hand, accelerate privatization by implement franchise to public utilities have been built or under construction, due to" Livable Chongqing " large-scale investment in public facilities, and increase the risk of government hidden debt accumulation, franchising is a good way to balance between market and government, give full play to the advantage of the market and the government, effective provision public infrastructure supply efficiency, ease the pressure on government funds.

4) Social resources expand financing channels. One is to establish channels for donation, by way of promoting social donations to raise funds, the main contributions is not only individuals, but also including state-owned enterprises, foreign-funded enterprises, private enterprises and other groups, the large donations of enterprises and individual, the government can given a certain economic or spiritual reward as an incentive. Second, issue "Livable Chongqing" construction lotteries, lottery industry as a nonprofit fund-raising make a greater contribution for Chinese sports, environmental protection and education , "Livable Chongqing" is also public...
benefit, welfare lottery, both can be effectively raised from the community funds, and no issue of shares, bank loans and other financing to pay dividends or pressure of debt service.

5.4.3. Promoting both integration and building livable urban and rural

1) Promoting the integration of urban and rural housing support

The basic idea to Chongqing housing is: 30% - 40% of the middle-income groups, government provision of public rental housing and squatter settlements, replacement housing reconstruction villages to be protected; 60% - 70% of the high-income groups help settle down through real estate in market, and the government take the appropriate containment measures for high-end housing and speculative real estate, become a system about "low-end secure, middle-end market, high-end binding", progressive realization of housing guaranteed full coverage.

With the acceleration in urbanization, the speed of agricultural population to the cities and towns is faster and faster, increasing social instability, it is prior that solving the housing problem of urban and rural residents. The first is break through planning concepts, focus on urban and rural develop synchronously, the urban and rural development as a whole unified management system will be built in urban and rural areas throughout the urban development concept plan. Urban functions are not limited to urban areas but also spread into the surrounding countryside. The second is upgrade management philosophy, pay more attention to protect of existing housing security system and Marketing closed, explore the management between the real estate and farmers' housing, for cross-regional flow of rural and urban providing momentum. Third is to strengthen the concern, a large number of migrant workers is a major force in economic construction in Chongqing city, their housing demand is big, but housing buyers ability is poor, to solve the housing problems of migrant workers is the important way to achieve urban
and rural development, through the transform environmental of urban migrant workers communities, Study protection policies on housing for migrant workers, release of housing sites in rural collective construction land transfer and other methods to solve problems and improve the housing of migrant workers.

2) Promoting the integration of urban and rural living environment

Urban Environment and rural environment is an organic whole. To avoid the shift of urban pollution to rural areas, only the emphasis on urban environmental pollution control, ignoring the rural environmental protection and other issues, we should do to promote the integration of urban and rural environment. First, urban and rural environmental protection work mechanism, breaking the barriers to urban-rural dual system to carry out urban and rural ecological environment planning, rational distribution of ecological resources in urban and rural areas, urban and rural areas to promote the city's coordinated economic and social development and environmental protection; Promote economic development pattern, to develop low-carbon economy; implement scientifically on the urban and rural construction, industrial layout and restructuring, co-ordination comprehensive improvement of urban and rural environment; vigorously nudge forward pollution control in rural life, give prominence to rural drinking water safety, to further improve the capacity of village. Second, urban and rural environmental planning, the establishment of ecological compensation mechanism for urban and rural areas; the government a portion of funds for subsidies, compensation of urban development on rural ecological damage, to achieve the purpose of protecting the environment; ecological compensation into the special financial accounts, for use in ecological protection in rural areas and ecological projects. Third, implement marketing operation mode, to innovate and integrate of urban and rural environmental management incentives. Including compensation for environmental resources trading mechanisms, social investment and financing mechanisms, taxation adjustment mechanism, charging mechanism, through market regulation, to speed up the process of pollution control market, improve the urban and rural environment.

5.4.4. Implementing three promoted simultaneously to further improve the living standard

1) Rebuilding of old housing and the community comprehensive treatment promoted simultaneously

On the rebuilding of old housing, to strengthen supervision and management reform, strengthening the quality of the implementation process, the construction safety management and technical guidance services. In rural areas, the construction should take their folkways into account so as to create their own features. At the same time, focus on comprehensive improvement, improve urban and rural environmental sanitation, construct public toilets, waste disposal stations and other infrastructure facilities, to the county, town and villages which located near town and country as key point, Concentration and control heap of firewood, illegal acquisition road, disorderly to put stalls, Form a good situation about rebuilding of old housing and the community comprehensive treatment promoted simultaneously.

2) Commodity housing and affordable housing promoted simultaneously

For real estate, on the one hand to control the prices, the government through land prices, land supplied, favorable tax treatment to the real estate agency, strengthen management real estate agency and other means of strict control, to achieve the target price earnings ratio of 6.5. On the other hand to improve the quality of commodity housing, Not only attach importance to area, but also attention to the layout of interior structure, improve facilities, improve the overall community environment.

For affordable housing, on the one hand to further establish and improve low-rent housing, public rental system, affordable housing, resettlement housing and other support systems, to solve the housing difficulties of urban low-income families as the important work of safeguarding
the people's interests and the importance of housing system reform content, multi-channel solve low-income families housing difficulties policy system. On the other hand put the work of the housing security assessment management into all levels of government targets, and enhance the supervision and guidance, build gradually low-income housing for needy families file, formulate objectives, develop plans and annual plans, improve and standardize the relevant system, and gradually form a long efficiency of the housing security system.

3) New Housing and Community Services to proceed with

Enhance the living quality, not only to achieve the "Home Ownership", but also enhance the community quality of service. First, strengthening of housing management, housing management into the scope of community management, property management and community work together to manage the housing, community become a safe, beautiful and civilized district, and further improve people living quality. Second is to strengthen the services and facilities, construct public infrastructure ahead , make the people enjoy the convenience life, especially with the people closely related public transport, drainage, electricity supply, waste disposal and medical facilities , to ensure that supporting the construction and management of conservation. Third is to improve services. Develop urban and rural health, culture, sports and other public services, promote the health and rich cultural activities, organizing and mobilizing community resources to carry out public service activities, in order to cultivate the residents sentiments, improve the quality of life.

<table>
<thead>
<tr>
<th>Living space</th>
<th>key point of urban areas</th>
<th>key point of rural areas</th>
<th>requirement of quality promotion project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Inhabitable houses, mining shantytowns reconstruction</td>
<td>2. Rebuilding of old housing in rural areas</td>
<td>2. External beautification and internal architectural features enhance;</td>
</tr>
<tr>
<td></td>
<td>4. Improve community services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incremental part</td>
<td>1. Commodity housing construction</td>
<td>1. Construction of new homes in rural Bayu</td>
<td>1. high starting planning;</td>
</tr>
<tr>
<td></td>
<td>2. The construction of affordable housing</td>
<td>2. the overall planning and construction of new countryside</td>
<td>2. standardized operation;</td>
</tr>
<tr>
<td></td>
<td>3. Community service facilities</td>
<td></td>
<td>3. standardization;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Order to proceed with</td>
</tr>
</tbody>
</table>

Table 9: the importance and requirement of urban and rural living quality promotion project

5.4.5. Three changes to further improve the service system

1) Work focus: from security of supply mainly change to boost consumption

Shift the focus of work to do; the Government mainly focuses changes from security of supply to boost domestic demand. One is to increase revenue, especially in the construction of the "Five Chongqing" period, a corresponding increase in job opportunities, relevant government departments should vigorously explore and create employment opportunities, and planned to guide and place work for the urban population. To increase the income of the rural population, the relevant government departments should assist farmers to improve the quality of agricultural products, by increasing the technological content, adjust the structure of cultivation and breeding industry, actively promote the industrialization process of agriculture and other methods to enhance the market competitiveness of agricultural products; the same time to encourage rural non-agricultural development to local conditions, both the way out to solve the problem of rural surplus labor, but also on rural economic development boost. The second is to promote consumption for different consumer groups, at different levels to guide and promote consumption.
On high-income groups, tried to create the investment environment, start the private capital, and
guide them in the tourism, culture and consumption of large items on the large, rich consumer
content and enhance consumer spaces. On the low income groups, improving consumer
expectations, while revenue will continue to grow to their confidence and clear the other hand,
improved medical care, housing, social security and other programs to make them even more
uncertain future expenditures, thereby increasing immediate consumption, improve purchasing
power.

2) Spatial layout: the layout from focus change to the combining centralization and
decentralization

Make changes in spatial distribution, and guide services changes from a centralized layout
of combining centralization and decentralization. The first guide municipal funds, personnel,
technology, information and other factors of production flow to the wings area, offering some
support policies, strengthen the public distribution of resources, attract investment, create jobs,
and enhance people gathered in order to attract and bring services to form a virtuous circle.
Second is to establish services in branding, scale, chain business model, enhance its
competitiveness. Strengthen their own brand building, brand management to regulate the
operation and management behavior, optimize the scale of development, to achieve chain
business model of standardization, specialization, simplified and unique, and finally the formation
a good pattern which from the main city to two wings of the radiation to the development.

3) Service personnel: from focus on incremental changes to the stock and the incremental

Good talent pool service industry, to establish a attract talent and training mechanism.
First, strengthen talent planning, according to the regional service development process,
characteristics and laws, and improve the modern service industry with forward-thinking personal
development plans, focus on the innovative and shortage talent for enterprise, make long-term
development objectives, tasks and measures to strengthen the Government modern service
industry the regulatory capacity and public service capabilities. Second, take more initiatives to
attract talent. Through targeted government incentives, flexible salary system, more room for
development, good corporate culture, benefits and other social security measures to attract talent
to the service. Third, improve the personnel training system, establish a practice base for
graduates, plans to carry out modern service personnel reserve; for employees, vigorously
promote the implementation of modern service industry the quality of engineering talent, through
systematic training, professional training, job training, advanced learning methods to improve the
ability and level, so as to promote the progress of the overall quality of service.
## Appendix

### Appendix 1: 2009 urban facilities level in China by Region

Source: "China Statistical Yearbook -2010" Table 11-14

<table>
<thead>
<tr>
<th>Region</th>
<th>Urban water penetration rate (%)</th>
<th>City gas popularization (%)</th>
<th>The quantity of million people have buses (number)</th>
<th>Urban road area per capita (m²)</th>
<th>Per capita park green space area (m²)</th>
<th>The quantity of million people have toilets (number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHINA</td>
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</tr>
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Appendix 2: Livable Chongqing index system (Urban)

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<th>Broad heading</th>
<th>Mid heading</th>
<th>No.</th>
<th>Name</th>
<th>Unit</th>
<th>Standard value</th>
</tr>
</thead>
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<tr>
<td>Housing protection class (6 points)</td>
<td></td>
<td>1</td>
<td>The per-capita floor area</td>
<td>m²</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Housing price-income ratio</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Government affordable housing accounted for the proportion of the total area of housing construction</td>
<td>%</td>
<td>25</td>
</tr>
<tr>
<td>Housing quality (10 points)</td>
<td></td>
<td>4</td>
<td>Complete rate of residential</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>Public satisfaction with the built environment</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>Public satisfaction with the residential function</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>Residential building energy efficiency standards case</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>Intelligence level of residential construction</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td>Housing index (30 points)</td>
<td></td>
<td>9</td>
<td>Coverage of residential property management</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td>Have more than 2 square meters of green space per capita residential area ratio</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11</td>
<td>Community business center services radius coverage of 500-1000 meters commercial facilities</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>Public satisfaction with public facilities services</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13</td>
<td>Public satisfaction with the community landscape</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
<td>Neighborhood satisfaction</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>Public satisfaction with property management services</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td>Community quality (14 points)</td>
<td></td>
<td>16</td>
<td>Gross floor area ratio of the city</td>
<td>/</td>
<td>0.85</td>
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<tr>
<td></td>
<td></td>
<td>17</td>
<td>Urban construction land area per capita</td>
<td>m²</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18</td>
<td>Green area per capita</td>
<td>m²</td>
<td>10</td>
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<tr>
<td></td>
<td></td>
<td>19</td>
<td>Square area per capita</td>
<td>m²</td>
<td>0.6</td>
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<tr>
<td>Public space index (30 points)</td>
<td></td>
<td>20</td>
<td>Citizens approval for urban landmark landscape</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21</td>
<td>Citizens of the satisfaction with urban public space</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td>Open space (20 points)</td>
<td></td>
<td>22</td>
<td>Commercial facilities area per capita</td>
<td>m²</td>
<td>1.2</td>
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<tr>
<td>Construction quality (10 points)</td>
<td></td>
<td>23</td>
<td>Citizens satisfaction with the commercial facilities</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td>Commercial facilities (8 points)</td>
<td></td>
<td>24</td>
<td>The number of million people have library, the epoch spirit, science and technology museum venues</td>
<td>number</td>
<td>30</td>
</tr>
<tr>
<td>Cultural facilities (7 points)</td>
<td></td>
<td>25</td>
<td>Citizens satisfaction with leisure and entertainment</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td>Life service index (40 points)</td>
<td></td>
<td>26</td>
<td>Air quality better than or equal to the number of days secondary standard</td>
<td>day/yea</td>
<td>365</td>
</tr>
<tr>
<td>Environmental protection facilities (16 points)</td>
<td></td>
<td>27</td>
<td>Centralized sewage treatment rate</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28</td>
<td>The living waste harmless treatment rate</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29</td>
<td>Noise standard area coverage</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30</td>
<td>Coverage of municipal facilities</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td>Municipal facilities (9 points)</td>
<td></td>
<td>31</td>
<td>Public overall satisfaction with quality of municipal service (water, electricity, gas, television, Internet)</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>32</td>
<td>The quantity of million people have toilets</td>
<td>number</td>
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Appendix 3: Livable Chongqing index system (Rural)

<table>
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</thead>
<tbody>
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<td>Housing index (30 points)</td>
<td>1</td>
<td>The proportion of brick-concrete structure housing</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>brick-concrete structure housing area per capita</td>
<td>m²</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Household sanitary latrine coverage</td>
<td>%</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Promote the rate of new home Bayu</td>
<td>%</td>
<td>80</td>
</tr>
<tr>
<td>Public space index (30 points)</td>
<td>5</td>
<td>Accessible rate of rural roads</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Hardening rate of rural roads</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Satisfaction of public space</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td>Life service index (40 points)</td>
<td>8</td>
<td>Coverage of cultural facilities</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Coverage of business services</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Coverage of TV, telephone</td>
<td>%</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Penetration of clean energy</td>
<td>%</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>Coverage of water sanitation</td>
<td>%</td>
<td>100</td>
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<td></td>
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<td>Fixed deposit and transportation rate of waste removal</td>
<td>%</td>
<td>100</td>
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<td></td>
<td>14</td>
<td>Sewage treatment rate</td>
<td>%</td>
<td>90</td>
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</table>
SECTOR REPORT OF SMOOTH TRANSPORT CHONGQING

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SUMMARY

This report assessed the traffic conditions in Chongqing from three aspects, which are: i) situation of smooth transport in Chongqing’s central city; ii) transfer between urban transport and intercity transport, and iii) regional transport.

The first part of this report evaluated the level of smooth transport in the central city, identified the existing problems, introduced experiences from foreign cities, and provided some suggestions to address traffic congestions in Chongqing’s central city.

We should note that in the past few years the number of vehicles in Chongqing’s central city has been increasing every year. Because of the slow development of urban rail transport, such rapid growth of private vehicles will worsen the traffic congestions in the central city. The current traffic situation in the central city is unstable.

Evaluation of traffic conditions in central city is carried out in two major areas: evaluation on traffic flow and traffic accessibility. Evaluation of traffic flow used use three indicators: average travel speed, road congestion rate, and congestion rate of road intersections. Traffic accessibility in the central city is assessed using the “half an hour in central city” as a standard.

This report also introduced some good practice and experiences from foreign cities to inform Chongqing in addressing its traffic problem. We selected two mountainous cities - Curitiba and Hong Kong as case cities. Curitiba’s successful experience is to develop large capacity, high-speed ground transportation of BRT, and optimize its transit network. Hong Kong’s successful experience is to develop urban rail transit, while encouraging the development of a variety of public transport modes and strictly control the growth of private cars. These two cities all consider developing public traffic as a key approach to solve their traffic problems. Combined with their cities’ features, these two cities take BRT and urban rail transit as the main option. Our suggestion to Chongqing is: i) control the growth of traffic demand; ii) promote public transport with priority, and deepen the reform of public transport; iii) open the market of urban rail construction business so as to improve the competition in this sector.

Chongqing needs to apply a strategy of “two promote and one control”. City government should pay attention to promote the construction of urban rail transit networks, and improve the service efficiency and service level of public bus. At the same time, car travel mode must be controlled. Only by this way, the status of smooth transport in the central city can be stable.

The second part of the report is the evaluation of transfer between urban transport and intercity transport in Chongqing. The transfer between urban and intercity transportation mainly depends on the platform of transfer hubs. Objective of this part in the report is to understand whether the transfer between urban and intercity transportation in Chongqing is smooth and convenient or not.

This report provided a brief introduction about transfer hubs in Chongqing of various types, such as highway hubs, railway hubs, aviation hubs and integrated transportation hubs. A detailed review of transfer and connections in each hub was conducted. Based on this review and data from field survey, the rationality of each hub is assessed from the following three perspective: location, connection (the connection between public transport, private transport and the road network) and transfer time.

Results from this evaluation shows: i) Location of railway and aviation hub is reasonable. However, those new hubs are planned to build in the area between Chongqing’s Inner Ring Road and inside Outer Ring Road. This may add the transfer time of passenger. Also the construction of planned hubs is lagging behind the urban expansion; ii) Connection between public transport
and expressway network has not established. Connection with bus transit is not smooth and the construction of subway is too slow. There is a time gap between the construction of hub and construction of subway. In terms of connection with private transport, there are not enough parking facilities; iii) Transfer time in Chongqing is assessed as grade 1 at present. This report provided some good practice of transport transfer in cities in China and other countries. Based on the evaluation of Chongqing’s transport hubs, this report pointed out the problems of the transfer between Chongqing’s urban transport and intercity transport.

This report provided some recommendations to improve the city’s transfer between urban and intercity transportation. Key recommendations include: i) to plan and construct integrated transfer hub, to place the emphasis on the coordination of hub planning and construction, encouraging “parking-transfer” model, to speed up urban expressway network construction; ii) to focus on not only planning and construction of hubs but also the operation management of transfer hubs, to take the opportunity of building transfer hubs to further promote the reform of urban transport management and administration mechanism in Chongqing.

The third part of this report assessed the situation of smooth transport of Chongqing’s regional transport, including transportation connections between Chongqing’s central city and its rural counties, and connections between Chongqing and its surrounding provinces.

Indicators of road network coverage, road accessibility, investment needs for road constructions, road density, and road quality were used to evaluate the highway connections between Chongqing’s central city and rural counties. The evaluation is conducted by means of qualitative method and quantitative approach. Results from this evaluation shows that the density of Chongqing’s rural highway network is three times of the national average. However the proportion of quality highways (measured by class II roads as % of total length of national and municipal highways) is still low in comparing with the city’s goal defined in 12th FYP planning. The density of expressway is relatively low, and the traffic flow in the expressway bottleneck sections is not fluent in peak-hour. Problems were also identified for Chongqing's trunk highway system, and measures to address these identified problems were suggested, including measures of further improving the expressway fee policy, fully implementing "ETC system" in the city’s expressways, taking traffic control to freight vehicle in jams period, and effectively implementing roads surface reconstruction as planned.

The report also reviewed the current traffic situation of Chongqing’s rural highways using the two indicators of accessibility rate and quality highway rate (percentage of rural highways of good quality). The current situation of passenger transport in Chongqing’s rural area is assessed, and the development plan of rural highways and passenger transport proposed for the 12th FYP period is reviewed. The report has evaluated the rural highways traffic based on the comparison of current situation with what is planned. Evaluation is conducted by means of qualitative method and quantitative approach. Evaluation results shows that the quality highway rate and accessibility rate of rural highways in Chongqing have basically achieved the goal of the smooth transport scheme of the 11th FYP. But there are still some counties which have not accomplished the goal. The accessibility rate of rural passenger transport still has a certain gap in comparing with the planning goal of 2012, and the traffic infrastructures in rural areas should be improved gradually. This report also provided some suggested measures to solve the main problems of rural highways traffic, including measures of strengthening the maintenance and management of rural highways, securing the funds for rural highway maintenance, further improving the rural highway network, and integrating the passenger transport in urban area and rural area.
SECTOR REPORT OF SMOOTH TRANSPORT CHONGQING

This report evaluates the traffic conditions in Chongqing mainly from three aspects, which are: situation of smooth transport in Chongqing's central city, transfer and connection between urban transport and intercity traffic, and regional transport.

1. Evaluation of the Traffic in the Central City

1.1. Status of traffic in the central city

1.1.1. The scope of Chongqing city

Chongqing is one of the four provincial-level municipalities in China, located in the southwest. It is the economic and financial center of the Yangtze River upper stream, is an inland export processing base. It is also the shipping center of the Yangtze River upper stream region. The whole area of Chongqing is very large, which is about 8,400,000 km². The central city is the most prosperous region in Chongqing municipality, which has an area of 2,500 km², including nine districts: Yuzhong District, Dadukou District, Nanan District, Jiangbei District, Shapingba District, Yubei District, Banan District, Beibei District. As shown in Figure 1-1. On the map the region which leaves with the red coil is the central city, between the purple-red and the red color line’s scope is the central city development area.

1.1.2. The present situation of traffic in Chongqing’s central city

In recent years, with the fast development of the economy, the government increases the investment in urban traffic, which drives the rapid development of transport. In November 19, 2008, the government launched a project called "Unimpeded Chongqing" and further accelerate the development of transport in Chongqing. By the end of 2007, the total length of the path in central city is about 2726 kilometers. And the average speed of the main road is about 32km/h. Until 2009, the total number of motor vehicles in Chongqing has reached 2013900, represent 24.9% growth in 2008, among them, there are about 527600 motor vehicles in the central city, represent 19 percent growth over last year. The number of motor vehicles increases very fast in Chongqing. So it's necessary to grasp the current traffic flow conditions so as to solve the traffic problems.

1.2. Characteristics and evaluation of traffic in central city

1.2.1. Characteristics of traffic in the central city

1) Because of terrain, Chongqing adopts a “multi-center, cluster-style” layout, residents travel is mostly limited within the cluster, this reduces the volume of traffic which across clusters.
2) Traffic flow in central city reflects less the characteristics of mixed traffic, which is very common in other Chinese cities. This situation to some extent helps to reduce road congestion and improve speed.

3) Residents travel more dependent on public transport, public transport industry is facing great pressure. As public transport infrastructure and traffic control measures are not perfect, so the quality of public transport operators is still very poor, it is likely to cause traffic jams.

4) Pedestrian crossing is to take the underground passage way and overhead walkways. So traffic flow is less affected by the pedestrian crossing, intersection delay take a larger proportion of total delay.

5) In central city there is a lot of overpass. To some extent, the overpass can alleviate the traffic pressure. But the overpass itself attracts traffic. The traffic which concentrated near the overpass ramp is easy to form a new congestion point.

6) Chongqing is a city of great terrain elevation. Vehicles are often on the downhill. These factors make the vehicles more delays in starting and braking delay, likely to cause interruption of traffic flow.

1.2.2. Evaluation of traffic in the central city

The evaluation index of traffic flow is not only to reflect the operation of urban transport, but also reflect the performance of urban transport facilities. For central city the traffic flow situation will take the following three evaluation indexes, which are: Average travel speed, Road congestion rate, Intersection congestion rate.

In 2010, there were 24 congested roads in central city, which are: shiyou road, Dahuang road, caiyuan road, bayi road, xiangyang tunnel, jiefang east-west-shangxi road, lianglukou road, zhongshansan road, zhongshanyi road, hepingroad, jiefangbei ringroad, renming road-beiqi road, jiahua bridge road, shihuang tunnel, jiangxin nanbei road, guanyinqiao ringroad, north approach road of shimen bridge, hongqihegou –sonshuqiao road, huanghuayuan bridge-wulidian overpass, jianxin east road, hanyu road, shiyang road, yangjiapin ringroad, yuzhou road, xijiao road, nanbing road. The road congestion rate is 13.1%.

There existing 25 congested node in central city: niujiaotuo-shangqingsi, shangqingsi node, chaotianmen intersection, qixinggang node, daxigou intersection, yihaoqiao intersection, lingjiangmen, mang huang liang overpass, hongqi heguo intersection, hontudi wheel intersection, wulidian

wheel intersection, panxi wheel intersection, the intersection of jinkai road and renhe road, dianzixiao intersection, xinpaifang wheel intersection, yuson road wheel intersection, the intersection of xinnan road and xingguan road, the intersection of yangli road and yangshuang road, the intersection of zhandon road and tuanchen road, shinianpan intersection, the intersection of fenlian road and tianma road, the intersection of yinbing road and kechen road, the intersection of shiyang road and chen chi road, the intersection of dashi road and metro, the intersection of yunan road and qinglon road. The intersection congestion rate is 17.2%.

The average travel speed in Chongqing is about 34.8km/h. Compared with other cities such as Nanjing (24.8km/h), Shanghai (30.2km/h), Wuhan (20.4km/h). The average speed in Chongqing is much higher.

Generally speaking, the traffic of central city is smooth, but there still exist many problems, such as:

1) The spatial distribution of traffic is uneven. The traffic flow on the roads leading to the core area of each cluster is relatively dense. This increases traffic pressure on the core areas.
2) As the number of the roads connection between clusters is limited, make a lot of cross-border traffic focused on few channels. This is easy to cause traffic channel congestion, or even bring in traffic gridlock across the region.

3) Chongqing is a river city. There are two big rivers which are the Jialing River and the Yangtze River intersection. So the river channel shortage seriously restricts the development of Chongqing traffic.

4) In the existing fast road, the travel speed is low (about 34.8km/h). This limits the proper role of the fast road.

5) Different travel modes connection not smooth. The reasons are: i) The hardware facilities are not in place, for example: Bus station coverage rate is low, the distance between ground bus station and subway station, taxi stops is too far; ii) Different transportation modes need to be further integrated.

6) A serious shortage of parking facilities, this causes vehicles disorderly stop, occupy road resources and reduce traffic capacity, even cause traffic jams.

7) Lack of large-capacity of public transport. Although according to "the annual report of the central city transport development". In 2009, Total amount of bus travel accounted for 33% in the total residents travel. However, the bus lines set unreasonable, it is too focused on the city's main roads. The current Chongqing rail traffic is still in the initial stage, the subway construction is still in a slow speed and its development level is low. Subway Line No. 1,2,3,4 are under construction. But only a section of the subway Line 2 is in operation, and its total length is about 19.15km. Compared with other cities such as Beijing, Nanjing and Guangzhou (by the following table). Chongqing's rail transit traffic mileage is still in the very low level.

<table>
<thead>
<tr>
<th>City</th>
<th>Traffic mileage (km)</th>
<th>Years passenger (million)</th>
<th>Subway station number</th>
<th>Subway line number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing</td>
<td>336</td>
<td>1595</td>
<td>191</td>
<td>14</td>
</tr>
<tr>
<td>Shanghai</td>
<td>420</td>
<td>1825</td>
<td>266</td>
<td>11</td>
</tr>
<tr>
<td>Guangzhou</td>
<td>236</td>
<td>1460</td>
<td>144</td>
<td>8</td>
</tr>
<tr>
<td>Nanjing</td>
<td>85</td>
<td>214</td>
<td>57</td>
<td>2</td>
</tr>
<tr>
<td>Chongqing</td>
<td>19.15</td>
<td>41.81</td>
<td>18</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 1-1 2010 Beijing, Nanjing, Guangzhou, Chongqing rail transit development level contrast

Through the contrast we can see , neither in the number of subway lines nor traffic milage, Chongqing rail transit are at a very low level. Besides, Chongqing rail transit construction is at a slow speed, since the first subway line taken into operation in July 1, 2006. In the next four years, no new subway lines were taken into operation.

8) Why Chongqing rail transit developed so slow? Reason lies in backward system: First, Chongqing Rail Company monopolized Chongqing's rail construction industry. It not only results in the lack of competition throughout the industry, more seriously, only Chongqing rail company is hard to support the development of rail transportation in Chongqing. Second, Chongqing Rail Company’s business function is not clear, for example, as a commercial entity, the company actually carries out administrative functions.

1.3. Evaluation of the Central city Transport Accessibility-with “Half an hour central city” for Standard

1.3.1. The meaning of “half an hour central city”

In July 2008, the Chongqing municipal government launched “smooth project”, which focused on solve the traffic jams in central city. According to this project, until 2012, in the central
city, the average travel time between any two points should be controlled within half an hour. In the expansion area of the central city, the average travel time from any point to the central city should be controlled within half an hour.

1.3.2. Evaluation of the central city transport accessibility

Now, we take “half an hour central city” as a standard to evaluate the accessibility. In the central city, we take the city center-jiefangbei as a terminal point and then take the district government as a starting point. To see whether the travel time between the two places can be controlled in less than half an hour.

We also choose two sites in the expansion area of the central city to see whether the travel time can be controlled within half an hour.

<table>
<thead>
<tr>
<th>origin-destination</th>
<th>distance</th>
<th>Shortest travel time(minutes)</th>
<th>Whether within half an hour</th>
<th>Shortest travel time(minutes)</th>
<th>Whether within half an hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yuzhon district governmen—jiefangbei</td>
<td>1.1km</td>
<td>4</td>
<td>yes</td>
<td>5</td>
<td>yes</td>
</tr>
<tr>
<td>dadukou district governmen—jiefangbei</td>
<td>15.0km</td>
<td>28</td>
<td>yes</td>
<td>34</td>
<td>no</td>
</tr>
<tr>
<td>Jiulongpodistrict government—jiefangbei</td>
<td>11.9km</td>
<td>22</td>
<td>yes</td>
<td>27</td>
<td>yes</td>
</tr>
<tr>
<td>Nanandistrict governmen—jiefangbei</td>
<td>6.5km</td>
<td>13</td>
<td>yes</td>
<td>16</td>
<td>yes</td>
</tr>
<tr>
<td>Jiangbeidistrict government—jiefangbei</td>
<td>8.9km</td>
<td>17</td>
<td>yes</td>
<td>21</td>
<td>yes</td>
</tr>
<tr>
<td>Shapingbadistrict government—jiefangbei</td>
<td>16.7km</td>
<td>22</td>
<td>yes</td>
<td>27</td>
<td>yes</td>
</tr>
<tr>
<td>Egongyan yangtze river bridge—jiefangbei</td>
<td>10.9km</td>
<td>21</td>
<td>yes</td>
<td>26</td>
<td>yes</td>
</tr>
<tr>
<td>Jiulong lake—jiefangbei</td>
<td>12.3km</td>
<td>25</td>
<td>yes</td>
<td>31</td>
<td>no</td>
</tr>
<tr>
<td>Chongqing zoo—jiefangbei</td>
<td>12.1km</td>
<td>21</td>
<td>yes</td>
<td>26</td>
<td>yes</td>
</tr>
<tr>
<td>tianyixincheng—jiefangbei</td>
<td>11.9km</td>
<td>23</td>
<td>yes</td>
<td>32</td>
<td>no</td>
</tr>
<tr>
<td>Dalongshan park—jiefangbei</td>
<td>12.2km</td>
<td>24</td>
<td>yes</td>
<td>33</td>
<td>no</td>
</tr>
<tr>
<td>Egongyan yangtze—chongqing zoo</td>
<td>6.1km</td>
<td>12</td>
<td>yes</td>
<td>15</td>
<td>yes</td>
</tr>
</tbody>
</table>

Table 1-2 The evaluation of “half an hour central city”(accessible situation of the central city)

<table>
<thead>
<tr>
<th>origin-destination</th>
<th>distance</th>
<th>Shortest travel time</th>
<th>Whether within half an hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yuzui yangtze bridge—tuanshanbao</td>
<td>20.8km</td>
<td>29</td>
<td>yes</td>
</tr>
<tr>
<td>Beibei district government—shijialiangle intersection</td>
<td>12.8km</td>
<td>12.8</td>
<td>yes</td>
</tr>
<tr>
<td>Banan district government—taiyan hill</td>
<td>9.8km</td>
<td>29</td>
<td>yes</td>
</tr>
<tr>
<td>Chongqing west station—Dadukou interchange</td>
<td>13.7km</td>
<td>36</td>
<td>no</td>
</tr>
<tr>
<td>Liaojiagou reservoir—geleshan tunnel</td>
<td>13.1km</td>
<td>29</td>
<td>yes</td>
</tr>
<tr>
<td>Fenglin botanical garden—Chongqing agricultral school</td>
<td>10.3km</td>
<td>18</td>
<td>yes</td>
</tr>
<tr>
<td>Chengsonggiao reservoir—banan people’s hospital</td>
<td>21.4km</td>
<td>34</td>
<td>no</td>
</tr>
<tr>
<td>Yinlong intersection—Nanshan botanical garden</td>
<td>21.8km</td>
<td>37</td>
<td>no</td>
</tr>
<tr>
<td>Jiagang reservoir—Chayuan interchange</td>
<td>16.4km</td>
<td>29</td>
<td>yes</td>
</tr>
<tr>
<td>Zhengwushan tunnel—Nanshan botanical garden</td>
<td>17.8km</td>
<td>27</td>
<td>yes</td>
</tr>
</tbody>
</table>

Table 1-3 the evaluation of “half an hour central city”(accessible situation of the expansion area of the central city)

We can derive from the tables: The travel time between most points can be controlled within half an hour. "Half an hour of Chongqing", the goal is almost achieved.
1.4. Comparison with Foreign Cities and Suggestions to Chongqing

1.4.1. Urban traffic in foreign cities

Facing the increasingly serious traffic situation, we need to learn the experience from foreign cities to solve traffic congestion problems in Chongqing City. Foreign cities have higher level of public transport development (following table 1-4).

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>Curitiba</th>
<th>Chongqing</th>
<th>Moscow</th>
<th>Tokyo</th>
<th>New York</th>
<th>London</th>
</tr>
</thead>
<tbody>
<tr>
<td>population</td>
<td>2,431,804</td>
<td>6,900,000</td>
<td>8,700,000</td>
<td>32,342,698</td>
<td>19,227,361</td>
<td>7,007,100</td>
</tr>
<tr>
<td>Area (ha)</td>
<td>45,000</td>
<td>250,000</td>
<td>109,100</td>
<td>1,355,26</td>
<td>2,276,34</td>
<td>157,900</td>
</tr>
<tr>
<td>total length of bus line (km)</td>
<td>10,483.99</td>
<td>5936.9</td>
<td>6,843.68</td>
<td>13,485.93</td>
<td>30,193.99</td>
<td>9,588.17</td>
</tr>
<tr>
<td>Average number of trips per capita per year</td>
<td>748.25</td>
<td>842.31</td>
<td>981.85</td>
<td>1043.90</td>
<td>1208.15</td>
<td>1020.65</td>
</tr>
<tr>
<td>% of trips by public transport</td>
<td>75</td>
<td>19</td>
<td>39</td>
<td>0.79</td>
<td>86</td>
<td>45</td>
</tr>
<tr>
<td>Of which, % by rail transit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>% of trips by private transport</td>
<td>25</td>
<td>61</td>
<td>14</td>
<td>10</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>Total number of passenger ride of rail transit per year (100 million)</td>
<td>Missing data</td>
<td>0.41</td>
<td>61.97</td>
<td>160.40</td>
<td>15.97</td>
<td>12.14</td>
</tr>
<tr>
<td>Total number of passenger ride of bus per year (100 million)</td>
<td>5.40</td>
<td>20.2</td>
<td>18.84</td>
<td>7.46</td>
<td>4.87</td>
<td>4.72</td>
</tr>
<tr>
<td>The total length of subway (km)</td>
<td>Missing data</td>
<td>19.15</td>
<td>300</td>
<td>292</td>
<td>371</td>
<td>408</td>
</tr>
</tbody>
</table>

Table 1-4

Source: All data is taken from 2001 Millennium City data

Above table shows a big gap between Chongqing and foreign cities in terms of the level of public transport service. This gap is reflected in: The share of public transport is low, the total length of subway is too short, and subway passenger terminal is less.

1.4.2. Case of Curitiba's public transport

Curitiba is the state capital of Parana, located in southern Brazil. The average elevation of the region is about 900 meters, is in mountainous terrain. The city is divided by three rivers and its topographic features are similar to Chongqing.

Curitiba’s urban area is about 450 square kilometers and the population is about 2.4 million. Its population density is about 5,330 / km², more than population density in Chongqing central city (about 2,760 / sq km). Curitiba’s vehicle penetration rate (2.6 persons / vehicle) ranked second in Brazil. However, the city's traffic is smooth. This is due to Curitiba vigorously development of public transport. According to statistics, 56% of passengers go to work by BRT. If we combined volume of rail transit the public transportation contribution rate of the city can reach 75%. The measures which Curitiba used to relieve urban congestion problems are:

- From the 70 years since the last century, Curitiba began to develop Bus Rapid Transit (BRT) System
- build a unique integration public transport network
- Adjust the traffic network to lead the changes in urban functions
Using economic policy to encourage the public transport development

Curitiba’s strategy of public transport development has the characteristics of people-oriented and the local conditions, so that the city road resources are fully utilized and ensure the smooth traffic.

1.4.3. Case of Hong Kong’s public transport

Hong Kong’s area is about 1104 square kilometers, the area of the regions that already developed is about 225 sq km. The resident population of Hong Kong is about 7.01 million. Hong Kong is one of the most densely populated cities in the world. The population density is about 6,380 / km². As the world’s seventh-largest tourist destination, the large population of foreign visitors, which no doubt caused the traffic to Hong Kong a lot of pressure. Moreover, as Hong Kong being a mountain terrain, which gives a great impact to road construction, the road infrastructure is relatively insufficient.

Despite many difficulties, Hong Kong’s traffic construction still has remarkable achievements, and its successful experiences are:

- Take the rail traffic as the leading mode of public transport.
- Use transit planning to guide land use planning
- Encourage the development of multiple transportation modes
- Using advanced technology for traffic management
- Strictly control the number of private cars

Chongqing particular needs to learn Hong Kong’s successful experience of rail traffic and control the number of private cars.

1.4.4. Suggestions to transport development in Chongqing’s central city

1) Construction of "Smooth Transport Chongqing" requires us to unify our understanding. Because the urban traffic is a complex large system, only joint efforts of the whole society can solve the urban traffic problems.

2) Integration of urban planning and urban transportation planning.

3) The government should promote the rail transit and BRT develop rapidly as soon as possible. Only through break monopoly, open market, the introduce competition, and increase construction efforts. Can we ensure the rail transit and BRT develop faster than private car travel. So as to truly realize the public transport priority. This approach may develop into another Chongqing mode. It is Chongqing’s contribution to world urban construction.

The specific policy includes:

① Planning first. Urban planning department prepares rail transportation network planning, so as to conduct line control. The transportation construction department should basis on transportation network planning to prepare the plan of subway construction, and to formulate the standard of urban rail transport operation, line facilities and station facilities and so on.

② Legislation for urban rail transport. The Government should formulate sound administrative regulations to provide legal basis for the planning, construction, operation and management of urban rail transit.

③ To break the current monopoly of rail transit construction and operation. Specifically, the government needs to:
Open market entry and encourage competent enterprises to enter the field of urban rail construction.

Set up a special organization for rail construction investment to collect funds for urban rail construction.

Separate government functions from Chongqing rail company to enable the company to focus on business operation.

Introduce western advanced management model to improve the operation level of Chongqing Urban Rail Company and to optimize the configuration of internal resources. So as to make the company actively participate in market competition and to grow in the competition.

Promote the reform of rail construction financing model. At present, domestic basically has the following kinds of financing model:

- “Four Separate” model in Shanghai, that is: The four parts of the project which included investment, construction, operation and supervision are assigned to different units by the government. This model makes reasonable bearing business risk and financial pressure become possible.

- BT (Build-Transfer) model, it is a transform form of BOT model which means a project is entirely contracted and financed by a company after the project passing the acceptance then transfer it to the owner.

- PPP (Public Private Partnership) model, this model divides the whole project into two subprojects which are carried out by government and franchising company.

- BOT (Build-Operation-Transfer) model, The government signs an agreement with the company, allowing pre-signatories of the project company in charge of the project investment, financing, construction, operation, maintenance

Control the growth of traffic demand. The corresponding measures are:

- Optimizing the industrial layout to reduce the total amount transportation.

- Balancing regional economic development to eliminate the massive movement of persons and goods.

- Change the traffic concept and execute traffic demand management.

Improve the infrastructure of the ground bus and accelerate the construction of bus rapid transit (BRT).

Deepen the reform of public transport, for example: relax market access for rail construction industry so as to improve the competitiveness of this industry;

In the municipal construction period, related departments should pay more attention to traffic management.

Increase parking facilities construction force and improve the parking charge system at the same time.

In 2009, the resident’s traffic volume on foot accounted for 49.7% of the total volume. Therefore, the government should enhance the construction of slow-moving system, especially emphasis on enhancing on the planning of pedestrian system. The construction of pedestrian system should equally emphasis on quantity and quality. Not only enough pedestrian networks should be promoted, but also the footpath should be combined with city view perfectly, making the footpath become the beautiful view of the city.
10) The traffic flow is mainly concentrated on the south-north direction of the roads. But the traffic capacity of roads on the north and south direction is insufficient. Therefore all these roads need to be widened.

11) The government should vigorously develop the intelligent transportation technology, so as to establish perfect intelligent traffic management system (ITMS) and traffic information service system. We suggest the government to give priority to develop intelligent public transport technology, integrated hub information technology, urban traffic congestion charging technology and automatic control of urban road net lead technology.

2. Evaluation and Recommendations of Transfer between Urban Transport and Intercity Transport

Transport transfer hub is the main venue where the urban transport within and outside operates efficiently and the is the most effective platform where the transport system be organized scientifically and collaboratively. The transfer of urban transport and intercity transport also depends on this platform.

Whether the transfer of urban transport and intercity traffic is easy or not, mainly take the following aspects into consideration:(1)are there any suitable transportation hubs(2) whether the transport hub has many transport modes, linked lines and suitable road net(3)whether the transfer time of integrated transport hub is suitable.

2.1. Introduction of Chongqing’s Transport Hubs and Connected Transport

The transfer of the urban and intercity transport mainly depends on the transport hub and its various transportation modes, linked lines and the road net. The transport hub in Chongqing includes highway hub, rail hub, aviation hub, waterway hubs and integrated hub.

2.1.1. Profile of Transport Hubs in Chongqing

By the end of 2007, there are 9 major highway transportation hubs in the central city of Chongqing, as specified in table 3. According to the principle of layout and the location function of the transport hub, the hub in urban areas of Nanping, Chen Jia Ping, Chaotianmen, Caiyuanba, Hongqihegou and Shapingba will make function adjustment, construction of Sigongli hub and Beibei hub is near completion.

The figure below shows the distribution of the main hub in Chongqing, of which Hongqihegou hub will be removed, Nanping hub will move to Sigongli (not indicated in Fig2-1, red and blue lines represent the road network, the red area represents the inner ring road network, the pink area represents city cluster (pockets of urban development)).
Table 2-1 The current situation of hub in Chongqing urban area
Source: Chongqing National Highway Transportation Master Plan (2008-2020)

<table>
<thead>
<tr>
<th>Area</th>
<th>Station name</th>
<th>Grade</th>
<th>Floor area (㎡)</th>
<th>Daily passenger volume (per person)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chongqing urban area</td>
<td>chenjiaping</td>
<td>1</td>
<td>48295</td>
<td>10445</td>
<td>Main hub planning</td>
</tr>
<tr>
<td></td>
<td>chaotianmen</td>
<td>1</td>
<td>8384</td>
<td>10488</td>
<td>Main hub planning</td>
</tr>
<tr>
<td></td>
<td>caiyuanba</td>
<td>1</td>
<td>6628</td>
<td>14253</td>
<td>Main hub planning</td>
</tr>
<tr>
<td></td>
<td>nanping</td>
<td>1</td>
<td>17073</td>
<td>17405</td>
<td>Main hub planning</td>
</tr>
<tr>
<td></td>
<td>longtousi</td>
<td>1</td>
<td>21331</td>
<td>2000</td>
<td>Main hub planning</td>
</tr>
<tr>
<td></td>
<td>hongqihegou</td>
<td>1</td>
<td>5000</td>
<td>14907</td>
<td>Main hub planning</td>
</tr>
<tr>
<td></td>
<td>shapingba</td>
<td>2</td>
<td>4500</td>
<td>5472</td>
<td></td>
</tr>
<tr>
<td></td>
<td>sigongli</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>beibei</td>
<td></td>
<td></td>
<td></td>
<td>Main hub planning</td>
</tr>
</tbody>
</table>

There are 8 planned new hubs: Xiyong hub, Lianglu hub, Chayuan hub, Yudong hub, Yuzui hub, Xipeng hub, Baishiyi hub, Shangqiao hub.
The main railway hub in Chongqing urban area are North Chongqing station, Chongqing station and Caiyuanba station, The third Chongqing station is planed to be built; aviation hub includes Jiangbei airport, Wanzhouwujiao airport, Qianjiangzhoubai airport, of which Jiangbei airport assumed the most passenger volume, and it will be planned to be rebuilt. The branch line of tourism airport of Wushan and Wulong will be built too.

In the above transport hubs, Longtousi hub is an integrated hub. Station and wharf of chaotianmen is a hub of highway and waterway. Lianglu hub is an integrated hub of highway and air. Now, the passenger transfer to the hub mainly depends on the bus transit, based on the basis of the existing bus transit. After the completion of the planning one Ring Road and nine ray Light Rail Line (LRT), both the rail and bus transit will provide the passengers with transfer services.

2.1.2. Description of Chongqing hubs

The hub will be described from the following three aspects: the cluster that the hub served, the transportation mode and linked lines to the hub, the main road net around the hub: the dotted line in the figure represents unfinished or planned transportation routs, the number represents the total number of this transportation mode, red yellow and gray respectively represents the transportation mode of rail, bus (public) and bus.

A. Longtousi hub (railway hub)

Having been constructed, located to the east of Longtousi station which located in the northern zone of Chongqing. Lontousi hub is close to the north Chongqing railway station, bus station and light railway station. It serves the surrounding area of Chongqing and meets the needs of the mass transportation of railway, as well as function in passenger transfer. The designed passengers volume is 22,000 person/day, covers an area of 80000 square meters. Longtousi hub provides the passengers with service to the bus station and railway station and the daily travel to the inside through bus transit, long-distance travel of the surrounding countries and the rail passenger service to the provinces to the outside.

B. Chaotianmen hub (waterway hub)

Having been constructed, chaotianmen hub is mainly composed by Chaotianmen bus station and chaotianmen wharf, assumed highway and waterway transportation. The passenger can turn to take a bus or a ship (mainly for the tourists) through bus transit here. In the future, the LRT 1will set a stop at Chaotianmen hub.

C. Chenjiaping hub (highway hub)
Having been constructed, Chenjiaping hub is a traditional highway hub, there are many passenger lines and bus lines at present. The LRT 6 will pass by Chengjiiping hub, the passenger can transfer here freely.

D. Nanping hub (highway hub)

Having been constructed, Nanping hub is composed by Nanping public transport hub and Nanping long-distance bus station, located in the Nanping business district. The main function is the long-distance passenger distribution of the city and intercity. Consider the influence to the traffic of surrounding and environment, it will be moved to the Sigongli according to the plan by 2011.

E. Sigongli hub (highway hub)

Having been constructed, its main function is the distribution of long-distance city and intercity passenger in southern part of Chongqing. It also has the function of passenger transfer and “vehicle port” by rail, bus transit, taxi and social cars and other traffic modes.

Figure 2-6 is the diagram of the transport routes and connection of Sigongli hub, the hub is linked with one Ring Road, five longitudinal lines, four horizontal lines, city express artery, Ring Road of rail transit and LRT 3, facilitates the passenger transfer of Guiyang and the direction along the river, at the same time, provides the bus and subway transit transfer service to the Nanping cluster and other areas.

F. Shapingba hub (subway hub)

Having been constructed, Shapingba hub is an integrated hub of highway and subway, composed by Shapingba subway and bus station. On this basis, Shapingba subway station will be built to an integrated hub with comprehensive functions of subway transit, bus transit and light railway transit. Besides the bus transit, the new subway line 1 and 9 and LRT loop line will pass by the hub.
G. Hongqihegou hub (subway hub)

Having been constructed. Hongqihegou long-distance bus station located in Jiangbei district, at present, it can satisfy the needs of passenger transfer basically, a stop of LRT 3 will be set here, by the time, the passenger can realize stereo transfer by bus, LRT and public bus. According the long term planning, Hongqihegou long-distance bus station will be rejected in a few years.

H. Caiyuanba hub (subway hub)

Having been constructed. Caiyuanba railway station located in Yuzhong district of Chongqing, according to the long term planning, stop of LRT 3 will be set near south bridge of Yangtze River in Caiyuanba. By the time, the passenger can realize stereo transfer by bus, LRT and public bus. Be limited by the land area, Caiyuanba station will be rebuilt in 4.1.2011. After the rebuilt project, Caiyuanba railway station will become the special starting point of ChengYu high-speed railway, its function will be more clear. By high-speed railway, it will take only 52 minutes to reach Chengdu. Chengyu intercity traffic will be smoother.

I. Lianglu integrated hub (Jiangbei airport)

Being under construction, Lianglu hub located at Lianglu in Yubei district, within the control of the airport, in the fourth quadrant of Shung Fung bridge overpass. Lianglu hub is an integrated airport hub with civil aviation, subway, rail, bus and long-distance passenger transport. In addition the service of regular long-distance and intercity transfer function, it mainly provides airport passenger with service of transfer in and out of city, it also has the function of multimodal transport, tour traffic and car port. According to the short-term planning, Jiangbei airport will have three runways and 117 airliner port, it can meet 45 million passenger throughput: opening the second National Civil Aviation route to Tibet, attracting the passenger of southeast coastal, Europe and Southeast Asia areas transfer to Tibet through Chongqing, copying "Chongqing-Chengdu bus rapid transit" model, building "an hour air circle", radiating Guiyang, Enshi and other 12 airports, providing air services across the country.

Figure 2-10 is the diagram of the transport routes and connection of linglu hub. To the outside, it provides long-distance transfer service in the direction of Linshui and Dazhou, as well as the bus transit service of linglu cluster and other areas around.
J. Beibei integrated hub (highway hub)

Being under construction, this is an important hub of northwest of Chongqing, an major path for Chongqing to connect with north Sichuan, Shanxi and Gansu. It has a good traffic condition and three traffic modes of railway, waterway and highway at home. The integrated hub of Beibei is under construction, it provides the presidents with the daily traffic needs and the transfer to this hub inside and long-distance and railway transportation service to south Sichuan, Shanxi and Gansu to the outside. The basic facilities of Beibei port is out of date and needs to be improved. A stop of subway line 6 in grade 1 will be set at Beibei, by the time, passengers can transfer from the hub by subway transit.

K. Xiyong hub (highway hub)

Xiyong hub is an integrated hub with kinds of traffic modes of long-distance transport, bus transit, subway transit, taxi and cars. It has the function of transfer, passenger assembling and evacuating and car port. The hub is connected with one longitudinal line and three horizontal lines, providing traffic service in the direction of Chengdu and Suining inside; to the outside, it establish a close contact between Xiyong district and areas around through subway line 1, 7 and Xiyong bus hub, especially the relationship between cluster of Xiyong and Shapingba.

L. Baishiyi hub (highway hub)

Baishiyi hub and Xiyong hub has the same function. The figure is the diagram of the transport routes and connection of Baishiyi hub. To the outside, it has a close contact with Outer Ring Road expressway and ChengYu expressway, providing the traffic service in the direction of Neijiang, Luzhou and Yibin. It provides passenger transfer service through subway line 7 and 6 bus lines, especially the passenger of cluster Dadukou and Xiyong. In the long term planning, Baishiyi and Jinfeng bus hub will be built here, and the bus line to other clusters will be added after the completion of bus hub.

M. Xipeng hub (highway hub)

Xipeng hub is an integrated hub with kinds of traffic modes of long-distance transportation, bus transit, subway transit, taxi and cars. Figure 2-14 is the diagram of the transport routes and connection of Xipeng hub. To the outside, it is next to Outer Ring Road expressway and YuLu expressway, providing the long-distance traffic service in the direction of Sichuan Luzhou and Kunming. It provides passenger daily work and transfer service through subway line 5 and 7 and bus transit to the inside.
Competition exists between hub of Xipeng and Baishiyi on inside traffic.

N. Yudong hub (highway hub)

Figure 2-15 is the diagram of the transport routes and connection of Yudong hub. This hub has a direction with Inner Ring Road expressway which can link with ten outer expressways of “2 loop lines and 10 rays”, especially YuXiang and YuLin expressways. To the outside, it provides the long-distance traffic service in the direction of Changsha and Guiyang, to the inside, on behalf of subway line 3 stop of Liujiayuanzi and bus hub, it provides passenger daily work and transfer service for cluster of Yudong and Lijiatuo.

O. Chayuan hub (highway hub)

Figure 2-16 is the diagram of the transport routes and connection of Chayuan hub. It is next to Shita overpass of Chayuan cluster which connected with Jiangnan path in the north and intersected with Inner Ring Road in the south (YuXiang and YuQian expressway), connected with Inner Ring Road in the west and ring expressway in the east, the transfer is very convenient. The subway line 6 and 7 have stops here. To the outside, it provides the long-distance traffic service in the direction of Guiyang and along the river, as well as the bus transit service for Chayuan cluster and other areas.

P. Yuzui hub (highway hub)

Figure 2-17 is the diagram of the transport routes and connection of Yuzui hub. It is connected with one horizontal line and six longitudinal lines and two horizontal lines, next to YuYi expressway and the outlet of Outer Ring Road expressway. It also has a connection with subway line 4 and 8. To the outside, it provides the long-distance traffic service in the direction of Wuhan and Shanghai, as well as the bus transit service for Yuzui cluster and other areas. Yuzui bus hub is planned near this hub.

Q. The third station of Chongqing (highway hub)

The planned third railway station of Chongqing will be located in shapingba shangqiao district. The new station project is positioned as the super national station, covering about 1200 mu. Its handling capacity can reach to 21.9 million passengers after its completion. The station will adopt the style of “integrated transportation and stereo layout”. The station house is divided into five layers and has a stereo layout of railway station, long-distance station, bus hub, railway, taxi waiting area and social car parking facility, etc.
2.2. Evaluation of transport hubs

Evaluation of transport hubs are based on the three indicators of: i) location rationality; ii) connection rationality; iii) transfer time.

2.2.1. Evaluation of location

1) Highway hub

According to the description of current situation of hubs in Chongqing urban area, the major long-distance hubs locate in the central city such as hub of Chaotianmen, North Chongqing, Shapingba, Chenjiaping and Beibei. These hubs locate in different districts and can basically meet the daily traffic needs of the passenger, but this adds traffic pressure to central city. According to the “Multi-center and cluster style” layout, the new planned nine hubs set at the expressway intersection, relying on different clusters and serving for them, transfer the traffic pressure of the city.

But in another aspect, to put the hub at the expressway intersection out of the Chongqing Inner Ring Road, adds the traffic cost, traffic time and transfer time of passengers. As the changing of transport lines, some passengers may need to go through the whole city to catch the bus. Taking this point into consideration, it is necessary to set up the bus lines linked with the hub.

2) Railway hub

The railway stations locate in different districts of north of Yangtze River. The third station will be located in Shapingba Shangqiao district. After its completion, it will assume the origin passenger task of the YuQian and LanYu railway line, three stations assume different directions of the passengers and the task division will be clearer. The rational location of the station can assemble and evacuate passengers effectively, reduce the railway lines that go through city and make the access of passenger vehicles in order.

3) Aviation hub

In the future, airport in Chongqing will form the layout of one big and four small, of which the biggest airport of Jiangbei locates in Jiangbei District, the other four repectively locate in Wanzhou, Qianjiang, Wushan and Wulong. The expansion of Jiangbei airport has an strategic meaning for Chongqing to become the western hub. Wanzhou and Qianjiang airport are branch line airports which assume part of the passengers, the new planned Wushan and Wulong branch line airports respectively depends on the two tourist districts, assuming the majority of tourists. It will boost the local tourism economy.

2.2.2. Evaluation of connection

Evaluation of the transfer rationality is mainly from the aspect on the connection of the hub and the other transportation modes, including the following three aspects: i) connection with private transport; ii) connection with public transport; iii) connection with road network around.
1) Connection with private transportation

Connection of the hub and private transportation mainly depends on whether there is an equipped car parking space. According to "Detailed Standards of the Equipped Car Parking Space of Chongqing Construction Project", every 100 passengers should have 3 parking spaces. Table 2-2 is the parking space of the new planned nine highway hubs and Longtousi hub, including management office spaces, long-distance passenger shuttle parking, parking-Ride spaces and parking spaces to outside. The parking-Ride spaces has two functions: one is for travelers outside the city to stop, transfer the public transport and access into the city, the other is for the city visitors to park and take the bus to leave the city.

<table>
<thead>
<tr>
<th>parking facility hub</th>
<th>Low plan</th>
<th>High plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longtousi</td>
<td>——</td>
<td>500</td>
</tr>
<tr>
<td>Xiyong</td>
<td>47</td>
<td>51</td>
</tr>
<tr>
<td>Baishiyi</td>
<td>113</td>
<td>116</td>
</tr>
<tr>
<td>Xipeng</td>
<td>36</td>
<td>39</td>
</tr>
<tr>
<td>Yudong</td>
<td>78</td>
<td>82</td>
</tr>
<tr>
<td>Sigongli</td>
<td>81</td>
<td>84</td>
</tr>
<tr>
<td>Chayuan</td>
<td>73</td>
<td>77</td>
</tr>
<tr>
<td>Lianglu</td>
<td>77</td>
<td>80</td>
</tr>
<tr>
<td>Yuzui</td>
<td>72</td>
<td>75</td>
</tr>
</tbody>
</table>

Table 2-2 The parking space number of the planned hubs
Source: Chongqing institute of integrated transport, the research of the basic data on Chongqing urban expressway and city hubs, 2009.

As can be seen from the figure 2-2, although there are reserved parking-Ride spaces, as more and more closely contact with the outside world, the passenger traffic of city and intercity in Chongqing will increases and the traffic will inevitably put pressure on the city, so the stop-transfer model should be encouraged and the social parking spaces should be increased on the basic of the plan.

2) Connection with public transportation

① Connection with bus

Evaluation of the connection with the bus lines according to the description of figure 2-1 is from the range of services of the hub to see whether the hub has bus lines to all clusters and the number of bus lines. As follows:
From the statistics of Table 2-3, Longtousi hub is the main hub in Chongqing city, serving for the whole city. There are 5 clusters that have not arranged bus lines, should consider increasing the bus lines.

Shapingba hub serves for Shapingba cluster. Its connection with bus lines is rational.

The older hub of Caiyuanba, Hongqihegou, Chenjiaping and Nanping has more bus lines which can basically meet the passenger transfer needs to the hub.

Yudong hub services for Lijiatuo-Yudong cluster, at present, the number of bus line to Lijiatuo-Yudong cluster is three, needs to be increased;

Xipeng and Xiyong hubs serves for Xipeng and Xiyong clusters, the bus line needs to be increased;

Yuzui hub serves for Yuzui cluster, there are two bus lines to Yuzui and Yuzhong cluster respectively, it is inconvenient to transfer, the bus lines needs to be increased in the future;

Lianglu hub serves for Lianglu and Dazhulin-Lijia clusters. There are 12 bus lines at present inside of the clusters and 10 bus lines to Guanyinqiao-Renhe cluster. Lianglu hub and Longtousi hub which locates in Guanyinqiao cluster has a close contact, the bus lines needs to be increased;
Beibei hub serves for Beibei cluster, there are 34 bus lines inside the cluster, it has a close contact with Shapingba and 11 bus lines. The connection is rational;

Chayuan cluster serves for Chayuan-Lujiao cluster, there are only 2 bus lines, needs to be increased;

Baishiyi hub serves for 6 clusters, there are 3, 3 and 1 bus lines to Shapingba, Dadukou and Xipeng respectively, the bus lines to Dayangshi, Nanping and Lijiaotuo-Yudong clusters need to be increased;

In general, besides the existing hub, the connection of the new planned hub with bus lines is not so good, with the construction of the hub, the public transport network must be improved at the same time and the connection between the hub and bus transit must be enhanced too.

2) Connection with subway transit

As can be seen from the description of Figure 2.1, every hub at least linked with a subway line. Table 2-4 is the subway line to each hub and the transport capacity of the subway line.

<table>
<thead>
<tr>
<th>Hub in Chongqing</th>
<th>The subway line linked with hub</th>
<th>Capacity (10,000/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longtousi</td>
<td>Subway line 3 and 4</td>
<td>58</td>
</tr>
<tr>
<td>Chaotianmen</td>
<td>Subway line 1</td>
<td>39</td>
</tr>
<tr>
<td>Chenjiaping</td>
<td>Subway loop line</td>
<td>39</td>
</tr>
<tr>
<td>Nanping</td>
<td>Subway line 3 and 4</td>
<td>58</td>
</tr>
<tr>
<td>Shapingba</td>
<td>Subway line 1, 9 and loop line</td>
<td>117</td>
</tr>
<tr>
<td>Hongqihegou</td>
<td>Subway line 3 and 6</td>
<td>58</td>
</tr>
<tr>
<td>Caiyuanba</td>
<td>Subway line 3</td>
<td>19</td>
</tr>
<tr>
<td>Sigongli</td>
<td>Subway line 3 and loop line</td>
<td>58</td>
</tr>
<tr>
<td>Beibei</td>
<td>Subway line 6 and 7</td>
<td>78</td>
</tr>
<tr>
<td>Lianglu</td>
<td>Subway line 3 and 9</td>
<td>58</td>
</tr>
<tr>
<td>Xiyong</td>
<td>Subway line 1</td>
<td>39</td>
</tr>
<tr>
<td>Baishiyi</td>
<td>Subway line 7</td>
<td>39</td>
</tr>
<tr>
<td>Xipeng</td>
<td>Subway line 5 and 7</td>
<td>78</td>
</tr>
<tr>
<td>Yudong</td>
<td>Subway line 2 and 3</td>
<td>38</td>
</tr>
<tr>
<td>Chayuan</td>
<td>Subway line 6 and 8</td>
<td>78</td>
</tr>
<tr>
<td>Yuzui</td>
<td>Subway line 4 and 8</td>
<td>78</td>
</tr>
<tr>
<td>The third station of Chongqing</td>
<td>undetermined</td>
<td>NA</td>
</tr>
</tbody>
</table>

Table 2-4 The connection of the hub and subway line
Sources: Chongqing Rail Transit (Group) Co. Ltd. official website
Note: the planned subway one loop and nine line, the line 2 and 3 are light subway line, according to the known transport capacity of subway line 2; the others are subway line, according to the known transport capacity of subway line 1 (the transport capacity of subway line 1 is 390,000 person/day, light subway line is 190,000 person/day)

As can be seen from the table, every hub at least links with one subway line. After the completion of the subway project, the subway transport will assume the majority passenger of the hub, become the main transportation mode of the hub. To construct the subway project on schedule has a great influence on transfer of the hub. The construction of the subway project must be speeded up in order to ensure the connection with the hub.

3) Connection with urban road network
The assembling and evacuating of the traffic flow of the hub depends on the road network around the hub. This part gives a detailed introduction about the construction and planning of the road network around the hub, then analysis that whether the road network around the hub can meet the assembling and evacuating of the traffic flow of the hub.

<table>
<thead>
<tr>
<th>The major hub in Chongqing</th>
<th>The road network connected with the hub</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longtousi (have been used)</td>
<td>Yulu avenue, expressway of Inner Loop ring, middle section of Mount Avenue, Xin’gai road, main landscapes avenue of Longtousi</td>
</tr>
<tr>
<td>Chaotianmen (have been used)</td>
<td>Shanxi avenue, Jialing river and Bin river avenue</td>
</tr>
<tr>
<td>Chenjinping (have been used)</td>
<td>Shiyan avenue, Chenjiaping overpass</td>
</tr>
<tr>
<td>Nanping (have been used)</td>
<td>Jiangnan avenue, Haixia road, Jiangnan overpass</td>
</tr>
<tr>
<td>Shapingba (have been used)</td>
<td>expressway of Inner Loop line, Xiaolongkan overpass</td>
</tr>
<tr>
<td>Hongqihegou (have been used)</td>
<td>Hongqihegou overpass, Hongjin avenue, Wuqian overpass</td>
</tr>
<tr>
<td>Caiyuanba (have been used)</td>
<td>Caiyuanba overpass, Yangtze River bridge of Caiyuanba, Yangtze river and Bin river avenue</td>
</tr>
<tr>
<td>Sigongli (2011 plan)</td>
<td>one loop ring, five longitudinal lines, four horizontal lines, city expressway</td>
</tr>
<tr>
<td>Beibei (2011 plan)</td>
<td>National Road G212, LanHai expressway</td>
</tr>
<tr>
<td>Lianglu (2012 plan)</td>
<td>expressway of the airport</td>
</tr>
<tr>
<td>Xiyong (2013 plan)</td>
<td>one longitudinal line, three horizontal lines</td>
</tr>
<tr>
<td>Baishiyi (2020 plan)</td>
<td>expressway of Outer Loop line, ChengYu expressway</td>
</tr>
<tr>
<td>Xipeng (2015 plan)</td>
<td>expressway of Outer Loop line, YuLu expressway</td>
</tr>
<tr>
<td>Yudong (2013 plan)</td>
<td>expressway of Inner Loop ring</td>
</tr>
<tr>
<td>Chayuan (2013 plan)</td>
<td>Shita overpass of the Chayuan group</td>
</tr>
<tr>
<td>Yuzui (2020 plan)</td>
<td>one horizontal line, six longitudinal lines, two horizontal lines, near to YuYu expressway</td>
</tr>
<tr>
<td>The third station of Chongqing</td>
<td>expressway of Inner Loop line, ChengYu expressway, Erlang overpass, Fengzhong overpass</td>
</tr>
</tbody>
</table>

As can be seen from the table, the new planned nine hubs have a connection with expressway. But the expressway just has formed part of the whole network: part of the two horizontal lines, three horizontal lines, four horizontal lines, five horizontal lines, two longitudinal lines, three longitudinal lines, four longitudinal lines, five longitudinal lines and six contact lines. Expressway network has not been formed. At the same time of the construction of the hub, the network around the hub should be built too to ensure the fast assembling and evacuating of the traffic flow of the hub. The traffic condition of the road network around the hub under operation is bad in peak hours, especially the road network around Shapingba, Nanping, Caiyuanba, Hongqihegou. The evacuation of the traffic flow is not timely and smooth.

With the rapid growth of Chongqing, the contact between Chongqing and periphery is more and more closely so that the hub will assume bigger transfer task. The attention must be paid to that: some of the hubs will make reconstruction and expansion on original basis and add some commercial facilities and other functions so that the hub will attract a large number of traffic flow to transfer here. If the road network around the hub has not made appropriate changes and expansion upgrade to evacuate timely, the new congestion will be created. For examples, Shapingba subway station will have a comprehensive renovation project, including increasing operating line, station stamp system, landscape systems, municipal roads and ancillary facilities engineering. After the reconstruction, Caiyuanba railway station will become the starting point of
ChengYu high-speed rail. At the same time, a large amount of commercial facilities will be brought in. After transformation, Caiyuanba district will transform into the city tourist center and high-end business headquarters. But the land of Caiyuanba is so limited that the space for expansion is too small. If a large amount of commercial facilities are brought in, a large amount of passengers will add the traffic pressure to the road network which has been very crowded. Even if the surrounding road network is expanded to some extent, it can not achieve the goal of unimpeded.

In general, Chognqing is going through an important period of big construction, if the upgrading of the road network is not taken seriously and the increasing traffic evacuation of the hub is not fully anticipated, the connection will be not smooth and the evacuation of the traffic flow will be not timely, therefore, the urban transport and intercity transport efficiency will be reduced.

2.2.3. Evaluation of Transfer Time

One trend of development of modern transport is to break up the isolated development pattern of various modes of transport and form an integrated development model which has both division and co-operate in many ways. Pay attention to the time and space efficiency of connected multi-mode transport, not only need to improve the speed of transport corridors, but also to take improvement convenience of the transfer of the transport mode, in order to shorten the transfer time and reduce travel time and space consumption.

Seamless connection and zero distance transfer is one of the targets of human-oriented transportation system. The average transfer time of the integrated hub is an important reflection of the transfer convenience between various transportation modes or within the same mode. The following table is the transfer time grade of integrated hubs.

<table>
<thead>
<tr>
<th>Evaluation Standard Grade</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mega-cities</td>
<td>[6,5]</td>
<td>[7.5,6)</td>
<td>[9,7.5)</td>
<td>[10,9)</td>
<td>[15,10)</td>
</tr>
<tr>
<td>City of class A, B</td>
<td>[5,3]</td>
<td>[6,5]</td>
<td>[7,6]</td>
<td>[8,7]</td>
<td>[12,8)</td>
</tr>
<tr>
<td>Index</td>
<td>[90,100]</td>
<td>[80,90)</td>
<td>[70,80)</td>
<td>[60,70)</td>
<td>[0,60)</td>
</tr>
</tbody>
</table>

Table 2-6 Transfer time grade of integrated hubs (unit: minute)
Note: [6,5] means that transfer time is 5 to 6 minutes, [90,100] means the score is 90 to 100.

<table>
<thead>
<tr>
<th></th>
<th>Bus(public) - subway</th>
<th>Taxi - subway</th>
<th>Bus(public) - bus</th>
<th>Subway - Light railway</th>
<th>Bus(public) - ship</th>
<th>Bus - taxi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longtousi</td>
<td>3'35*</td>
<td>2'19*</td>
<td>3'03* (4'45*)</td>
<td>——</td>
<td>——</td>
<td>——</td>
</tr>
<tr>
<td>Chaotianmen</td>
<td>3'13*</td>
<td>——</td>
<td>——</td>
<td>——</td>
<td>7'24*</td>
<td>——</td>
</tr>
<tr>
<td>Nanping</td>
<td>——</td>
<td>——</td>
<td>1'40*</td>
<td>——</td>
<td>——</td>
<td>——</td>
</tr>
<tr>
<td>Shapingba</td>
<td>1'57*</td>
<td>1'30*</td>
<td>5'20*</td>
<td>2'20*</td>
<td>——</td>
<td>——</td>
</tr>
<tr>
<td>Caiyuanba</td>
<td>1'46* (3')</td>
<td>1'15*</td>
<td>2'45*</td>
<td>——</td>
<td>——</td>
<td>——</td>
</tr>
<tr>
<td>Chenjiaping</td>
<td>——</td>
<td>——</td>
<td>0'30*</td>
<td>——</td>
<td>——</td>
<td>0'20*</td>
</tr>
<tr>
<td>Hongqihegou</td>
<td>——</td>
<td>——</td>
<td>3'20*</td>
<td>——</td>
<td>——</td>
<td>2'36*</td>
</tr>
</tbody>
</table>

Table 2-7 The transfer time survey of integrated hub
Sources: ADB TA7361 researcher, December 2th, 2010.
Note: transfer time is the time from one of transport to another transport of their station, take Longtousi for example: the bus-subway transfer time is the time from subway station square to bus stop.
Mega-cities in China are Beijing and Shanghai; class A cities are the cities upon prefecture-level city which the GDP of the last year reach to 500 billion yuan or the urban population reach to 200 million; class B cities are prefecture-level city (not including county-level city) state, league, urban GDP of last year reach to 250 billion or more or the urban population reach to 50 million. Chongqing is in class A, B.

Selecting each hub as the target when doing the research, recording the transfer time of different transport modes (such as from bus to subway). In every hub, investigators select several (more than two kinds) transfer plan and record the transfer time. Then calculate the average transfer time and convert out the index. Table 2-7 is the survey results.

<table>
<thead>
<tr>
<th>Hub</th>
<th>Average transfer time</th>
<th>grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longtousi</td>
<td>2'29&quot;</td>
<td></td>
</tr>
<tr>
<td>Chaotianmen</td>
<td>3'13&quot;</td>
<td></td>
</tr>
<tr>
<td>Shapingba</td>
<td>2'42&quot;</td>
<td></td>
</tr>
<tr>
<td>Caiyuanba</td>
<td>2'6&quot;</td>
<td></td>
</tr>
<tr>
<td>Nanping</td>
<td>1'40&quot;</td>
<td></td>
</tr>
<tr>
<td>Chenjiaping</td>
<td>0'25&quot;</td>
<td></td>
</tr>
<tr>
<td>Hongqihegou</td>
<td>2'58&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Table 2-8 The transfer time grade of integrated hub

Chongqing belongs to the class A and B city, according to the indexes of table 2-5, table 2-8 shows the results. As can be seen from table 2-7, the average transfer time in every hub is within 5 minutes, basically reach to the first grade.

2.3. Good Practice from Foreign Cities and Recommendations for Chongqing

2.3.1. Practice of good transfer between urban transport and intercity transport in foreign cities

In the 1990s, people put forward a "seamless transit" and "zero transfer" as the core concept. The transit systems in developed countries become mature. There are a lot successful transfer experience to take, such as hub construction, connection of lines, the policies and regulations and etc.

1) Establishment of “integrated” hub

Union Station is the transfer point connected the transportation of city and intercity, this hub takes full consideration of various transport modes seamlessly inside the hub. In the hub, the U.S. National Rail stations has Metro escalator to transfer with the subway on the ground floor, with the multi-layer parking garage on the side and the ground bus and taxi stops at the exit. Passengers by railway can transfer to subway to arrive in the inner city and suburbs in the Union Station between the upper and lower floor. Passengers by bus and rail transit can
transfer to other railway transit and buses here; passenger by car can park their cars in the garages and then transfer to the United States railway or rail transit.

As can be seen from the description, the layout of the foreign hubs takes full consideration of the connection among different transport modes.

2) Successful application of Parking-Ride lot

The foreign hubs are often equipped with P-R lot, in order to reduce the traffic pressure on downtown. Take Hamburg for example, Norderstedt hub is 17km far away from the center of Hamburg, this hub set two P-R lots, about 800 parking spaces. Figure 2-21 is the transfer diagram and this model greatly reduced the pressure of the Hamburg center.

Besides, one third of the subway station in London are equipped with P-R lot. This application of parking-transfer model in other cities in Europe are very successful and effective, the parking facilities were set in all suburbs to radiation in the rail transit lines and the site around satellite towns carefully, and the passengers of city's outlying areas were guided to transfer before going into the city.

![Figure 2-21 the transfer diagram of P-R lot in Hamburg](image)

Shanghai planned to build 6 P—R lots with 2200 parking spaces for passenger transfer.

The new planned nine hubs locate in the outside the one loop ring and inside the two loop ring. They are very suitable for parking-transfer mode, but in the planning of parking lot in hub station, the P-R lot was not reserved. Besides, Chongqing will get more and more contact with the outside in the long term, the traffic pressure will increase. Therefore, the successful application of the foreign P-R lot deserves serious attention of the relevant departments of Chongqing.

3) Intensive management system

Hong Kong SAR Government has a well-functioning management organization to manage all transport mode and road facilities. It is shown as the following picture, the railways and highways under the jurisdiction of the Transport Branch, the Transport Branch is responsible for the overall development of urban transport policy, guiding and coordinating all internal traffic affairs. Figure 2-4 is the traffic management system of the structure of Hong Kong.
Chongqing implements big transport system in 2000, although there are some results, some problems are still existing, such as the different transport modes cannot form the effective transfer, the highway hub was not fully functioned as an integrated hub. Considering the advanced experience of successful adoption of intensive experience in Hongkong, the intensive traffic management can avoid the shortcoming of policies from different departments and balance the interests of different parts from the overall on the aspect of planning and operation.

2.3.2. Problems of transport hub development in Chongqing

In general, the hub construction in Chongqing is not very well, especially the highway hubs which locate in the central area of the city. On one hand, the land site is small and the space is limited so the hub can not function as a big integrated hub. At the same time it can not cut off the long-distance passenger flow. The pouring into the central city of large amount of the bus has a great influence on the city traffic. The hub construction is not well and on their own ways, as well as lack of vertical transfer. The description is from the following aspects:

1) Hub construction is lagging behind

The basic facilities of hub Caiyuanba, Hongqihegou, Chaotianmen, Chenjiaping, Nanping and Shapingba are out of date. The environment is bad. The hub construction speed is slow except for Longtousi hub, Sigongli and Beibei that are under construction. The other 6 hubs will be finished in 10 years. The hub construction must be speeded up to ensure the transfer smoothly.

2) Express network has not been formed

The vehicle assembling and evacuating inside the hub mainly depends on the road net around the hub. But the express road net in Chongqing has not been finished. Only part of them (some of them did not reach the expressway grade) has been formed, which has a great influence on the vehicle assembling and evacuating inside the hub.

3) Passenger assembling and evacuating mode is single

The transport line linked with hub is bus transit. Connection with some bus lines is not smooth, not convenient for passenger transfer. The number of bus lines for planned hubs of Yudong, Xipeng, Chayuan and Baishiyi is small. Need to further improve the public transport network of bus transit and to promote the construction of rail transit vigorously.

4) Connection of hubs and bus lines is not smooth
The passenger transfer in hub depends on the bus transit. As can be seen from Table 2.3, some bus lines of hubs are not convenient for passenger transfer. The number of bus lines FOR planned hub of Yudong, Xipeng, Chayuan and Baishiyi is small.

5) Construction speed of the subway net that linked with hubs is slow

<table>
<thead>
<tr>
<th>Hub</th>
<th>The subway lines linked with hub</th>
<th>Time difference(year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longtousi（built）</td>
<td>Line 3（2012）, Line 4（2019）</td>
<td>7,14</td>
</tr>
<tr>
<td>Chaotianmen（built）</td>
<td>Line 1（2012）</td>
<td>24</td>
</tr>
<tr>
<td>Chenjiaping（built）</td>
<td>Loop line（2017）</td>
<td>21</td>
</tr>
<tr>
<td>Nanping（built）</td>
<td>Line 3（2012）, Line 4（2019）</td>
<td>24,9</td>
</tr>
<tr>
<td>Shapingba（built）</td>
<td>Line 1（2012）, Loop line（2017）</td>
<td>24,7</td>
</tr>
<tr>
<td>Hongqihegou（built）</td>
<td>Line 3（2012）, Line 6（2012）</td>
<td>24,2</td>
</tr>
<tr>
<td>Ciyanba（built）</td>
<td>Line 3（2012）</td>
<td>24</td>
</tr>
<tr>
<td>Sigongli（2011 plan）</td>
<td>Line 3（2012）, Loop line（2017）</td>
<td>1,6</td>
</tr>
<tr>
<td>Beibei（2011 plan）</td>
<td>Line 6（2012）, Line 7（2020）</td>
<td>1,9</td>
</tr>
<tr>
<td>Lianglu（2012 plan）</td>
<td>Line 3（2012）, Line 9（2017）</td>
<td>same time, 5</td>
</tr>
<tr>
<td>Xiyong（2013 plan）</td>
<td>Line 1（2012）</td>
<td>1 year advanced</td>
</tr>
<tr>
<td>Baishiyi（2020 plan）</td>
<td>Line 7（2020）</td>
<td>same time</td>
</tr>
<tr>
<td>Xipeng（2015 plan）</td>
<td>Line 5（2018）, Line 7（2020）</td>
<td>3and 5 year advanced</td>
</tr>
<tr>
<td>Yudong（2013 plan）</td>
<td>Line 2（2006）, Line 3（2012）</td>
<td>3and 1 year advanced</td>
</tr>
<tr>
<td>Chayuan（2013 plan）</td>
<td>Line 6（2012）, Line 8（2020）</td>
<td>1and 7 year advanced</td>
</tr>
<tr>
<td>Yuzui（2020 plan）</td>
<td>Line 4（2019）, Line 8（2020）</td>
<td>1year advanced, same time</td>
</tr>
</tbody>
</table>

Table 2-9 The time table of hubs and subways
Source: Planning and Design Institute of Chongqing, Chongqing Rail Transit (Group) Co., Ltd. The time difference is the year that the subway built minus the year that the hub built. From the year built, two lines calculated respectively, the time difference is coordinated with the subway line.

From the time difference of the plan and construction with the subway construction, we can conclude that the subway construction that linked with hubs has not been built and fallen behind the hub construction. The time of hub construction of Xiyong, Baishiyi, Yudong and Yuzui is consistent with construction time of the subway linked with the hub. Construction of Lianglu and Chayuan is consistent with one of the subway line. Other subway is lagging behind. As can be seen from the data, most of the subway construction is lagging behind the hub construction. The subway construction must be speeded up to ensure the connection of hubs and subway lines.

6) Construction on the parking lot inside the hub is not emphasized. The plan of parking space can not satisfy the needs of passenger transfer.

7) Management system needs to be improved

In 2000, Chongqing established the administrative framework towards integrated urban transport management and achieved some results. But there are still some problems, such as planning, construction, operation and management are not integrated, reflected in the relationship between the major hubs and urban development is uncoordinated, various modes of transport capacity in the hub is not enough and the connection is not smooth. For example, Yu Huai planning and construction of subways and highways do not match. Connection of subway station along the road and the local highway is poor. The main reason for the above problems is the
management of hubs, various transportation are separated, coordination is not enough. This poor management is still the current status, need to deepen the reform of the system.

2.3.3. Recommendation to transfer between urban transport and intercity transport

1) Planning and construction

① Plan and construct the integrated transfer hub

Planning the hubs should take the public bus, LRT, taxi, bus and other traffic modes into consideration to avoid the separation of individual mode. The unified standards on transfer hub should be set up. Transfer time between different traffic modes should be shorten to ensure the transfer convenience.

② Emphasize on the coordination of urban planning and hub planning/construction

Priority should be given to urban planning and transport hub planning around, including road planning. When bring into the commercial facilities, the commercial facilities will attract more traffic need to be taken into account. Traffic impact assessment mechanisms should be introduced to prevent the formation of a new congestion point. The impact of traffic on the surrounding road network upgrade should be taken into consideration too.

③ Encourage “parking-transfer” model, equipped with P-R lot inside of the hub

From the above experience, the P-R transfer mode can ease the traffic pressure of the city’s central area. As the increase of the car volumes, this mode is a direction of development and should be promoted in Chongqing. On one hand, the P-R lot should be built in the hub on the edge of the city, around the five business circle, the subway station on or outside the two loop ring where the traffic is busy for passenger transfer.

④ Speed up the construction of urban rapid-road network

From the description of 2.1.2 to the hubs, we can conclude that the assembling and evacuating of vehicles in hub mainly depends on the road net around the hub, the expressway has not been formed, so the construction of rapid-road network must be speeded up.

⑤ Focus on landscape construction of hubs

Being the place of transfer of urban and intercity traffic, hub is an important showcase of the city. So we can put hub landscape design and the humanities together. The existing environmental problems should be dealt with, such as Caiyuanba, Shapingba, Hongqihegou, etc. (dirty and messy.)

2) Operation, management and system

① Put emphasis on both planning/construction and management

In the passenger transfer system, by the time of the integration of planning and construction of infrastructure, the construction of the necessary transport services and facilities should be emphasized. Comprehensive traffic information platform should be built. A scientific and rational system of organization and management should be established too. Considering the internal and external passenger transport hubs design, the transfer between different transport modes should be made effectively. The software and hardware should be combined so that the real financial management and service among the scientific and effective operation mechanism can be realized.
② Improve the bus transit network

Before the subway network fully built, the bus transit is the main vehicle for passenger transfer. But the capacity of the bus transit is not enough now (busy), it is necessary to plan the bus line that linked to the hub in order to shorten the passenger transfer time.

The bus transit has the feature of flexibility and accessibility which should be fully played to combine with the planning subway project, so that operating lines can be optimized and the public transportation network coverage can be improved.

③ Develop multi-mode urban transport, introduce waterway buses

The waterway public transport share has a sharp fall nowadays. Some bus lines are along the river, so the waterway buses should be taken into consideration.

④ Take the hub as a breakthrough, further to promote the reform of traffic management system in Chongqing

At the aims of speeding up hub construction and improvement of collaboration of various modes of transport, the project construction and operation system should be deepen.

3. Transport Connection to the Outside of Chongqing

Evaluation on the situation of smooth transport regarding the regional transportation is conducted at the two scales of connection between Chongqing’s central city to its surrounding counties, and Chongqing’s connection with surrounding provinces.

3.1. Current Situation of Chongqing’s Trunk Highway Network

Trunk highways are one of the important traffic channels in Chongqing, which connect Chongqing with neighboring provinces and cities. They close the flow of people and material flow among cities, and promote the economic communication and exchange between the cities. Meanwhile, they are the important overland channels of Chongqing as the hub in western China.

In this part, it divides Chongqing trunk highways into expressway, class I highway, class II highway, class III highway, class IV highway and substandard roads based on the technical grade of roads. According to this category the report introduces, analyzes and evaluates the traffic situation of Chongqing trunk highways.

3.1.1. Current Situation

1) Chongqing’s expressway network

The "Two-loop and Eight-ray" network of 2000 kilometers expressway of Chongqing has fully completed in September 2010, ten years earlier than the plan. The city has invested a total of nearly 130 billion Yuan. So far, the expressway density has reached 2.46 km per 100 square km, ranking the first in western China. The expressway network has 10 inter-provincial connections.

The "Two-loop and Eight-ray" expressway network was opened to traffic, which has basically opened the internal and external transportation channels for Chongqing. It has a significant meaning to achievement of the State “314” overall plan, “the proposal of the State Council on the promotion of Chongqing urban and rural reform and development”, Liangjiang New Area Development, and a series of national implementation of strategic positioning and layout. It
also produces great and far-reaching influence for Chongqing to build the integrated transport hub of the upper Yangtze, and to promote economic and social development.

Table 3-1 lists the basic information of the “Two-loop and Eight-ray” expressway network.

The “Two-loop and Eight-ray” expressway network is able to cover 38 counties (except for Chengkou and Wuxi) within Chongqing. It has 95% coverage rate, and has basically realized “4 hours in Chongqing”. The expressway network also connects Chongqing with Sichuan, Shanxi, Hubei, Hunan, Guizhou and Yunnan, as far as it can radiate to the east to Shanghai and other cities.

<table>
<thead>
<tr>
<th>Route Category</th>
<th>Short Title of National Highway</th>
<th>Highway Mileage (km)</th>
<th>Direction of National Highway in Chongqing (Boldface type names for the territory of Chongqing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loops</td>
<td>Inner Ring Road of Expressway</td>
<td>75 (Total)</td>
<td>Jiangbei-Shaping ba-Dadu kou-Banan-Jiangjin-Yuzhong-Jiulong po-Shaping ba-Beibei</td>
</tr>
<tr>
<td></td>
<td>Outer Ring Road of Expressway</td>
<td>186 (Total)</td>
<td>Beibei-Yubei-Jiangbei-Nanan-Banan-Jiangjin-Jiulong po-Shaping ba-Beibei</td>
</tr>
<tr>
<td></td>
<td>Cheng-Yu Expressway</td>
<td>114 (Within Chongqing Territory)</td>
<td>Shaping ba-Yongchuan-Rongchang-Neijiang(Sichuan)</td>
</tr>
<tr>
<td></td>
<td>Yu-Sui Expressway</td>
<td>112 (Within Chongqing Territory)</td>
<td>Shaping ba-Tongliang-Tongnan-Suining(Sichuan)</td>
</tr>
<tr>
<td></td>
<td>Yu-Wu Expressway</td>
<td>92 (Within Chongqing Territory)</td>
<td>Dadu kou-Beibei-Hechuan-Wusheng County(Sichuan)</td>
</tr>
<tr>
<td></td>
<td>Yu-Lin Expressway</td>
<td>54 (Within Chongqing Territory)</td>
<td>Yubei-Jiangbei-Dianjiang-Linshui(Sichuan)</td>
</tr>
<tr>
<td></td>
<td>Yu-Yi Expressway</td>
<td>455 (Within Chongqing Territory)</td>
<td>Yubei-Jiangbei-Changshou-Dianjiang-Liangping-Fengjie-Wushan</td>
</tr>
<tr>
<td></td>
<td>Yu-Xiang Expressway</td>
<td>414 (Within Chongqing Territory)</td>
<td>Banan-Nanchuan-Wulong-Pengshui-Qianjiang-Xiushan-Hongan(Yu Xiang Border)</td>
</tr>
<tr>
<td></td>
<td>Yu-Qian Expressway</td>
<td>101 (Within Chongqing Territory)</td>
<td>Banan-Qijiang-Chongxi River(Yu Qian Border)</td>
</tr>
<tr>
<td></td>
<td>Yu-Lu Expressway</td>
<td>48 (Within Chongqing Territory)</td>
<td>Dadu kou-Jiulong po-Jiangjin-Tanghe(Yu Chuan Border)</td>
</tr>
</tbody>
</table>

Table 3-1 List of the “two-loop and eight-ray” expressway network

Sources: Data from “Chongqing Expressway Network Plan (2003~2020)”

The Outer Loop Expressway has built and opened to traffic in December 31, 2009. This is a sign that Chongqing has entered into the era of two loops expressways. After the toll stations have been moved from the Inner Loop Expressway to Outer Loop Expressway, the seven rays expressways between the two loops expressways has transferred their function from expressway to urban fast channels. And also, these rays expressways take the role of urban transportation between the central city and each Clusters Cities of Chongqing, and among the Clusters. Owing to the toll stations moved outside the Inner Loop Expressway, large traffic flow can enter into routine city roads through the rays expressways rapidly. There are few connectors between the expressway rings and city roads, which lead to poor connection. The expressway network between the two loops highway has not completely formed. Therefore, it is difficult for the network to play the role of the main channel. And the rays expressways between the two loop highways is the main channel of the surrounding economic clusters to connect with the outside, which results in numerous volume of large truck traffic through these highways. The core areas of each Cluster are lack of connecting roads to the expressways around them. So, these cause congestion in the rays expressways between the two loop highways.
Most of all, the Yu-Sui Expressway is the only rapid corridor connecting the eastern area and the western area of Shaping Ba Region. The congestion is very serious in the Yu-Sui Expressway between the two loops of expressways of this region. And there are numerous reasons contribute to it, like lacking of access ways, imperfect roads infrastructures in the Midwest, low coverage of public bus network within the Outer Loop Expressway. Moreover, there are large amount of schools and colleges, study institutions, hospitals, and other organizations in the core area; so, the travel rate of personnel is extremely high.

2) Current situation of traffic on other grade highways

Chongqing has 5 national highways, 49 municipal highways. The total mileage of national and municipal road has reached to 9431 km which account for 8.5% of the total mileage of roads in Chongqing till the end of 2009. It has the class I and class II highway of 6461 km, class III highway of 1223 km, and 1747 km class IV highway and substandard roads. The class II highway and the above account for 68%; and this share in national highway is 92% while in municipal highways is 65%. (Refer to table 3-2)

<table>
<thead>
<tr>
<th>Category</th>
<th>Class I</th>
<th>Class II</th>
<th>Class III</th>
<th>Class IV</th>
<th>Sub-standard</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>National and Municipal Trunk Highways</td>
<td>Mileage</td>
<td>309</td>
<td>6152</td>
<td>1223</td>
<td>1695</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Proportion</td>
<td>3%</td>
<td>65%</td>
<td>13%</td>
<td>18%</td>
<td>1%</td>
</tr>
<tr>
<td>National Highway</td>
<td>Mileage</td>
<td>53</td>
<td>1154</td>
<td>85</td>
<td>26</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Proportion</td>
<td>4%</td>
<td>88%</td>
<td>6%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Municipal Highway</td>
<td>Mileage</td>
<td>256</td>
<td>4998</td>
<td>1138</td>
<td>1669</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Proportion</td>
<td>3%</td>
<td>62%</td>
<td>14%</td>
<td>21%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Table 3-2 The technical level of national and provincial trunk highways of Chongqing (km)
Sources: Data from Chongqing Smooth and Construction Office

3.1.2. Transportation Planning

1) Planning of Chongqing Expressway

According to the "Chongqing Expressway Network Plan" prepared by Chongqing municipal government, it will build a "three-loop ten-ray and three-line" expressway network by 2020, with the mileage of 3600 km in total. By that time, the highway density will achieve the current average level of Europe with 4.4 kilometers per 100 square kilometers, and basically reach the expressway goal of developed countries with 1 km per 10,000 people of highway. For example, the expressway density of Germany has reached 3.2 km per 100 square kilometers, while the figure is 2.1km per hundred square kilometers in France.

Specifically, it expects to continue the construction of expressway project with 739 km and start new projects to build 893 km expressway during the 12th FYP period. Meanwhile, it aims at building 1280 km expressway and makes 3000 km expressway opening to traffic. Ultimately, it will form a layout of "three-loop ten-ray and three-line" expressway network with 18 inter-provincial corridors. (Details refer to table 3-3.). The new expressway network will cover all districts and counties in Chongqing, making 40 districts and counties connected with high speed. The central city can be reached within 4 hours from the seat of the farthest districts’ and counties’ government. It is able to achieve "four hours within Chongqing, eight hours to the neighboring provinces". And the investment of highway construction is about 125 billion Yuan during the 12th FYP period.
### Table 3-3 Expressway Plan of Chongqing for 12th FYP

<table>
<thead>
<tr>
<th>Projects</th>
<th>Character of Construction</th>
<th>Length (Km)</th>
<th>Duration of the construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total 11th FYP to 12th FYP projects</td>
<td></td>
<td>1632</td>
<td></td>
</tr>
<tr>
<td>Started projects plan in 2009</td>
<td></td>
<td>377</td>
<td></td>
</tr>
<tr>
<td>1. Second stage project of expressway from Fengjie to Wushan</td>
<td>Continued project</td>
<td>30</td>
<td>2009 - 2011</td>
</tr>
<tr>
<td>2. Second stage project of expressway from Jiangjin to Hejiang</td>
<td>Continued project</td>
<td>18</td>
<td>2009 - 2012</td>
</tr>
<tr>
<td>3. Expressway from Fengjie to Wuxi</td>
<td>Continued project</td>
<td>48</td>
<td>2009 - 2012</td>
</tr>
<tr>
<td>4. Yanjiang Expressway from Peiling to Fengdu</td>
<td>Continued project</td>
<td>56</td>
<td>2009 - 2012</td>
</tr>
<tr>
<td>5. The Third Ring Road of Expressway from Wansheng to Nanchuan</td>
<td>Continued project</td>
<td>30</td>
<td>2009 - 2012</td>
</tr>
<tr>
<td>6. The Third Ring Road of Expressway from Nanchuan to Peiling</td>
<td>Continued project</td>
<td>56</td>
<td>2009 - 2013</td>
</tr>
<tr>
<td>7. Expressway from Fengdu to Shizhu</td>
<td>Continued project</td>
<td>53</td>
<td>2009 - 2013</td>
</tr>
<tr>
<td>8. Yanjiang Expressway from central city to Peiling</td>
<td>Continued project</td>
<td>86</td>
<td>2009 - 2013</td>
</tr>
<tr>
<td>Started projects plan in 2010</td>
<td></td>
<td>362</td>
<td></td>
</tr>
<tr>
<td>9. Complex line of Cheng-Yu Expressway</td>
<td>Continued project</td>
<td>78</td>
<td>2010 - 2014</td>
</tr>
<tr>
<td>10. Yanjiang Expressway from Fengdu to Zhongxian</td>
<td>Continued project</td>
<td>32</td>
<td>2010 - 2014</td>
</tr>
<tr>
<td>11. Yanjiang Expressway from Zhongxian to Wanzhou</td>
<td>Continued project</td>
<td>79</td>
<td>2010 - 2014</td>
</tr>
<tr>
<td>12. Wanzhou to Dazhou Expressway from Kaixian to Kaijiang</td>
<td>Continued project</td>
<td>41</td>
<td>2010 - 2014</td>
</tr>
<tr>
<td>13. Wanzhou to Lichuan Expressway from Xiangtan to Sanyuanchang</td>
<td>Continued project</td>
<td>31</td>
<td>2010 - 2014</td>
</tr>
<tr>
<td>14. Fuma Yangtze River Bridge section of Wanzhou to Lichuan Expressway</td>
<td>Continued project</td>
<td>22</td>
<td>2010 - 2014</td>
</tr>
<tr>
<td>15. Qianjiang to Enshi Expressway</td>
<td>Continued project</td>
<td>20</td>
<td>2010 - 2014</td>
</tr>
<tr>
<td>16. The Third Loop Expressway from Yongchuan to Jiangjin</td>
<td>Continued project</td>
<td>59</td>
<td>2010 - 2014</td>
</tr>
<tr>
<td>New construction project during 12th FYP</td>
<td></td>
<td>893</td>
<td></td>
</tr>
<tr>
<td>Constructed project plan during 12th FYP</td>
<td></td>
<td>541</td>
<td></td>
</tr>
<tr>
<td>1. The Third Ring Road of Expressway from Hechuan to Tongliang</td>
<td>New construction</td>
<td>29</td>
<td>2011 - 2013</td>
</tr>
<tr>
<td>2. The Third Ring Road of Expressway from Tongliang to Yongchuan</td>
<td>New construction</td>
<td>65</td>
<td>2011 - 2014</td>
</tr>
<tr>
<td>3. The Third Ring Road of Expressway from Jiangjin to Qijiang</td>
<td>New construction</td>
<td>47</td>
<td>2011 - 2014</td>
</tr>
<tr>
<td>4. Expressway from Wuxi to Zhenping</td>
<td>New construction</td>
<td>48</td>
<td>2011 - 2014</td>
</tr>
<tr>
<td>5. Expressway from Yubei to Guangan</td>
<td>New construction</td>
<td>55</td>
<td>2011 - 2014</td>
</tr>
<tr>
<td>6. The Third Ring Road of Expressway from Changshou to Hechuan</td>
<td>New construction</td>
<td>85</td>
<td>2011 - 2014</td>
</tr>
<tr>
<td>7. Expressway from Lichuan to Zhongxian</td>
<td>New construction</td>
<td>91</td>
<td>2011 - 2014</td>
</tr>
<tr>
<td>8. Expressway from Qianjiang to Shizhu</td>
<td>New construction</td>
<td>86</td>
<td>2011 - 2014</td>
</tr>
<tr>
<td>Constructed project plan at the end of 12th FYP</td>
<td>New construction</td>
<td>352</td>
<td></td>
</tr>
<tr>
<td>10. Yanjiang Expressway branch line from Xintian to Gaofeng</td>
<td>New construction</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>11. Expressway from Fengjie to Enshi</td>
<td>New construction</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>12. Expressway from Dianjiang to Fengdu</td>
<td>New construction</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>13. Expressway from Fengdu to Wulong</td>
<td>New construction</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>14. Expressway from Kaixian to Chengkou to Langao</td>
<td>New construction</td>
<td>136</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Data from Chongqing Smooth and Construction Office

### 2) Planning of other grade highways

According to the standard that national highways should reach the class II level and municipal highways should reach the class III, it will rebuild and upgrade national and municipal...
trunk highways with 1,000 km in Chongqing. And it will make effort to achieve the proportion of national and municipal highways with class II accounting for 75% during the period of 12th FYP. In accordance with the general requirements of the Ministry of Transport, it will conduct the reconstruction projects of national and municipal highways with a total of 5,000 km, and make the national and provincial trunk highways reach the good rate of 75%. It will invest 20 billion Yuan for reconstructing national and provincial highways within the 12th FYP period.

3.1.3. Evaluation of Trunk Highways

1) Evaluation Indicators

The evaluation will be conducted based on the following main indicators: road network coverage, road accessibility conditions, road construction funding needs, road density, and proportion of grade roads, technical indicators of highways and some other aspects.

2) Evaluation Results

95% districts and counties of Chongqing are connected by the completed “two-loop and eight-ray” expressway network. And the Outer Loop Expressway connects 11 economic clusters as a whole which expand the coverage of the central city of Chongqing from 500 km² to 2,500 km². This results in outward expansion of urban area in five-fold.

The proposed "One-loop, Two-ray and Three-line" expressway network will completely open up expressway traffic between the Southeast and Northeast districts of Chongqing, which greatly improve the transportation accessibility of districts in Chongqing’s "two wings". Therefore, it opens up a "fast track" for the local farmers to get rich. Yanjiang Expressway, the main channel for the development of tourism resources of Yangtze River in Chongqing, is also the corridor connecting Chongqing with central China. Yanjiang Expressway fills up the blank that the south area of Yangtze River in Chongqing has not expressway.

Meanwhile, the Third Ring Road of Expressway connects counties within the "one hour drive time economic circle" of Chongqing. The "one hour drive time economic circle" gathers 75% economic aggregate of Chongqing, and the Third Ring Road of Expressway will make a sustainable promotion on the development of the circle. The "Two-ray and triple-line" expressway network is considered as the economic artery, and the Third Loop Expressway will connect two international channels——Eurasian Continental Bridge and South Asian continental bridge. This has landmark significance for Chongqing to become a transportation hub and economic and financial center of western China, and a world-class city.

However, because of high costs of building roads in mountainous areas, the average cost per kilometers is up to 60 million Yuan, and some roads even cost up to 80 to 90 million Yuan. So, the government needs to adopt diversified financing model and absorb various social funds to build the "One-loop, Two-ray and Three-line" expressway network in order to promote the construction of the whole expressway network. At present, the expressway density of Chongqing has reached 2.46 km per 100 square kilometers, ranking the first place in western China. However, comparing with other central cities of China, its expressway density is still low. Therefore, it demands more rational planning and construction of expressways. For example, Tianjin has the density of 9.8 km per 100 square kilometers in expressways.

The highway density of Chongqing increased from 121.7 km per 100 km² in 2006 to 134.6 km per km² in 2010. This density is 3 times of the national average density. However, there are only 68% national and provincial trunk highways are in class II. The proportion is still low by comparing with the goal of 12th FYP of 75%. So, this situation constrains the traffic capacity of the whole highway network.
In order to evaluate the traffic capacity of expressway network of Chongqing, some relative indicators and data are chose and analyzed. The results are shown in the below table 3-4.

<table>
<thead>
<tr>
<th>Lane number</th>
<th>Design speed</th>
<th>Designing traffic capacity of one-direction lane</th>
<th>Peak-hour traffic volume of 2008</th>
<th>Peak-hour traffic volume of 2009</th>
<th>Annual growth rate of one-direction peak-hour traffic volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner Ring Road of Expres.</td>
<td>6</td>
<td>80</td>
<td>36,000</td>
<td>26,918</td>
<td>30,159</td>
</tr>
<tr>
<td>Outer Ring Road of Expres.</td>
<td>6</td>
<td>100</td>
<td>36,000</td>
<td>——</td>
<td>8,098</td>
</tr>
<tr>
<td>Cheng-Yu Expressway</td>
<td>4</td>
<td>80</td>
<td>24,000</td>
<td>62,507</td>
<td>65,115</td>
</tr>
<tr>
<td>Yu-Sui Expressway</td>
<td>4</td>
<td>80</td>
<td>24,000</td>
<td>28,528</td>
<td>33,629</td>
</tr>
<tr>
<td>Yu-Wu Expressway</td>
<td>4</td>
<td>80</td>
<td>24,000</td>
<td>20,966</td>
<td>29,853</td>
</tr>
<tr>
<td>Yu-Lin Expressway</td>
<td>4</td>
<td>80</td>
<td>24,000</td>
<td>12,486</td>
<td>11,604</td>
</tr>
<tr>
<td>Yu-Yi Expressway</td>
<td>4</td>
<td>80</td>
<td>24,000</td>
<td>14,428</td>
<td>17,296</td>
</tr>
<tr>
<td>Yu-Xiang Expressway</td>
<td>4</td>
<td>80</td>
<td>24,000</td>
<td>8,462</td>
<td>11,758</td>
</tr>
<tr>
<td>Yu-Qian Expressway</td>
<td>4</td>
<td>80</td>
<td>24,000</td>
<td>33,176</td>
<td>36,140</td>
</tr>
<tr>
<td>Yu-Lu Expressway</td>
<td>4</td>
<td>80</td>
<td>24,000</td>
<td>——</td>
<td>——</td>
</tr>
</tbody>
</table>

Table 3-4: The Technical Indicators on Expressways of Chongqing

Data Sources: Data from Chongqing Smooth and Construction Office

The results of the comparative analysis of the data in Table 3-4 is that: the peak-hour traffic volume of Cheng-Yu Expressway, Yu-Sui Expressway, Yu-Wu Expressway, and Yu-Qian Expressway has exceeded their designing traffic capacity in the past two years. This indicates that these four expressways are traffic congestion bottlenecks, and it is easy to have traffic congestion in peak-hour in these four expressways. While, the peak-hour traffic volume of Inner Loop Expressway, Outer Loop Expressway, Yu-Lin Expressway, Yu-Yi Expressway, and Yu-Xiang Expressway are within their designing traffic capacity. It means these five expressways are smooth in traffic, and at present, the traffic jams will not form even in the peak-hour.

In terms the indicator of "Annual Growth Rate of One-direction Peak-hour Traffic Volume" of Yu-Wu Expressway, Yu-Xiang Expressway, Yu-Sui Expressway and Yu-Yi Expressway, it has exceed 15%, which is relatively higher than other expressways. It is assumed that the annual growth rate of one-direction peak-hour traffic volume of expressways will not change in the following years, and the peak-hour traffic volume of these expressways do not exceed the designing traffic capacity. And then, predicting that in which year the peak-hour traffic volume will reach or exceed the designing traffic capacity.

The results show that, the peak-hour traffic volume of Inner High-speed and Yu-Yi Expressway will reach 37,858, 24,856 respectively in 2011, which will exceed the designing traffic capacity of 36,000, 24,000 respectively. And the peak-hour traffic volume of Yu-Xiang Expressway will reach 31,544 in 2012, which also surpasses the designing traffic capacity. Based on the analysis, the peak-hour congestion will be seen in these three expressways within the next two years. However, as the economic and social activities and personnel communication between Chongqing and Sichuan, Chongqing and Hunan, it is a possible that these three expressways' peak-hour traffic volume will outnumber the designing traffic capacity in a shorter time.

According to Chongqing Expressway Development and Planning, there will be 7 expressway connections from Chongqing to Sichuan after the completion of the complex line of
Cheng-Yu Expressway and its opening to traffic. These 7 connections are Cheng-Yu Expressway, Yu-Wu Expressway, Yu-Lin Expressway, Yu-Sui Expressway, Dian-Lin Expressway, Yu-Lu Expressway and Complex line of Cheng-Yu Expressway. Meanwhile, the traffic pressure of Cheng-Yu Expressway, Yu-Sui Expressway, and Yu-Wu Expressway will be effectively alleviated, and the traffic capacity of highways between Chengdu and Chongqing will increases. It will also shorten the time and distance between the two cities, which helps to promote the rapid development of Chengdu-Chongqing Economic Zone.

However, it should proactively consider the rapid growth of Yu-Xiang Expressway traffic volume. And the possible solution to this situation can be that building a complex line of Yu-Xiang Expressway or guiding the traffic flow to other routes into Hunan, which can share the traffic pressure and ensure a smooth traffic.

3.1.4. Major Problems and Recommendations to the Trunk highways of Chongqing

At present, the main problems of trunk highways in Chongqing are as below.

- **Problems on highway fee.** Firstly, the problem is reflected in the unified charge standard of expressway toll stations. This affects the choice of vehicle access made by drivers; ultimately, it leads to traffic congestion. So, the suggestions are that Chongqing Expressway Management Department should further improve the pricing policy, establishing a more reasonable adjustment mechanism on expressway tolling year and tolling standard. Secondly, the artificial charging system influence the traffic smooth of expressways. Although, the main eight expressway toll stations has already installed RFID equipment and set "ETC lanes" signs to guide non-parking vehicles, there are still four artificial toll stations in the expressway network. This results in low level of traffic smooth, especially in peak-hour. Therefore, the suggestion is, fully implementing "ETC system" in the city's expressways to improve the traffic smooth.

- **The traffic congestion of expressway is very serious, and it reflects in two aspects:** one is that there are large quantities of traffic volume in the bottleneck expressways, which exceed the traffic capacity of the expressways; the other is that there is serious traffic congestion in rays expressways between the two loops expressways. The suggestions are that: ①The expressway law-enforcing department could take traffic control to freight vehicle in jams period based on the principles of passenger traffic first in order to improve roads traffic capacity; the law enforcement officers and vehicles can lead the traffic on the road to ensure vehicles transiting orderly; increasing efforts to deal with traffic violation by camera, giving maximum punishment on changing lane in the congestion road sections. ②The construction of bypass roads of core areas in each region should be accelerated to reduce the stress of cross-border traffic of Ring Road expressways. ③The construction of the network of express ways should be accelerated. There will be 253.9 km express way to be built and 3.2 km express way to be reconstructed in the planning of "six horizontal lines, seven longitudinal lines, one Ring Roads, seven contract lines" express way network. This will realize 612 km express way outside the Outer Loop Expressway opening to traffic. ④The expressways within the Outer Loop Expressway should be reconstructed and it should add more connectors in the expressways. The connectors between expressways and the urban roads should be planned and added after the expressways are transferred into urban fast channels. At the same time, the roads traffic supporting facilities should be completed based on the standard of urban roads.

- **Problems on upgrading national and municipal highways.** The suggestions are that the relative departments should make more efforts to upgrade national and municipal highways aiming to improving roads traffic capacity and alleviating traffic congestion, increasing the proportion of class II highways. In order to ensure traffic smooth, it should
effectively implement roads surface reconstruction projects and improve the good rate of national and provincial trunk highways.

3.2. Situation of Rural Roads in Chongqing

3.2.1. Current Situation of Traffic

Two major indicators of accessibility rate of administrative village, and quality highway rate (percentage of highways of relatively good quality) of towns and administrative village are used to assess the rural highway networks.

The accessibility rate refers to the proportion of administrative areas where roads can reach accounting for the whole administrative areas in a certain region in the end of report period. It reflects the coverage of roads accessibility in this region. The quality highway rate refers to the share of administrative areas where highways of relatively good quality (road pavement) accounting for the whole administrative areas in a certain region in the end of report period. It reflects the degree of physical quality of rural highway networks in the region.

The total investment of highway construction in Chongqing’s rural area was nearly 40 billion Yuan during the 11th FYP period. At this period the city rebuilt 50,000 km of rural roads. Particularly, 7.5 billion Yuan was invested to rebuild 8,000 km rural roads in 2010. The total length of rural roads will exceed 100,000 km by the end of 2010, of which more than 65,000 km roads are of class IV. So far, there are 855 towns and 8,741 administrative villages in Chongqing. About 847 towns have achieved smooth transport and roads can reach to 8,713 administrative villages. The quality highway rate and accessibility rate of roads in Chongqing are reflected in the following Table 3-5.

<table>
<thead>
<tr>
<th>Years</th>
<th>Quality highway rate of towns %</th>
<th>Accessibility rate of administrative village %</th>
<th>Quality highway rate of administrative village %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>58%</td>
<td>61.5%</td>
<td>20.5%</td>
</tr>
<tr>
<td>2007</td>
<td>65.9%</td>
<td>72.8%</td>
<td>30.5%</td>
</tr>
<tr>
<td>2008</td>
<td>83.5%</td>
<td>85.7%</td>
<td>38.9%</td>
</tr>
<tr>
<td>2009</td>
<td>97.8%</td>
<td>96.2%</td>
<td>51.7%</td>
</tr>
<tr>
<td>2010</td>
<td>99.06%</td>
<td>99.68%</td>
<td>———</td>
</tr>
</tbody>
</table>

Table 3-5: The Quality highway rate and Accessibility Rate of Town and Village in Chongqing During 11th FYP Period
Sources: Data from report of Chongqing Transportation Committee and Chongqing Municipal Government

Data in Table 3-5 showed that the quality highway rate of towns, and of administrative villages kept increasing trend during the 11th FYP period, and the quality highway rate of towns and accessibility rate of administrative villages went up to 99.06% and 99.68% respectively in 2010.

Table 3-6 shows out the quality highway rate of town, the accessibility rate and quality highway rate of administrative village of 21 towns in Chongqing in 2010.

1) Current Situation of Rural Passenger Transport

There were 100 passenger stations newly built, 160 bus routes and 1000 passenger bus were added in Chongqing in 2010. This makes 14 towns and 800 administrative villages serviced by buses. The accessibility rate of passenger car in town and administrative village has increased from 98.1%, 64.6% in 2009 respectively to 99.4%, 72.6% in 2010 respectively. In accordance with
the "experiment first, then promotion" approach, pilot projects of rural passenger transport development have been implemented in counties of Liangping, Jiangjin, Rongchang, Qijiang, Wulong, Qianjiang, Yongchuan, Hechuan, and Jiulongpo in Chongqing. Meanwhile, it is encouraged for enterprises and individuals to enter into the passenger transport market, engaging in regional passenger traffic businesses and matching cold passenger lines with the hot. Also, it was allowed to add passenger cars during special time, like students' holiday and the period of rural people going to the market.

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>Evaluation Indicators</th>
<th>Evaluation Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>quality highway rate of towns</td>
<td>accessibility rate of administrative village</td>
</tr>
<tr>
<td>Qijiang</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Bishan</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Tongliang</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Tongnan</td>
<td>100%</td>
<td>91%</td>
</tr>
<tr>
<td>Dazhui</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Rongchang</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Dianjiang</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Liangping</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Fengdu</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Zhong</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Shizhu</td>
<td>90.6%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 3-6: The Quality highway rate of Town, the Accessibility Rate and Quality highway rate of Village of 21 Towns in Chongqing in 2010

Sources: Data from Chongqing Municipal Government, Chongqing Transportation Committee, the County People's Government and Transportation Bureau

3.2.2. Transportation Planning

1) Planning of rural highways

The development of rural highways will focus on the scheme of smooth transport of administrative villages, accelerating the implementation of road pavement hardened and asphalt road construction projects, improving service capabilities of rural roads during 12th FYP period. The development plan aims to promote the integration development of urban and rural transport during 12th FYP period. The Ministry of Transport will support Chongqing to construct rural highways during the 12th FYP period for the investments of following:

- Promoting the smooth transport projects of administrative villages;
- Bringing roads rebuilding projects of merged towns in the smooth projects;
- Supporting ferry rebuilding projects and bridge reconstruction projects.

These three categories of projects need a total investment of 28 billion Yuan in total, including: i) rebuilding 50,000 km rural roads; ii) focusing on the smooth project to make 30,000 km rural roads open to traffic; iii) rebuilding and upgrading 10,000 km county roads; iv) connecting 10,000 km roads, to accomplish the aim of 80% towns connected by class II roads.
According to the "Chongqing municipal government's directives on speeding up the construction of rural passenger transport", the goal is that the quality highway rate of towns will reach 100%, the accessibility rate and quality highway rate of administrative villages which are included in the city's rural roads construction program will achieve 100% and 55% respectively by 2012. In order to accomplish this goal, it needs an investment of 35 billion Yuan, rebuilding 30,000 km rural roads. This includes 4,000 km roads smooth project of towns, 6,000 km roads accessibility projects and 20,000 km roads smooth project of administrative villages. On the basis of the forecast made by Chongqing Transportation Committee, the quality highway rate of administrative village of Chongqing will reach 90% by the end of 12th FYP period.

2) Development plan of rural passenger transport

According to the planning made by Chongqing Transport Committee, the goal of Chongqing rural passenger transport is that: There will be 1,400 rural passenger routes are added and 5,000 rural passenger cars are input; Passenger stations above five-class in the central towns will be constructed, and five-class passenger stations or simple stations will be built in other towns; Bus shelters will be built in administrative villages which has opened to traffic by 2012. Meanwhile, the passenger transport accessibility rate of town will achieve 100%. And the administrative villages complying with the conditions of opening to traffic will have access to passenger cars by 100%. The urban and rural passenger transport "integration" will be striving to achieve in 2015. By then, areas within the Outer Ring Road Expressway will be covered by rural and urban public buses. And towns county seat in remote rural areas are accessible by buses.

With the rural passenger transport gradually becoming in scale in Liangping, Jiangjin, Rongchang, Qianjiang, Yongchuan, the Bureau of Chongqing Transportation Management will focus on promoting rural passenger transport in southeast and northeast Chongqing, and making qualified villages be the first to launch rural passenger transport in public bus mode. Shuangqiao district will implement this mode, and the specific programs are established.

3.2.3. Evaluation of Rural Highways

It can be known from the analysis that, the quality highway rate of town and the accessibility rate of administrative village have reached 99.06% and 99.68% respectively of Chongqing in 2010. Basically the result has realized the "double hundred" goal of rural highways smooth project made in 11th FYP period, namely, "the quality highway rate of towns will reach 100%, the accessibility rate of administrative villages will achieve 100%, and the quality highway rate of administrative villages will be above 50% by the end of 2010."

However, judging from table 3-6 of each counties situation, there were 6 counties has completely achieved three indicators of the "double hundred" goal, and other 6 counties has accomplished "the quality highway rate of towns will reach 100%, the accessibility rate of administrative villages will achieve 100%". While, only 4 counties' quality highway rate of towns has achieved 100%, and other 3 counties' accessibility rate of administrative villages has reached 100%. However, there are 23.8% counties has not achieved 100% quality highway rate of towns, 28.6% counties has not realized 100% accessibility rate of administrative village, and 61.9% counties has not accomplished the goal of 50% quality highway rate of administrative village.

The passenger car accessibility rate of town and administrative village have increased in 2010, but there still have a certain disparity by comparing with the planning goal of 2012. The passenger stations above five-class have not been completely covered in all central towns, and the existing simple stations cannot meet the rural passenger transport development needs. Although, the rural passenger transport has gradually become in scale in experiment sites, the infrastructure construction and vehicles inputing in southeast and northeast areas of Chongqing are still lagging behind.
3.2.4. Problems and recommendations on Rural Highways in Chongqing

At present, the main problems of rural highway traffic in Chongqing are:

- There is a disconnection between the construction and the maintenance of rural highways, which hindering traffic smooth of rural highways. This due to the imperfect maintenance system, low construction quality, lacking of technology and professionals in roads maintenance, and insufficient maintenance fund and some other relative factors.

- There are great difficulties in the operation and management of rural public bus. Firstly, the rural public bus market has little profits, and the capital turnover period is relatively long; Secondly, owing to the low construction level of rural roads and poor road network efficiency, the rural public bus market is hard to develop in scale in a short term; thirdly, because of lacking financial support, the present subsidy cannot satisfy the actual financial demand in rural public bus operation; Finally, the rural public bus business are operated by contract mode and affiliating operation, which are not benefit to improve the management and service quality, even do not accelerate the rural public bus's long-term development.

Therefore, government at all levels should strictly put the requirements of "Opinions of Chongqing Municipal Government Office on further rationalizing highway maintenance management system" into practice, and further identifying the responsibility body of rural highways maintenance. So that it can bring the maintenance funds and staff payments into financial overall plan in order to guarantee the maintenance institutes, the personnel and funds are taken into practice. It also should actively strive for National Development Bank policy-type credit and enlarge the investments in rural highways construction. So, it can gradually improve the construction standard based on the realized "double hundred" goals.

According to the above, recommendations are proposed as follows: firstly, the government should strengthen the maintenance and management of rural highways and consolidate the construction achievements to realize the sustainable development of rural highways. Each county government should establish policies to improve highway maintenance and inspection management mechanism, arranging specialists to be engaged in the maintenance management. This can provide a solid system guarantee for rural highways safety and smooth traffic.

Secondly, the government should seriously put the rural roads maintenance funds in the agricultural tax transfer payment into practice. Especially, the taxes and fees of project construction and construction enterprises in rural roads construction periods should be collected together to be used in rural roads maintenance. To encourage highway benefit enterprise and business vehicle owner to donate in maintaining roads through the approaches of naming roads, establishing maintenance management institution or highway maintenance association; and to guide the collective gains to be used for rural highway maintenance.

Thirdly, the rural highway network structure should be further improved, and the road technical class should be promoted, and the rural areas traffic conditions should be improved. The local government should make efforts on rebuilding rural roads, focusing on carrying out smooth transport project.

Fourthly, the urban and rural passenger transportation integration pattern should be implemented reasonably. For instance, the urban and rural public bus integration mode can be put into practice in areas with high economic power and urbanization degree; while, the urban public bus mode can be developed in areas with a certain economic base, and the rural scheduled passenger cars mode can be implemented in core areas with good urbanization degree. The public bus mode and scheduled passenger car mode should coexist and develop harmoniously in a certain period, and the two modes can be integrated through transportation transfer.
3.3. Transport Connection between Chongqing and other Regional Markets

3.3.1. Connection between Chongqing and Western China

1) **Railway**

   Chongqing, Chengdu and Xian formed a "West Triangle " Economic Zone in China. At the end of 2009, Chongqing, Chengdu and Xian had developed the main hub, Ankang, Hanzhong, Baoji, Guangyuan, dazhou, Nanchong and Wanzhou had developed important nodes, A few links and a number of extensions railway network constitute the Railway Network.

   Xiangfan-Chongqing line and Xian-Ankang line connect chongqing and Xian. there is direct line between Chongqing and Chengdu, or through Suining-Chongqing line, dazhou-chengdu line. 

   Chongqing to Lanzhou: Xiangfan-Chongqing line, Xian-Ankang line, longhai line
   Chongqing to Guiyang: chuanqian line
   Chongqing to Kunming: Chengdu-Chongqing line neikun line, hukun line, or chuanqian line, hukun line

   To be planned or constructed:

   Chongqing to Xian: Yuxi passenger traffic line, 3 hours trip
   Chongqing to Chengdu: chengyu passenger traffic line, an hour trip
   Chongqing to Lanzhou: lanyu railway, 5 hours trip
   Chongqing to Guiyang: yuqian new railway, 2 hours trip
   Chongqing to Kunming: yukun new railway, 3 hours trip

2) **Expressway**

   Chongqing to Xi'an: no direct expressway
   Chongqing to Chengdu: three, Chengdu-Chongqing expressway, chenlingyu expressway, suiyu-chengnan expressway
   Chongqing to Lanzhou: no direct expressway
   Chongqing to Guiyang: yuqian expressway
   Chongqing to Kunming: no direct expressway

3) **Waterway**

   By the Yangtze River, boat come from Chongqing could reach Yibin and Luzhou, as far as shuifu port which is belong Yunnan Province.

4) **Aviation**

   Chongqing to Xi'an: 7-9 flights each day
   Chongqing to Chengdu: no direct flight
   Chongqing to Lanzhou: 1-2flights each day
   Chongqing to Guiyang: one flight each day
   Chongqing to Kunming: 15-18flights each day

3.3.2. Connection between Chongqing and Bohai Economic Zone

1) **Railway**

   Xiangfan-Chongqing line, jiaozuo-liuzhou line, longhai line Beijing-Guangzhou line connect chongqing and Bohai Economic Zone.
zhengyu passenger traffic line which is connect with beijing-zhengzhou line will only take 7 hours to beijing.

2) **Expressway**
   yuyi expressway, wuyi expressway, jinggango expressway connect Chongqing and Bohai Economic Zone.

3) **Waterway**
   Yangtze River Waterway

4) **Aviation**
   Chongqing to Beijing: 23 flights each day
   Chongqing to Tianjin: 5-7 flights each day

### 3.3.3. Connection between Chongqing and Yangtze River Delta

1) **Railway**
   yuhuai line, hukun line connect Chongqing and Yangtze River Delta.

2) **Expressway**
   Shanghai-Chongqing expressway, Code G50, It will take 17 hours trip.

3) **Waterway**
   Yangtze River Waterway

4) **Aviation**
   Chongqing to Shanghai: 17 flights each day
   Chongqing to Nanjing: 9 flights each day
   Chongqing to Hangzhou: 11-13 flights each day

### 3.3.4. Connection between Chongqing and Pearl River Delta

1) **Railway**
   yuhuai line, hukun line, jingguang line, guangjiu line connect Chongqing and Pearl River Delta Economic Zone.

2) **Expressway**
   Shanghai-Chongqing expressway, jinggango expressway connect Chongqing and Pearl River Delta.

3) **Waterway**
   Yangtze River Waterway

4) **Aviation**
   Chongqing to Guangzhou: 21-25 flights each day
   Chongqing to Shenzhen: 21 flights each day
   Chongqing to Hong Kong: 6 flights each day

### 3.3.5. Evaluation

The transport connections between Chongqing and surrounding areas referred by this report are actually the transportation Corridor’s completion degree. Transportation Corridor is a complex of the place of where the passenger and commodity have gone through, the tackles of delivery and the management system. We mainly selected the structure form, mastery speed, transport capacity for the evaluation indicators.
1) The form of the transportation structure:

The development of transportation technology has been made within the same transport channels exist one or several modes of transportation line. This formed different structural relationship. The first one is series structure corridor, formed by one or more modes of transport routes connecting tissue formed in the following ways, as shown in Figure 3-1.

![Figure 3-1 series structure corridor](image1)

Rectangles refer to links in transportation corridor. Small circles refer to transportation hub. Big circles refer OD.

The second is a Parallel Structure of transportation corridor. It has at least one mode of transportation links directly connected. The reliability or stability of this type corridor is well. As shown in Figure 3-2

![Figure 3-2 Parallel Transportation Corridor](image2)

The third is a Mixed structure of transportation corridor. It has both the direct link and link segment. As shown in Figure 3-3, Mixed structure corridor is the further development of Parallel structure Transportation Corridor, it is Superior, more reliable and better stability.

![Figure 3-3 Mixed Transportation Corridor](image3)

Taken together, transportation corridor system consists of links and nodes. Links could be composed by 5 different ways. The node may be the single way, or integrated, as shown in Figure 3-4

![Figure 3-4](image4)
Figure 3-4 Transportation Corridor System

2) The classification of Transportation Corridor

According to different modes of transport, the corridor market will be divided into the following 5 sub-market. The corridor with these five inter-corridor must be an important corridor area, and only part of the same way is the general channel, as shown in Figure 3-5.

Figure 3-5 Classification of Transportation Corridor

To meet the transport needs of different levels, there are different levels of the supply structure in major transport routes, such as different delivery capacity, speed, cost and volume. These different combinations become the corresponding "chain"-like structure of supply. They may be called transport corridor supply chain structure. Relay-chain (or space-chain) is serial corridor, indicating that corridor access by the lines of various modes of transport. Speed-chain is parallel corridor. It may complete the transportation task by the being speed supply from low to high in the corridor. Cost-chain (or value-chain) is also parallel corridors. The corridor must exist of is possible to it may complete the transportation tasks of fitting to demand between different goods values and different passenger transport by the being cost supply from low to high.

3) Evaluation

Integrated Transport Corridor follows a development process of such: at the speed level, from the low to medium speed links, and then to high-speed links; at the value level, from low value to the value, and then to high-value.

<table>
<thead>
<tr>
<th>low speed</th>
<th>Medium speed</th>
<th>High-speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Classified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waterway (30-70 km/h)</td>
<td>Highway (100km/hour)</td>
<td>High-speed railway (200km/h)</td>
</tr>
<tr>
<td>Ordinary automobile transportation (usually 20-80 km/h)</td>
<td>Medium-speed Railway (130-200km/hour)</td>
<td>Air Line (500km/h)</td>
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<tr>
<td>Low-speed rail transport (60-130 km/h)</td>
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<tr>
<td>Pipeline transportation (typically 60-130 km/h)</td>
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</tbody>
</table>

Figure 3-6 the speed level
<table>
<thead>
<tr>
<th>Chongqing-Beijing</th>
<th>Chongqing-Shanghai</th>
<th>Chongqing-Guangzhou</th>
<th>Chongqing-Xian</th>
<th>Chongqing-Chengdu</th>
<th>Chongqing-Lanzhou</th>
<th>Chongqing-Guiyang</th>
<th>Chongqing-Kunming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low speed</td>
<td>Medium speed</td>
<td>High-speed</td>
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<tr>
<td>General Road: The short distance is: 108,210 State Road</td>
<td>expressway: No direct line, YuYi expressway, WuYi expressway, Beijing-Hong Kong-Macao expressway</td>
<td>Air Corridor: 8 major airports (Beijing Capital, Tianjin Binhai, Shijiazhuang zhengding, Jinan Yaoqiang, Taiyuan wusu, Zhengzhou Xinzheng, Xian Xianyang, Chongqing Jiangbei International Airport)</td>
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<tr>
<td>Water lines: the Yangtze River, the East China Sea, Yellow Sea, Bohai Sea, transferred from Tianjin to Beijing; General Railway: Xiangyu line, Jiaoliu line, Longhai Railway, Beijing-Guangzhou line</td>
<td>Air Corridor: 9 major airports (Shanghai Pudong and Hong qiao, Hangzhou, Nanjing Lukou, Hefei Luogang, Nanchang Changbei, Wuhan Tianhe, Changsha Huanghua, Chongqing Jiangbei International Airport)</td>
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<tr>
<td>Chongqing-Shanghai</td>
<td>Chongqing-Guangzhou</td>
<td>Chongqing-Xian</td>
<td>Chongqing-Chengdu</td>
<td>Chongqing-Lanzhou</td>
<td>Chongqing-Guiyang</td>
<td>Chongqing-Kunming</td>
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<tr>
<td>General Road: The short distance is: 318,210 State Road</td>
<td>expressway: No direct line, YuYi expressway, numbered G50, starting in Shanghai, the entire 1768 km, only 17 hours required</td>
<td>Air Corridor: 2 major airports (Lanzhou zhongchuan, Chongqing Jiangbei Airport)</td>
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<tr>
<td>Water lines: the Yangtze River, East China Sea, South China Sea, the Pearl River</td>
<td>Air Corridor: 4 major airports (Guangzhou Baiyun, Shenzhen Baoan, Guiyang Longdongbao, Chongqing Jiangbei Airport)</td>
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<tr>
<td>General Railway: Yu Huai line, Shanghai-Kunming line</td>
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<tr>
<td>Chongqing-Guangzhou</td>
<td>Chongqing-Xian</td>
<td>Chongqing-Chengdu</td>
<td>Chongqing-Lanzhou</td>
<td>Chongqing-Guiyang</td>
<td>Chongqing-Kunming</td>
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<tr>
<td>General Road: The short distance is: 210, 321 State Road</td>
<td>expressway: Chengyu expressway, Chengling expressway, suiyu-chengnan expressway</td>
<td>Air Corridor: 2 major airports (Chengdu Shuangliu, Chongqing Jiangbei Airport)</td>
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<tr>
<td>Water lines: Yangtze River, East China Sea, South China Sea, the Pearl River</td>
<td>Air Corridor: 2 major airports (Kunming Wujiaba, Chongqing Jiangbei Airport)</td>
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<tr>
<td>General Railway: Yu Huai line, Shanghai-Kunming line, Beijing-Guangzhou line</td>
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<td>Chongqing-Chengdu</td>
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<td>Chongqing-Kunming</td>
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<tr>
<td>General Road: 318, 319 State Road</td>
<td>expressway: No direct line</td>
<td>Air Corridor: 2 major airports (Chengdu Shuangliu, Chongqing Jiangbei Airport)</td>
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<tr>
<td>General Railway: Chengyu Line, suiyu-dacheng line</td>
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<td>Chongqing-Lanzhou</td>
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<td>Chongqing-Kunming</td>
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<tr>
<td>General Road: 212, 316 State Road</td>
<td>expressway: No direct line</td>
<td>Air Corridor: 2 major airports (Kunming Wujiaba, Chongqing Jiangbei Airport)</td>
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<tr>
<td>General Railway: Xiangyu Line, xikang Line, the Longhai Line</td>
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<td>Chongqing-Guiyang</td>
<td>Chongqing-Kunming</td>
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<tr>
<td>Part of the Chongqing-guangzhou Transport Corridor</td>
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<tr>
<td>Chongqing-Kunming</td>
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<tr>
<td>General Road: 210, 320 State Road</td>
<td>expressway: No direct line</td>
<td>Air Corridor: 2 major airports (Kunming Wujiaba, Chongqing Jiangbei Airport)</td>
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<tr>
<td>General Railway: Chengdu-Chongqing line, neiliu line, hukun line, chuanqian line, hukun line</td>
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**Figure 3-7 The Analysis of Chongqing Transport Corridor**

Above table shows that:

- Transport corridor from Chongqing to Beijing is a hybrid structure, including high, medium, and low speed lines and high-level value, the value, low value of the transport capacity. Weaker connection to the highway. The proposed Beijing to the Indian Ocean (ASEAN) highway will run through Chongqing. The speed can be a useful complement to the transportation line. Construction of Zheng Yu passenger line will greatly improve the access to high-speed lines.

- Transport corridor from Chongqing to Shanghai is the hybrid structure, one of the best of Chongqing transport corridor. A large part because the Yangtze River and Shanghai-
Chongqing expressway, making the channel covers high, medium, and low speed lines and high-level value, the value, low value of the transport capacity. Construction of Shanghai-Wuhan-Chengdu high-speed rail will add high-speed lines to that channel.

- From Chongqing to Guangzhou, the transport corridor is the hybrid structure, including high, medium, and low speed lines and high-level value, the value, low value of the transport capacity. One of the weaker is the speed line, if you select the entire expressway would need to bypass long distances.

- Transport corridor from Chongqing to Chengdu: the structure is a hybrid, also include the high, middle and low speed lines and high-level value, the value, low value of the transport capacity. The more prominent is the speed line. There are three routes to choose from the expressway, Chengdu-Chongqing expressway under construction increased by double-track is the choice of speed lines. The construction of Chengdu-Chongqing Passenger high-speed line will greatly improve the current situation can only rely on air.

- Transport corridor from Chongqing to Lanzhou is a hybrid structure, including two speed lines of high and low levels. Not directly connected to the expressway, the speed lines in the channel is very weak. Lanzhou-Chongqing railway under construction will improve the situation.

- Transport corridor from Chongqing to Kunming is the hybrid structure, the presence of high and low levels of the two speed lines. Speed lines in the channel are very weak, and planned new railway lines Yukun will improve the situation.

3.3.6. Problems and recommendations to Chongqing’s regional connections

Currently, the problems of Chongqing external transport corridor are:

- Rail transportation problems. Although the new railway lines have been built, the railway transportation capacity is still insufficient to meet the rate request, the service poor, such problem still exists, together with price increases year after year, the problem of unauthorized charges have occurred, making rail transport very expensive.

- Road transport problems. The main problem is that road transport is too expensive, too small. While the new expressway has been built, the management did not keep up, and arbitrary charges, too much toll Stations are still not well resolved.

- Water transport problems. the middle of Yangtze River water level is too low, Led to the ship aground; tail backwater problems; the time for Water transport too long.

- Air transport problems. In recent years, Chongqing Jiangbei International Airport has seen significant development. However, international direct flights are still too few. Cargo handling capacity and efficiency are still to be improved.

According to the above problems, the following recommendations:

- Railway transport. Government should as soon as possible built railway hub of Southwest China in Chongqing, accelerate the construction of railway to the sea port, ease the pressure on railway transportation; rectifying rail service quality, improve rail services, reduce rail arbitrary charges, lower freight costs.

- Road transport. Government should i) accelerate the construction of expressway to the coastal ports; ii) provide guidance and comprehensive information to help transport companies to familiarize new import and export channel; iii) enhance the collaboration with the provinces along the corridor to reduce the road toll points and fees so as to improve logistics efficiency and reduce logistics costs.
Water transport. Government should: i) regulate the market order to curb vicious competition among Shipping Enterprises; ii) further improve customs clearance, export tax rebates, import and export services sectors; iii) further promote the construction of the bonded port area; iv) good planning, Limited ports and terminals in the large-scale sprawl.

Air transport. Open up more international routes, improve the service capacity and through efficiency of Jiangbei Airport.

In the process of building transportation corridors, a very important point is that Chongqing government should: i) enhance the cooperation and joint-efforts with the local government along the transport corridors; ii) establish regular contact with the relevant port authorities, improve customs clearance efficiency; iii) actively develop economic exchanges with the provinces along the transport corridors, Construction of transport corridors together, balanced corridors traffic, reduce costs of passenger and cargo.
SECTOR REPORT OF FOREST CHONGQING

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SUMMARY

In August 2008, Chongqing Municipality proposed to use about ten years to construct the comfortable and livable “Forest Chongqing” with beautiful mountains and rivers, and good ecosystem. Forest Chongqing is an important component of ecological safety strategy in upper and middle stream of Yangtze River, and an important support for China’s strategy to address climate changes, it has become a major initiative for Chongqing to achieve scientific development, a primary task of urban ecology, and an important way to improve the livelihood of the people, and solve the issues of “agriculture, rural area and farmers”. Currently, construction of Forest Chongqing has made remarkable achievements, formed practice, experience and classic cases, and has huge demonstration and reference significance.

Because forests have important ecological role, domestic and foreign cities have taken building city forest as an important measure to improve urban ecology and improve environment quality, and forest city has become one of the objectives for the high-quality domestic and foreign urban development pursuit. In theory, forest city construction is based on the concept of city forest; in the development features, it takes urban ecosystem as a major concern; in development trend, international forest city makes relationship between city and nature more prominent.

Domestic forest city construction is an important part of national ecological environment construction, and bears great significance for the improvement of the ecological environment in the whole country. Through practice and exploration in recent years, the following forest city development construction patterns have been formed in China: ecological environment control construction model, with Shenyang as the representative city; promoting urban construction key transformation construction model, with Guangzhou and Hangzhou as the representative cities; urban ecological environment capacity expansion construction model, represented by Aksu in Xinjiang; industrial support construction model, represented by Xuchang and Linan; and water-saving construction model, represented by Baotou.

Forest Chongqing has both common nature of forest city construction in other parts of China, and its unique characteristics. The connotation of “Forest Chongqing” is different from national forest city construction in general in China, it emphasizes integration of urban and rural areas, access roads, water system, two banks of the Yangtze River, and nurseries much more; “Forest Chongqing”, combined with people’s livelihood, has very bright characteristic of becoming specific works of improving people’s livelihood; “Forest Chongqing” is combined with overall planning of urban and rural areas, construction of “Forest Chongqing” is the focus of coordinated development of overall planning in Chongqing; “Forest Chongqing” has national strategic importance in the core concept of promoting ecological civilization; and construction of Forest Chongqing has the distinct feature of changing economic development mode and realizing scientific development.

In the past three years, construction of Forest Chongqing has maintained strong momentum and achieved very significant results, mainly in: strategic priority, planning and guiding implementation of Forest Chongqing project; specific overall target, strong support, scientific and rational layout; strong leadership promotion, two-way driving by national support and great importance by government at local levels, inputting strong development impetus for the construction of Forest Chongqing; urban and rural overall planning, obvious effects have been achieved in promoting ecological projects of “agriculture, rural area and farmers” and harvest increase foundation project by means of Forest Chongqing; strengthening system construction, consolidating construction results of “Forest Chongqing” through regulations building and institutional reforms; large input strength, innovative investment mechanism; focusing on pilot and demonstration, creating distinctive building model; all people mobilized to plant trees, with fast promoting speed and remarkable results; and strengthening examination and supervision, maintaining normalized construction of Forest Chongqing.
Through Forest Chongqing construction, we have achieved great social, economic and ecological benefits. In terms of social benefits, the construction of Forest Chongqing can help mitigate urban heat island effect, improve the investment environment; promote health, improve the city livable environment; transfer rural surplus labor; and promote continuity of forest culture in Chongqing and Sichuan. In terms of economic benefits, the construction of Forest Chongqing has directly led to the development of forestry industry, enhanced rural economic development potential, led to enhancement of land level difference, promoted enhancement of relevant industries and the city’s comprehensive competitiveness. In terms of ecological benefits, construction of Forest Chongqing can help maintain oxygen and carbon balance in the air, purify air, reduce noise, keep soil and water, conserve water source and protect biological diversity.

Although the construction of Forest Chongqing has made great achievements, it also faces some problems and bottlenecks: there are still many errors in ideas; planning and layout, and implementation program need to be further improved; reforestation costs are high, ecological management is difficult; focusing on construction and neglecting conservation, forest management and protection need to be strengthened; technical support is not in place, the new technology R&D should be further strengthened; the total land resources are limited, the contradiction of green space is obvious; forest has low productivity, resource utilization is not high; there is larger gap of funding, investment and financing mechanism needs further improvement; and the long-term mechanism in forest engineering should be further improved.

For further promoting the building of Forest Chongqing, we propose the following countermeasures: combine the construction of Forest Chongqing with construction of low carbon city; develop forest carbon emission rights trading system, actively explore carbon emission rights trading mechanism; persist in reform and innovation, through deepening and improving collective forest rights and other institutional reform, continuously improve and innovate the mechanism of construction of Forest Chongqing; intensively use land, build the city forest with three-dimensional greening, clearly plan to ensure the forest construction land, vigorously develop three-dimensional greening, expand green development space; further increase technology support intensity for forest project, and increase the technology content and level; increase investment intensity, attract social funds from more channels to participate in the construction of Forest Chongqing; accelerate the construction of the Yangtze River green ecological barrier, maintain the ecological safety in Three Gorges reservoir area and the middle and down stream; and establish relevant supporting policy system for the construction of Forest Chongqing.
In July 2008, as a new development goal and ambition, the concept of “Five Chongqings” — “Livable Chongqing, Traffic-smooth Chongqing, Forest Chongqing, Safe Chongqing, and Healthy Chongqing” was brought forward by Chongqing Municipal Party Committee and People’s Government and became Chongqing’s new strategic decision. Fitting into the comprehensive strategy of “Five Chongqings”, the decision of establishing a “Forest Chongqing” featuring charming landscape, favorable ecosystem and comfortable living condition within ten years was made in August 2008, which represented the official commencement of construction of “Forest Chongqing”. As an important component of the national ecological security strategy for the upper and middle reaches of Yangtze River and an important support to the strategy of coping with climate change, the “Forest Chongqing” strategy becomes a key approach to realize Chongqing’s scientific development, the first task in municipal ecological civilization construction, and a crucial path to improve the level of people’s livelihood and solve problems relating to “agriculture, rural areas and farmers”.

By now, outstanding achievements have been made in the establishment of “Forest Chongqing”, and the adopted approaches, learnt experiences and classic cases are of great demonstrative and referential importance for other cities. Based on investigation, survey and analysis, as well as related theories and construction process of “Forest Chongqing”, evaluation on its effect has been carried out; in the mean time, key issues and the “Bottleneck” in current stage have been analyzed, and corresponding suggestions have also been proposed in terms of further forwarding the establishment of “Forest Chongqing” in the “12th 5-year Plan” period to provide reference for the general project team and municipal governmental institutions concerned.

1. Background of “Forest Chongqing” Strategy

As the largest land ecological system, forest offers its ecological functions in conserving water, protecting water and soil, preventing wind and consolidating sand, adjusting climate, purifying environment, reducing noise, protecting and improving environment, and protecting ecological resources. With the accelerated urbanization process, the city now is facing severe issues, including continuously expanding urban scale, dense population and high buildings, evident urban heat island effect and the intensified ecological pressure. As an important self-purification component in the urban regional ecological system, urban forest provides its distinctive functions, which other city infrastructure is not able to replace, including adjusting ecological balance, improving environment quality, protecting body health, improving city landscape, facilitating energy-saving and disaster alleviation, and offering recreation environment. Forest is not only the living city infrastructure, but also a living historical and cultural symbol for the city. Urban forest construction has been accepted by numerous domestic and overseas cities as an important approach to achieve the improved city ecology and environment quality, in the mean time, urban forest is also regarded as one of the targets for those domestic and overseas high-quality cities.

1.1. Academic basis: relative ideas of urban forest construction in domestic and overseas cities

First of all, in theory, urban forest construction is based on the urban forest ideas. Urban forest ideas were firstly initiated from western cities in the second half of the 20th Century. In 1962, the term “Urban Forest” was created in the outdoor recreational resources survey report by Kennedy Administration, later this term was developed gradually into an urban science studying
on potential issues in the regards of ecology, environment, society and development. The urban forest theory in our country began in the 1990’s, later in 1994, China Forest Society integrated “urban forestry”, “urban green”, “metropolitan forestry” and “urban forest” into one word, “urban forest”, which means those trees and relating vegetation within the city and its surrounding area. From the narrow sense, urban forest refers to the forest belt and sheet within the city and its surrounding area, including protection forest, forest for conservation of water supply, amenity forest, production land forest and also the suburb forest. But if in broad sense, urban forest also includes park, garden, botanical garden, zoo, tree and other plant on urban road and street, tree and other plant by river, lake, pool and pond, courtyard green in residential area, public place, governmental institution, school, factory and mine, troops, and also the forest belt and sheet on urban road and street.

Secondly, for development features, regard urban ecological system as the focus. By changing the former narrow urban green concept of targeting the downtown area green and beautification, urban forest lifts up the urban ecological system as the key concentration. The basic ideas are based on the massive environmental issues occurring during the significant urbanization process, and the development driving force not only relies on the continuous evolution of people’s demands in the sustainable urban development and the forestry, but also the aspiration and pursuit of returning to nature, living in harmony with nature and enjoying the beautiful and healthy living environment by people, living in metropolis for quite long time. The following features are demonstrated during the development and evolution process. The focus of the urban forest will gradually move from micro forestry cultivation and technological measures to human welfare, balanced development among urban economy, society and ecology, organized integration among ecological benefits, social benefits, economic benefits and the aesthetic effect through the urban forest construction. The function of the urban forest will transform from partial section garden and landscape construction to the further understanding and recognition of the urban overall development in terms of ecology, society, economy, recreation and aesthetic appreciation. The development target of urban forest will change from economy-orientation to the harmonious and balanced development of economy, society and ecology.

Thirdly, in terms of development trend, international urban forest gives prominence to the relationship between city and nature. Since the “urban forest” and “urban forestry” concepts forwarded by the U.S.A. and Canada in the 1960’s, a powerful development tendency has been seen in the world’s urban forest. Since the 21st century, “forest stepping into city, city integrating with forest” has become the new idea in upgrading city image and competitiveness, promoting regional sustainable economic development, and also demonstrating new development trend. From the point of idea, after the stages of “man will decide” and “people oriented”, the urban forest experiences the stage of “respect the nature”, which emphasizes the organized integration of artificial and natural landscapes, the protection over the original forest and vegetation, and the nature of the urban forest. Riverside vegetation is protected well and river banks greening leans closer to the nature. Special attention has been paid to native tree types to reflect the local features; the nature-oriented low-cost urban forest management and maintenance satisfies the need of approaching the nature. In the regard of planning, the urban forest development of overseas cities, integrated into the urban overall planning, has sound sustainability and stability, and balanced layout across different urban regions. In terms of construction method and approach, the vertical green on the building cover has been emphasized, organic covering has also been used to cover the land to effectively prevent sand and stimulate forest's growth. As for the mechanism, fully supported by the government, the massive participation of the general public and enhancement of the environmental protection sense are emphasized in the urban forest construction. From the view of forest scale, harmonious relationship with urban modern buildings, urban forest plays its mainstay role in the city, with sheets of protected natural forest in the surrounding area of the city. That is to say, forest is in the city, and also holds the city in the circle.
1.2. Domestic practice: supervising guidelines for urban forest construction

As an important component in the national ecological environment construction, the urban forest construction in domestic cities plays a significant role in improving the whole country’s ecological environment. Different from a green vegetation city or a garden city which is judged on the increased green amount and the charming landscape, the urban forest construction emphasizes the ecological function of forest, which means the urban forest should be regarded as an ecological system, taken as an important component of the national ecological construction, and included in China’s comprehensive forest ecological network system project. Since 2004, fully support by the State Forestry Bureau, the urban forest construction of our country, with the effective platform of establishing the national forest city, has achieved significant progress. With high attention from party committees and people’s governments at various levels, and support from general public, the urban ecological environment has been improved, and the ecological civilization has been promoted. In the promotion practice of forest city construction, the theory of forest city construction has been enriched and developed, and the basic frame has been formed.

<table>
<thead>
<tr>
<th>Public green space per capita</th>
<th>City with population over 1 million</th>
<th>City with population between 0.5 -1 million</th>
<th>City with population below 0.5 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>South of Qinling Mountains and the Huaihe River</td>
<td>7.5</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>North of Qinling Mountains and the Huaihe River</td>
<td>7</td>
<td>7.5</td>
<td>8.5</td>
</tr>
<tr>
<td>Green rate (%)</td>
<td>South of Qinling Mountains and the Huaihe River</td>
<td>31</td>
<td>33</td>
</tr>
<tr>
<td>North of Qinling Mountains and the Huaihe River</td>
<td>29</td>
<td>31</td>
<td>34</td>
</tr>
</tbody>
</table>

Table 1 Basic Indexes of National Garden City

Firstly, path selection in nature-oriented state, which requires the urban forest construction, with artificial construction methods, follows the internal law of the forest ecological system, and achieves the nature-oriented established ecological system. So, the landscape design should be nature-oriented to avoid the trimness in garden style and the over trimness as well. Next, the selection of trees should be focused on the local types to form the diversified plant community. Last, the management approach should be nature-oriented as well. After the establishment of urban forest ecological system, artificial management should be avoided to interfere with natural succession.

Secondly, the integrated urban-rural ecological system, which requires overall consideration, without setting boundary, over the ecological system across both urban and rural areas. So, planning as a whole means the farmland ecological system and the ecological system in the new rural construction should be integrated into the overall urban forest planning. Next, investment as a whole means transforming the former dual structure of both municipal and township investment to integrated investment package into the municipal one. Last, management as a whole means changing the former mechanism in which municipal bureau of parks and gardens takes over the urban area, and the forestry bureau covers the rural area to a more reasonable one.

Thirdly, systematic layout requires the urban forest is established with waters, city, street, village and residence area. Urban forest, “lung of the city”, and lake, “kidney of the city”, provide the city beautiful landscape and fresh air. Urban forest established with waters requires the organized integration of the urban forest construction and urban waters protection. On one hand,
forest can exercises its function of purifying surface runoff and absorbing heavy metals to protect the urban waters; on the other hand, the urban waters can improve the living environment for urban forest's growth and reproduction to stimulate the forest green to form the improved vegetation structure and stronger ecological functions. All in all, this makes easier to achieve the unified target of charming ecological landscape and more obvious ecological environment values. At the same time, as the live city infrastructure, forest, not at the subordinate place but equally important, supports and creates development opportunities for the waters, street, city, village and residence area, which reflects the mutual relationship.

Fourthly, rich and distinctive local features, which requires the urban forest construction follows the local economic, social development levels, climate and geographic conditions, and cultural and historical heritages, a tailored path. The formed urban forest aesthetics, garden culture and tourism culture, will not only create unconscious influence over people’s aesthetic consciousness and moral sentiment, but also make the urban forest a symbol of urban cultural taste and civilized accomplishment.

Fifthly, open and interactive management approach, which allows urban citizens to get closer to the urban forest. So, it not only reveals the green, but also enjoys the green by demolishing the walls, which enables people to enjoy the pleasure and enlightenment given by the forest as much as possible. The forest park, urban garden and green land in the forest city should be opened to the general public without any charge as far as possible.

Sixthly, benefit control in terms of water-saving, energy-saving and wealth-saving, which requires the abandonment of the tendency of afforestation in moving style with huge investment and action, but the encouragement of promotion and improvement of technological and management measures in terms of the water-saving, energy-saving and wealth-saving. In the regard of water-saving, advanced irrigation technologies should be promoted, including sprinkling irrigation and micro irrigation, in the mean time, rains and soil water should also be fully utilized to increase water utilization ratio for forest construction to the maximum extent. Even if the cities, such as Guangzhou, Hangzhou, Wuhan and Wuxi, with huge amount of waters, should also adopt the water-saving technologies based on the overall water resources conditions across the country. In the regard of energy-saving, reducing moving scale and prevent the unreasonable allocations in expenses and human resources, extra burden to the general public should be avoided. In the regard of wealth-saving, the affordable principles, implemented step by step and based on the long-term plan, should be followed. Responding to the three savings, during the whole urban forest construction and promotion process, “three no advocacies” should also be adhered to, which means not advocate promotion in extreme moving style, planting big and precious trees and over-investing in urban forest construction, so as to make the urban forest construction to follow the internal law of the forest ecological system and the economic and social development patterns, and increase the economic, social and ecological benefits of the urban forest construction to the maximum extent.

1.3. Main construction patterns of domestic forest cities

After the practice and exploration in the recent years, the following domestic urban forest construction models have taken shape.

The first model is focusing on ecological environment improvement, with Shenyang as a representative. As a heavy-industry city, Shenyang, suffering from evidently contradiction between the ecological environment protection and economic development, faced the enormous ecological environment pressure upon its establishment of the national forest city. Utilizing this as the platform of promoting urban ecological environment improvement, Shenyang spared no efforts in pushing forward to establish itself as a national forest city. Unfavorable situation was reversed immediately after it was entitled as a national forest city.
The second model is focusing on boosting shift of keys to urban construction, with Guangzhou and Hangzhou as representatives. Relying on developed industries, these cities, with high economic and social development levels, are ranked top in terms of GDP per capita. The main task facing them is how to implement the decisions of transforming from the industrial civilization to the ecological civilization adopted at the 17th People’s Congress. Based on the practice exercised by these cities, the platform of establishing into the national forest city has been proven an effective and comprehensive one.

The third model is focusing on expanding urban ecological environment capacity, Aksu, Xinjiang as a representative. With overall afforestation and vegetation in the past several decades, the Kekeya Project is generally acknowledged. The expansion of forest means the existence and development space is enlarged for citizens. Without the continuous urban forest construction, it’s impossible for Aksu to achieve the current construction scale and success.

The fourth model is focusing on the industrial support, with Xuchang and Lin’an as representatives. With developed forestry, these cities witnessed continuously enlarged economic forest by active participation from the general public, which actually laid the consolidated basis for the urban forest construction.

The fifth model is focusing on water conservation, with Baotou as a representative. Starting from 63 trees, Baotou, suffering from the scarcity of water, doesn't experience any contradiction between afforestation, urban development and people’s livelihood, but green everywhere nowadays. Keep improving the technology for water-saving has realized that the irrigation water over the urban forest is from the four sewage works.

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Representative</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban forest mode focusing on ecological environment improvement</td>
<td>Shenyang</td>
<td>Establishment of national forest city as the platform for ecological environment management</td>
</tr>
<tr>
<td>Urban forest mode focusing on boosting shift of keys to urban construction</td>
<td>Guangzhou, Hangzhou</td>
<td>City construction transforms from industrial civilization to ecological civilization</td>
</tr>
<tr>
<td>Urban forest mode focusing on expanding urban ecological environmental capacity</td>
<td>Aksu, Xinjiang</td>
<td>Expand and widen urban residents’ space for existence and development through urban forest construction</td>
</tr>
<tr>
<td>Urban forest mode with industrial support</td>
<td>Xuchang, Lin’an</td>
<td>Highly developed municipal forestry with expanding area of economic forest</td>
</tr>
<tr>
<td>Urban forest mode focusing on water conservation</td>
<td>Baotou</td>
<td>Utilize water-saving technology for municipal forest development</td>
</tr>
</tbody>
</table>

Table 2 Main Construction Patterns of Domestic Forest Cities

2. Characteristics of Construction of Forest Chongqing

Considering Chongqing’s urban morphology, Forest Chongqing has both generalities of the urban forest construction in other regions and unique features.

2.1. “Forest Chongqing” is different from other urban forest construction projects in a general sense, instead, it attaches
importance to integration of city, country, passage, river system, both banks of Yangtze River and nursery garden.

The national forest city refers to the city that has an urban ecological system of forest coverage, realizes the urban and rural integration in urban ecological construction and has various constructing indexes meeting the requirement and being approved and awarded by the state forestry authority. Although State Forestry Administration’s urban forest construction involves cities, countries, water bodies, roads, farmlands, etc., considering its distinctive urban morphology, “Forest Chongqing construction essentially differs from the construction of general forest cities, in the following aspects. First, different constructing emphasis: on one hand, such cities as Guangzhou and Hangzhou certainly must conduct the urban and rural integration for constructing forest cities, covering water bodies, roads and countries while focusing on urban forest; on the other hand, Chongqing, though a municipality directly under the central government, covers a major urban built up area of only about 450 sq. km., while administering Three Gorges reservoir area (including the reservoir and its surrounding conservation area of water and soil) of up to 27.9 thousand sq.km., its mountain lands and hills accounts for 75%, and it situates at the upstream of Yangtze River, thus, Forest Chongqing construction, apart from urban forest, highlights multi-type in one of cities, countries, water systems, both banks of Yangtze River, nursery gardens, etc. on account of the city’s situation integrating large cities, countries, reservoirs and mountain lands; second, different construction scale: Chongqing City’s dimensional area is 82,000 sq.km., twice of that of other 3 municipalities directly under the central government, or that of a province at home. So, to create “Forest Chongqing” on such a vast area means greater boldness of vision, broader global insight and proactive philosophy.

2.2. Forest Chongqing combines with livelihood issues and features real improvement of livelihood

Chongqing’s development stage and room will get quite limited if the economic and social benefits of mountain lands and hills accounting for 75% of the whole area (while plains only for 7%) is not brought into full play; based on the natural ecological regulation of mountain lands and hills, Forest Chongqing makes profits from even Chongqing’s mountains and rivers by carrying out a citywide urban construction, supporting farmers’ well-off life with the flourishing forestry, and protecting and purifying the developing city with the forest. Meanwhile, citizens’ living quality needs protecting and nourishing by forest greening in view of Chongqing’s hot summers and hazy winters. Therefore, Forest Chongqing construction is rooted in an eternal lasting enterprise of benefiting people and our offspring, evidently reflecting the practice of the philosophy of harmonious development; it is not only designed as an attractive city visiting card, but, more importantly, combines with social livelihood and can improve and optimize ecological, living and investment environments, thus driving forward the city’s opening up to the outside world.

2.3. “Forest Chongqing” combines with urban-rural integration and building “Forest Chongqing” is also a focus for the city’s unified coordinated development

There are 23.2692 million farmers accounting for 71% among 32.75 million in Chongqing, and urban and rural residents’ income gap is quite large. Chongqing, to a certain extent, is a miniature of Chinese urban and rural dualistic structure. In 2007, the Pilot Region for Comprehensive Reforms of Unified Planning for Urban and Rural Development was settled in Chongqing, when exploring the commonly proper way for urban and rural coordinated development gets one of Chongqing’s strategic emphases. “Forest Chongqing” construction involves planting forests in countryside mountain lands and hillside lands to benefit farmers with income increase through planting trees and adding green lands in the major urban area to improve living environment so as to boost the urban and rural integration as well as common
urban and rural development and all-round progress. Thus, “Forest Chongqing” construction is characterized by Chongqing mode of urban and rural integration.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Households (10 000 households)</th>
<th>Total Population</th>
<th>By Agriculture and Non-agriculture</th>
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<tbody>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
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</table>

Table 3  Demographics of Main Years in Chongqing City (unit: 10 thousand)
Data source: Chongqing Statistical Yearbook of 2010

2.4. Forest Chongqing has a national strategic significance for enhancing the core philosophy of ecological civilization

Forest, main part of land ecological system as well as a key link for coordinated coexistence of humans and nature, has such effects as to adjust air current, purify air, maintain dioxide carbon and balance oxygen, such ecological functions as to reserve water resource, sustain water and soil, prevent wind, stabilize sands, reduce noise pollution, alleviate greenhouse effect, beautify environment, etc, and such economic and social functions as to improve environmental bearing force and expand environmental capacity and so on. At present, the construction of ecological civilization has become a strategic task for domestic modernization development, and the maintenance of ecological security a vital worldwide subject. Chongqing, lying in the central part of Three Gorges reservoir area, is an important ecological screen of Yangtze River and strategic reservoir of domestic water resources, and is vitally important in ecological niche irrespective of its fragile ecology. In 2008, Premier Wen Jiabao proposed a requirement that Chongqing develop the ecological civilization zone in the upstream of Yangtze
River. Besides, it is quite critical for safeguarding the ecological security of the middle and lower reaches of Yangtze River as well as even that of the whole river to implement the forest project, in particular to practically enhance the rehabilitation of forest coverage in the reservoir area, and take the responsibility of protecting the ecological security of Three Gorges reservoir area and mother Yangtze River, all of which are important constituents of domestic ecological strategies.

2.5. Forest Chongqing construction is featured with transition of economic development mode and realization of scientific development

The development philosophy of development by ecological strategies and prospering by greening projects as well as the strategic concept of “Forest Chongqing” other than development mode of recovery after pollution and treatment after pollution adopted, the development and ecological environment protection are combined, boosting the sustainable development of Chongqing’s economic society, and then promoting the ecological construction and environmental rehabilitation, strengthening the protection of natural resources and the comprehensive urban competitiveness, creating a good living environment, driving Chongqing’s countryside to become rich, advocating that material and intellectual wealth should be created and accumulated on the basis of the harmonious development of people, nature and society, and forming an industrial structure as well as increase and consumption modes of saving energy and resources and protecting ecological environment. Therefore, “Forest Chongqing” does not only mean planting trees, but manifest the reform of development mode. What’s more, under the plan, the innovation of such mechanisms as carbon sink trading, environmental compensation and clean development mechanism (CDM) of emission trading can be explored, by which both ambient climate and economical development are resolved, substantially boosting the basic purpose of converting economic growing mode, realizing the win-win situation of sustainable development and environmental protection and ensuring the coordinated economic, social and environmental development.

3. Evaluation of Current Situation of Forest Chongqing Construction

In early 2008, Chongqing Municipal Party Committee and municipal government implemented the study and practice of scientific outlook on development throughout the urban development strategy, responded to the philosophy of creating a national forest city proposed by State Forestry Administration, and made a decision of enhancing ecological construction for the development of Chongqing’s economic society according to the coexistence of large city, country, reservoir and mountainous region in Chongqing, taking developing “Forest Chongqing” as an important strategy of the city. In July of the same year, during the 3rd session of 3rd Chongqing People’s Congress, Forest Chongqing construction was formally set as a vital process of constructing “Five Chongqings” to be carried out as an important step for practicing the scientific outlook on development, forming a good social ecology as well as creating featured comprehensive environmental advantages. Chongqing City proposed to develop a comfortable and livable “Forest Chongqing” with beautiful landscape and good ecology, signaling the launch of forest city construction in 10 years. In the autumn of the year, a tree-planting activity themed by developing promising mountains and creating a livable city, and Chongqing municipal government applied for creating a national forest city to State Forestry Administration. Over the past 3 years, Forest Chongqing has been keeping a vigorous momentum, achieving remarkable effects. The Forest Chongqing construction is evaluated as follows in accordance with construction practice of
Forest Chongqing and in combination with *Evaluation Indicators for International Forest Cities* by State Forestry Administration:

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**BOX: Main Evaluation Indicators for National Forest Cities**

(I) **Comprehensive indicators**

1. The general plan of urban forest construction compiled and executed is scientific and rational and characterized by specific phasic development goals and supporting construction works.
2. The urban forest construction philosophy is practical with combined nature and humanity as well as integrated historical culture and urban modernization; and the urban forest layout is rational with complete functions and beautiful cityscape.
3. Various forests and tree-dominated green lands are created while indigenous tree species are mainly adopted and such plants as trees, shrubs, canes, grass, etc. are rationally allocated so as to constitute an urban forest ecological system featured by near-natural forests.
4. Green lands are constructed and protected as per such requirements of urban health, safety, disaster prevention and environmental protection, etc.; greening isolating forest belts are planted around the city, amid urban groups and in urban function divisions and transition areas; tree species are rationally selected and allocated; and urban heat island and turbidity effect are dramatically alleviated.
5. Such urban water system networks like rivers and lakes are properly connected; the forest coverage of important urban water resource site, by virtue of good protection, has complete functions, including the effectively exerted conservation of water resource, and the water quality is constantly promoted in the recent 5 years.
6. Economizing water and energy for greening construction is advocated, and saving construction and maintenance cost is emphasized.

(II) **Coverage rate**

1. The southern cities' forest coverage reaches over 35%, and that of northern cities over 25%.
2. The greening coverage rate of urban built up areas (including those of subordinate districts, cities and counties) is over 35%, its greening rate over 33% with an common greening area per capita of over 9 sq.m., and that of over 5 sq.m. in the urban central area.
3. The forest coverage in suburbs vary with natural conditions, over 60% for mountainous regions, over 40% for hilly regions, and over 20% for plains (over 15% for southern ones).
4. Vertical planting for buildings, roofs, walls, flyovers, etc. should be actively implemented.

(III) **Forest ecological network**

1. The backbone rivers connecting key ecological areas and road green belts should be wide enough; and smooth urban forest ecological corridors should be set up.
2. Ecological protection should be stressed for the banks of such water bodies as rivers, lakes and seas, with a greening rate of over 80%. The near-natural bank greening mode should be adopted, constituting a distinctive urban scenery on condition that the flood passage security is not affected.
3. The combination and coordination with the surrounding nature and culture landscape should be focused with a greening rate of over 80%, during the greening of roads, railways, etc., constituting green passage networks.
4. The construction of farmlands and forest networks in suburbs should meet the state standards.

(IV) **Forest health**

1. Attention is paid to the biological diversity protection. Nature reserves as well as important forests, wetland ecological systems are properly nursed;
2. Tree species for urban forest construction are rich, of which 80% are indigenous. Plants and communities are growing normally;
3. The naturalness of urban forest is not lower than 0.5;
4. Improvement and protection of greenbelt earth is focused on, coverage measures for urban
greenbelts and various exposed surfaces are proper, and greenbelts should not be exposed;
5. Trees are planted and managed in a scientific way. Tall trees are transplanted as a whole strictly.

(V) Public relaxation
1. There are plenty of relaxation greenbelts—mostly parks and public greenbelts within the built up areas, and most citizens can go out of home to see relaxation greenbelts after walking 500 meters in average;
2. There are various ecological travel and leisure places such as forest parks in suburbs, which can basically meet citizens’ daily leisure and recreation requirements.

(VI) Ecological culture
1. Ecological science popularization facilities are complete, and more than 2 ecological science popularization education bases or sites for forests, wetlands, etc. are established;
2. All people voluntary tree planting activities are carefully organized, the voluntary tree planting registration card systems are developed, and the conscientiousness rate of all people voluntary tree planting reaches over 80%;
3. Multiform communal participating greening activities such as construction, planting and supervision contribution to urban greenbelts are widely implemented, and various memorial forest bases are set up.
4. Over 3 various ecological science popularization activities are held each year;
5. Citizens’ knowledge rate for national forest urban construction is up to over 90%, and citizens’ support rate for the same over 80%;
6. Urban ancient and rare trees are protected and managed strictly and uniformly under proper measures.

(VII) Rural greening
1. The rural greening is carried out in such forms as ecological economy, ecological landscape and ecological garden types, and the rural green areas has been gradually increasing in recent 5 years.
2. Rural travel forms such as suburban sightseeing, picking, relaxation, etc. and such featured ecological industries as tree seedlings and flowers maintain sustained and sound development.

3.1. Plan and guide the implementation of the Forest Chongqing project while taking strategies as a priority

Such current ecological issues as climate warming, earth desertification, frequent disasters, etc. have become critical for humans’ living environment or the sustainable development of society and economy. Chongqing Municipal Party Committee and Chongqing Municipal Government, from the strategic and comprehensive perspectives, made a major decision of promoting the urban forest construction and included “Forest Chongqing” into “Five Chongqings” as an urban development strategy by surveying Chongqing with acute world vision, determining the strategic importance of “Forest Chongqing” at the beginning. In August 2008, Chongqing Party Committee and Chongqing Municipal Government officially issued the Decision on Implementation of the Forest Project, indicating Forest Chongqing was a major strategy to realize the acceleration and initiative in the form of municipal authorities’ papers. In the decision, the general requirements, major works, policy guarantee as well as organization and guidance for Forest Chongqing construction were specified, the overall deployment of Forest Chongqing construction was determined, and the importance and effect of Forest Chongqing construction were strategically established on the basis of the description of the magnificent blueprint of Forest Chongqing. Then, Chongqing brought the Forest Chongqing construction into the urban master plan to be executed while drawing up it. Meanwhile, Municipal Development and Reform Commission and Municipal Forestry Administration, with the close cooperation from Municipal Finance Bureau, Municipal Construction Commission, Municipal Bureau of Parks and Woods, Municipal Transportation Commission, Municipal Water Resources Bureau, Municipal Agriculture
Bureau, Municipal Planning Bureau and Municipal Bureau of Land and House Administration, compiled the **Overall Plan of the Forest Chongqing Project** through repeated discussion and frequent drafting on the basis of the opinions from districts and counties as well as experts. The plan, guided by the scientific outlook on development, and in which the overall strategy for Chongqing’s ecological civilization construction was determined, was conducive to boosting the forest project in a scientific and rational way and is of important realistic significance for creating a good living environment, strengthening the urban comprehensive competitiveness, enriching Chongqing countries, and turning Chongqing into an internationalized metropolis featured with “Forest Chongqing and blue water in Three Gorges”. What's more, the said two authorities, under the guidance of the **Overall Plan of the Chongqing Forest Project**, successively completed such special plans as **Construction Plan for Chongqing’s Main Urban Area and Construction Plan for Chongqing’s Ecological Gardens and Urban Greenbelts**; and the districts and counties unprecedentedly and successively worked out featured plans for the forest project.

### 3.2. The overall goals are definite, powerfully supported and deployed scientifically and rationally

With the philosophy of “Forest Chongqing and blue water in Three Gorges”, Chongqing explicitly specified the total construction area of Forest Chongqing was 22 million mu, including 13.03 million mu of newly added forests, 8.77 million mu of improved low efficiency forests and 180 thousand mu of constructed urban greenbelts. Till 2017, the forest coverage will reach 45%, the greening coverage of urban built up areas 38%, the greening rate 36%, the road greening rate 80% and the water system greening rate 80%; 25 million km² of water loss and soil erosion areas will be treated each year; 9 districts in the major urban area be built as national forest cities, and the remaining 31 districts and counties (autonomous) as municipal forest cities; besides, 95 forest ecological towns and 3,000 green villages be established, with which the per capita annual income in forestry of farmers can be more than 1000 yuan. In this way, the forestation of mountain lands, communities, farmlands, passages and yards in Chongqing will come true.

To realize the total goals, Chongqing proposed the executive focuses and focus objectives of both stages (before and after 2012): before 2012, the full implementation stage, the forest coverage should reach 38%, the greening coverage of urban built up areas 35%, the greening rate 32%, in order to achieve these goals, 11 million mu of forests and 10 million of low efficiency forests will be constructed and improved respectively; 180 thousand mu of urban greenbelts as well as 55 forest ecological towns and 2,000 comparatively well-off green villages be respectively built; and the total value of output to urban forestry RMB 25 billion yuan, and per capita annual income of farmers from forestry development RMB 500 yuan. From 2013 to 2017, the reinforcement and improvement stage, 15 million mu of forests will be newly added with a forest coverage of 45%; the greening coverage of urban built up areas 38%, the greening rate 36%; 40 forest ecological towns and 1,000 comparatively well-off green villages be respectively built; and the total value of output to urban forestry RMB 50 billion yuan, and per capita annual income of farmers from forestry development RMB 1,000 yuan.

In terms of the layout of forest urban construction, the urban and non-urban forest construction went forward together, and constituted the Forest Chongqing system along with the construction of forest passages, forest water systems and forest nursery gardens. In order to achieve the general goals of Forest Chongqing, Chongqing planned the forest urban layout of “2 ring roads, 4 mountains, 10 forest belts and over 100 of parks” (In the urban area, “2 ring roads” referred to inner and outer ring expressways in the main urban area; “4 mountains” to 4 mountain system forest screens, Jinyun Mountain, Zhongliang Mountain, Tongluo Mountain and Mingyue Mountain; “10 forest belts” to forest belts on both sides of expressways, railways and rivers, around reservoirs as well as amid urban groups; and “over 100 parks” to over 100 of leisure parks, forest parks, wetland parks and peasant forest parks. However, in the non-urban area, “over 100 forest belts” meant over 100 forest belts around the districts, county towns and reservoirs as well as on both sides of roads, railways and rivers; and “over 100 of parks” over 100 forest parks or
bases”). The rural forest project was planned as “4 lands and 4 sides” ("4 lands" referred to barren mountains and lands applicable for afforestation, low quality and efficiency forest lands, steep plowlands and open space among farmlands; and “4 sides” to sides of countries, houses, rivers and roads). At the meantime, such projects as the urban forest, forest screen around the city and forest culture base were implemented to support the urban forest works; such projects as the rapid afforestation base, improvement of low efficient forests, farmland forest network, courtyard greening, ecological forest and economic forest bases, green villages and towns and nursery garden base to support the rural forest works; and such projects as the expressway greening, beautification and aromatization to support the passage forest works. Besides, the landscape forest belts or shelter forest belts were built on both banks of Yangtze River, Wujiang River, Jialing River and Daning River as well as rivers within the area of districts and counties and around key water resources and reservoirs so as to consolidate the construction result of water system forest works and ensure the ecological security of the upper reach of Yangtze River and key Three Gorges works.

3.3. By virtue of powerful lead promotion, Chongqing wins over the two powerful promotions from both the state and local governments to inject strong development power into the construction of the Forest Chongqing.

The Forest Chongqing displays the confidence and determination of Chongqing people most of whom take part in the afforestation through its scientific plan, grand blueprint and powerful promotion, which wins over great supports from the state. Premier Wen Jiabao indicates that Chongqing needs to construct ecological civilization area in the upstream of Yangtze River; the State Council issued file formally in the form of GF (2009)3 to make clear the important orientation of the ecological civilization demonstration area in the upstream of Yangtze River. The related state departments support greatly Chongqing in policy, item, capital, technology, etc. State Forestry Bureau signed Memo on the Cooperation of Jointly Constructing the Test Area for Integrated Forestry Development and Reform in Urban Areas and Rural Areas with Chongqing Municipal Government, sent doctor service group to Chongqing, and issued Implementation Views on Executing “Several Opinions of the State Council About Propelling Integration Reform and Development of Rural Areas and Urban Areas in Chongqing” (LFB(2009)124). State Forestry Bureau proposed the two orientations in terms, namely Chongqing will be constructed to a “test area for the integrated modern forestry development and reform of rural areas and urban areas” and a “demonstration area of ecological civilization in the upstream of Yangtze River”, established 56 favorable policies to support forestry construction in Chongqing, of which the keys to be supported are the comprehensive treatment of stony desertification, seedling for woods, forest-fire prevention, forestry pest control, the construction of natural reserves, etc.; and it arranged discount interest hitting RMB 2.2 billion yuan for forestry. The Three Gorges Office of the State Council arranged two big nursery bases in Wanzhou and Fuling to support the construction of Forest Chongqing.

Chongqing Municipal Party Committee and municipal government enhance the lead for and promote extremely greatly the construction of Forest Chongqing. In the third plenary session of the third Chongqing People’s Congress, the construction of “Forest Chongqing” ranked the first place among the construction of “Five Chongqings”. The Municipal Party Committee and municipal government personally spare no effort in the forest construction: Bo Xilai, the Secretary of the Municipal Party Committee personally organized and established the “Forest Chongqing ” and “10+1” task investigation schemes to study mainly the construction of Forest Chongqing, institutional reform of forestry ownership, construction of forest city, industry development of forestry and the establishment and perfection of forestry institutional mechanism again and again. The municipal government established a leading team with the mayor as the team head and the three vice mayors as vice team heads. The main leaders investigates in districts and counties for many times, held various meetings to study and settle the big problems about the construction of
Forest Chongqing, such as Meeting About the Construction of Demonstration Section, Meeting About the Forestry Work Around Chongqing, TV and Telephone Meeting About Forest Project, Meeting About the Construction of Forest Project in Main City Area, Field Meeting About the Construction of the Demonstration Section of the Forest Work on Both Sides of Yangtze River and other special meetings. Like this, the construction of Forest Chongqing is promoted more greatly. Municipal People’s Congress investigates in the construction of the forest project and legislation. The Municipal Political Consultative Conference organizes its members for survey and investigation for many times to provide suggestions for the construction of Forest Chongqing. The Municipal Commission for Discipline Inspection organizes special supervision and patrol. The Publicity Department of the Municipal Party Committee releases ranking list of the Forest Chongqing regularly. The powerful promotion of local government injects a strong power into the construction of the Forest Chongqing: the whole city puts the construction of Forest Chongqing in the first place. The green revolution of with very large scale is carried out through push from high-class officials, drive from policies, joint action from all parties, maneuver from mechanisms, promotion from science and technologies and all-sided mobilization, which creates a miracle for the forestry development history of Chongqing.

3.4. The fruits of promoting “Agriculture, Rural Areas and Farmers”

Ecological Project and Basic Project for Increasing Income through integrating rural areas and urban areas are great

The forest covers twice as large as farmland in Chongqing, but the gross output value of forest is only 1/16 of the farmland’s, because the output value of the forest in every mu is only 1/32 of that of the farmland. Therefore, Chongqing makes great effort to carry out the big task—the integration of rural areas and urban areas for the Forest Project. The construction contents of “Forest Chongqing” include six main works: urban forest work, rural forest work, road forest work, water system work, forest work on both sides of Yangtze River and nursery base. The plan pays attention to integrate the works of urban areas and rural areas; the forest works in urban areas and rural areas progress side by side in implementation and management; because of these, the problems, like each does thins in his own way, urban areas are quite different from rural areas, and departments do not cooperate with each other, have been settled. The construction of the “Forest Chongqing” by means of integrating rural areas with urban areas has made great contributions to the income increment for farmers and to the ecological construction in mountainous country, reservoir area of Three Gorges and the longshore areas in the upstream of Yangtze River; accordingly, it is a ecological project of “Countries, Agriculture and Farmers” (bring benefits to farmers, be in favour for agriculture and offer benefits to countryside) and a project making for the income increment for farmers. Because of these, this project becomes a very important carrier for the construction of socialism new countries and for the integrated development of rural areas and urban areas. Combining the Project of Converting Cultivated Land into Forests, Chongqing makes more efforts to construct the Rural Forest Work, Water System Forest Work and the Forest Work on Both Sides of Yangtze River. By the end of 2009, the total capital invested for the Project of Converting cultivated land into forest was RMB 13. 6 billion yuan, the farm households share the benefits hit 2690 thousand (9150 thousand farmers). So these efforts play a very important role in speeding up the rural industrial structure adjustment, promoting income increment for farmers and pushing the sustainable development of social economy. As a result, the goals of ecological construction first, giving attention to farmer living and the development of society and economy have been achieved. Fengdu, with 197 thousand forest farm households and 665 thousand farmers, is a key migrant county in the areas of Three Gorges. It pays enough respect to the wills of the farmers to ensure their “three rights”—democracy rights, choice rights and wood treatment rights, which protects the legal rights and interests of the farmers.

In addition, Chongqing drives the task that the income increment of each farm household on the “two wings” of Southeast Chongqing and Northeast Chongqing hits RMB 10 thousand
yuan through the forest project, for this reason, it plans that the average income increment of each farm household of 95% farm households able to work will exceed RMB 10 thousand yuan in the three years. In the latest two years, Chongqing has develops underwood crop production, fish breeding and poultry raising industry, forest food, forest medicines, flower, nursery stock and other related industries, like this, various economical modes are developed at the same time, which increases forest utilization rate and raises output capacity continuously to increase the income of farmers.

3.5. Enhancing system construction to consolidate the achievements of the “Forest Chongqing” through law construction and system reform.

First of all, during the construction of the Forest Chongqing, Chongqing attaches great importance to the system reform and system construction. Chongqing has issued *Rules for Promoting Chongqing Forest Construction* by referring *Forest Law of the People’s Republic of China* and other administrative laws and regulations, this local Rules legalizes the goals, plan, management and support for the construction of the Forest Chongqing and ensures the smooth progress of the construction of the Forest Chongqing with a local law.

Secondly, Chongqing carries out the institutional reform of forestry ownership (the main content of this reform is to clear the property right), and has established a mechanism for the sound development of the forestry. Chongqing speeds up the institutional reform of forestry ownership according to the general requirements of the state institutional reform in forestry ownership. Based on the basically completed main part reform, Chongqing has explored eight effective mechanisms: government invests in afforestation, departments organize afforestation, owners contract afforestation, owners(or professional credit unions) cooperate with farmers in afforestation, exchanging afforestation with land, farmers construct forests by themselves, auctioning the public forest lands and fells, encouraging enterprises and individuals to invest in afforestation. These mechanisms are consolidated institutionally by the *Suggestions for Speeding up the Institutional Reform of Collectively Owned Forests* issued by Chongqing City. The institutional reform of forest ownership has basically realized “Mountains have their owners, the owners have their rights, the rights have their responsibilities, and the responsibilities have their benefits”, which arouses the enthusiasm of farmers and other people to increase livingness for vast mountains.

Thirdly, Chongqing makes great efforts to push the factor market construction for forestry, and to the reform of the supporting institutions, such as woodland circulation, forestry property mortgage, forest insurance, etc. Chongqing has bravely explored out the institutional reform of land management rights for the woodland in Panhuo Mountain area. Chongqing summarizes the experience from the Management Center of Forest Ownership Transaction in Fengjie County to make the organization and management for forest property circulation institutional in order to change “dead mountains” into “alive mountains” and change “sources” into “assets”. By July 2010, 3480 collectively owned mountainous (cover 7350 thousand mu,) woods had been circulated, and the amount of the woods circulation had hit RMB 800 million yuan.

Fourthly, Chongqing further perfects the management institution for felling, all the policies and laws for felling limit, quantity of expropriated land for afforestation, circulation sequence of forest resources, the management of wood circulation field, etc. In these perfected institutions, Chongqing makes it clear that as for the fast-luxuriant woods, raw material woods and fell woods of the forest project, the owners of these woods are allowed to cut trees without limit in respective reporting and approval way.
Fifthly, Chongqing pays more attention to the reform of forestry tax. When forestry enterprises cut and use their own woods, the subsequent expenses for growing saplings will be reduced or exempted. Like this, farmers and enterprises can get more benefits.

Sixthly, Chongqing establishes and perfects the ecological benefit compensation mechanism for non-industrial ecological forest, chooses some counties to have a try in the forest ecological benefit compensation, and explores the mechanism to raise ecological benefit compensation money from the directly benefited industries, like hydroelectricity, tourism, mineral product, etc.

Seventhly, Chongqing perfects the construction and management constitutions of the forest project. For the tendering & bidding, the work is transparent to ensure fairness, openness and justness; for the construction of the project, the construction mode of “mobilization with capital, afforestation with money advanced, integration of construction and management, payment by installments, three tests and final acceptance” is adopted to ensure every constructed forest will live and provide lumber. At the same time, Chongqing adheres to project supervision institution to ensure that the whole process of the forest project is under supervision. It insists on benefit monitoring institution to monitor the benefits by grade and assess the benefits periodically. It also adheres to calling to account institute to assign the construction tasks to districts and counties as well as related departments in terms.

3.6. Increase investment scale with the investment mechanism being continuously innovated

In order to keep the construction of the forest project, Chongqing adopts the mode of “government lead, market operation and public participation” to raise money for the construction of the “Forest Chongqing” and to add investment to forestry. According to the data provided by Chongqing Forest Construction Office, the total investment for the “Forest Chongqing” has hit RMB 23.93 billion yuan, of which RMB 4.83 billion yuan is invested by the state, RMB 2.69 billion yuan is from Chongqing City, RMB 8.44 billion yuan is from districts and counties, and RMB 7.97 billion yuan is from society.

Diagram 1Total Invested Money for “Forest Chongqing”
At the same time, Chongqing innovates on forestry investment mechanism continuously, and has basically established a sound mechanism of financial subsidy, bank support, society help and farmer investment. Firstly, Chongqing adheres to the organic combination of state key project construction and Forest Chongqing construction; integrates state invested money with local invested money; raises special money from the newly added money; integrates the existing fund from the departments of traffic, water conservancy, agriculture, land, poverty alleviation, urban construction and forestry as well as fund for the construction of key projects and financial fund for supporting agriculture; through these, Chongqing plans the construction of Forest Chongqing in an overall way. Secondly, Chongqing combines project with fund utilization and pays attention to the keys to give the full play to the benefit of using fund in order to speed up the construction of the five works: the urban forest work, the rural forest work, road forest work, water system work and nursery base work. Thirdly, Chongqing sets up platforms to raise money for the project actively, it created an unprecedented way to raise money and invest money to construct Forest Chongqing. For this reason, 27 forestry investment and financing companies have been founded around Chongqing to form a financing platform to raise money for the forest project and enhance the financing capacity, and Chongqing Forestry Investment Development Co., Ltd. is one of these companies. Chongqing wins over state and local credit funds through government credit extension and the integration of future forestry resources to realize the dynamic balance of “exchange space with time” in financial fund. Fourthly, Chongqing absorbs social funds widely, leads large amount of urban capital and social capital to be transferred to rural areas for base construction, nursery construction, development of forest processing and realizing of regurgitation support forestry with industry. In 2009, society invested RMB 5.5 billion yuan in forestry, which is 1.3 times as many as the past 10 years.

3.7. Pay attention to pilot project demonstration and create characteristic construction modes

Chongqing City attaches great importance to the construction of the demonstration bases, and according to the requirement of afforesting 3 to 5 continuous mountain by each district and county per year, such districts and counties should create demonstration bases covering an area of 20 to 30 thousand mu per year, hence a batch of high quality, beautiful and efficient demonstration areas come up in the city. The heads of the districts and counties personally commands the construction of demonstration areas and bases, and 100 demonstration areas of over 10 thousand mu and those of over 5 thousand mu are to be constructed. Through the construction of demonstration areas, centering on peri-urban areas, river banks and both sides of paths and basing on canal systems, river basins and mountain tops, more efforts have been made for afforestation and continuous greening in all directions. Accordingly, partial disperse afforestation has been transformed into regional and large scale one. By the end of 2009, there had been 127 demonstration areas (covering an area of 1320 thousand mu totally), each of which covers an area of over ten thousand mu. Besides, 118 and 104 demonstration areas were completed respectively in 2009 and 2010.

In 2009, before the commencement of the continued national work of Three Gorges, Chongqing started the demonstration construction of Afforestation Project on Both Sides of Yangtze River in four districts and counties: Fuling, Fengdu, Yunyang and Fengjie. Although there were too many difficulties in the local areas, with the spirit of “Fortitudinous Old Man Removing the Mountain”, the four districts and counties in charge of the pilot project finished the construction task of 380 thousand mu as per the standard of “deep digging, big seedling, alien earth and sufficient fertilizer”. As a result, they completed a consecutive afforestation of 202 kilometers, including orange industrial belts, special fruit bases, biomass energy forests, and edible oil forests. These speak for themselves that the achievement is great.

During the execution of “Forest Chongqing” strategy, each district or county searched out effective operational modes according to its local conditions. For example, Bishan created an operational mode of “Saving and earning money by planting trees, as well as ecologically
popularizing tree-planting”, by which the local ecological conditions was improved in a short period, furthermore, it was supported by local people and foreign investors. Because the key of “Forest Chongqing” construction is low-cost afforestation, Bishan completed the urban afforestation construction of 1000 thousand square meters with RMB120 yuan per square meter, much lower than the average price in Chongqing. Due to mobilizing all people, the forest project of Bishan was responded by a large number of people: the communities, institutions and enterprises on main urban lines and along rivers contributed to dismantling walls and constructing public green areas; enterprises took part in the project by making room for greening and donating trees; and common people offered suggestions actively to the government. All of these improved the living and investment environments in Bishan, which not only won good reputation, but also posed economic return. Accordingly, the local economy developed greatly, and the people in Bishan and the foreign investors were guaranteed to become wealthy.

3.8. Rapid promotion and outstanding effects of afforestation by all the people

Under the motivation by the superior, activation from policies, linkage of all parties, mechanism maneuver, sci-tech motivation, and all-sided mobilization, remarkable achievements were made in forest Chongqing construction. By October of 2010, Chongqing completed a construction task of 11820 thousand mu in total, accounting for 53.7% of the total construction task of 2,2000 thousand mu, of which new forests covered an area of 7761 thousand mu while improved low effective forests 4059 thousand mu.

Diagram 2  Completion Conditions of the Forest Project in Chongqing (by October of 2010)

<table>
<thead>
<tr>
<th></th>
<th>In 2008</th>
<th>In 2009</th>
<th>In 2010</th>
<th>General goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed areas of Forest Chongqing (ten thousand mu)</td>
<td>2.2 million mu</td>
<td>5.78 million mu</td>
<td>5 million mu (predicted)</td>
<td>22 million mu</td>
</tr>
<tr>
<td>Proportion in the general goal</td>
<td>10</td>
<td>26.27</td>
<td>22.73</td>
<td>(predicted)</td>
</tr>
<tr>
<td>Areas of newly constructed forests</td>
<td>1.601 million mu</td>
<td>3.65 million mu</td>
<td>3 million mu (predicted)</td>
<td>13 million mu</td>
</tr>
<tr>
<td>Areas of improved low efficient forests</td>
<td>599 thousand mu</td>
<td>2.13 million mu</td>
<td>2 million mu (predicted)</td>
<td>9 million mu</td>
</tr>
</tbody>
</table>

Table 3  Construction Areas of Forest Chongqing Since 2008
Source: Chongqing Forest Construction Office
The forest coverage of Chongqing increases year by year. In 2009, accounting for 35%, it rose to the 13th place from the 17th in the last year at home, and to the 3rd from the 6th in west China. Furthermore, it is estimated it can reach 37% by the end of 2010.

According to the project classification, 501 thousand mu of urban forest works, 9765 thousand mu of rural forest works, 300 thousand mu of passage forest works, 249 thousand mu of water system forest works and 380 thousand mu of forest works on both banks of Yangtze River were completed. According to the year classification, the completed forest project in 2008 covered an area of 2.2 million mu, and that in 2009 5.78 million mu with an increasing speed of newly constructed man-made forests ranking top in China, and the area such forests accounted for 6% of all newly constructed forests at home. By October of 2010, according to the statistics, the completed forest project covered an area of 3.84 million mu, accounting for 76.8% of the total construction task of 5 million mu.
Completed urban forest works
Completed rural forest works
Completed road forest works
Completed water system forest works
Completed forest project on both sides of Yangtze River
Completed nursery works

<table>
<thead>
<tr>
<th></th>
<th>In 2008</th>
<th>In 2009</th>
<th>In 2010</th>
<th>General goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed urban forest works</td>
<td>71,000 mu</td>
<td>272,800 mu</td>
<td>245,500 mu</td>
<td>1780,000 mu</td>
</tr>
<tr>
<td>Completed rural forest works</td>
<td>2,029,000 mu</td>
<td>4884,200 mu</td>
<td>3749,700 mu</td>
<td>14,920,000 mu</td>
</tr>
<tr>
<td>Completed road forest works</td>
<td>50,000 mu</td>
<td>113,000 mu</td>
<td>194,800 mu</td>
<td>600,000 mu</td>
</tr>
<tr>
<td>Completed water system forest works</td>
<td>50,000 mu</td>
<td>130,000 mu</td>
<td>150,000 mu</td>
<td>700,000 mu</td>
</tr>
<tr>
<td>Completed forest project on both sides of Yangtze River</td>
<td>380,000 mu</td>
<td>620,000 mu</td>
<td>3,800,000 mu</td>
<td></td>
</tr>
<tr>
<td>Completed nursery works</td>
<td>40,000 mu</td>
<td>200,000 mu</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4 Progress of Six Large Forest Projects in Chongqing Since 2008

Source: Chongqing Forest Construction Office

85 thousand mu of urban green areas and 430 forest and community parks, a large number of wonderful urban forest projects, were built. Urban large parks such as Jiangbei District Hong’en Temple Forest Park, Dadukou Traditional Chinese Virtue Park and Longtou Temple Forest Park, all of which cover over 1 thousand mu, were constructed. The expressway forest construction of “two ring roads and eight radial expressways” was speeded up, and the basic frames of urban life basic project and “a city encircled by forest” formed. The greening rate of the main urban area rose to 36.49%, the afforestation coverage to 39.8% from 33%, and the park green area per capita to 11.69 square meters from 8.83 square meters. In early 2010, Chongqing, ranking first among 44 applicant cities through experts’ appraisement, was named by Ministry of Housing and Urban-Rural Development as State Garden City.

3.9. Attach more importance to examination and supervision to keep the construction of Forest Chongqing normal

According to the Decision on Carrying out Forest Project(YWF(2008)23) issued by CPC Chongqing Municipal Party Committee and Chongqing Municipal People’s Government, Chongqing established Performance Evaluation Methods for Chongqing Forest Project Construction Carried out by Districts and Counties (on trial) and Performance Evaluation Methods for Chongqing Forest Project Construction Departments (on trial) to standardize the evaluation methods for construction of the forest project, to keep the project construction normal and to push the forest construction to be steadily carried out by districts, counties and related departments. According to the actual conditions of forest project construction, work teams were organized respectively to supervise the construction of the Forest Chongqing Project. Firstly, combining with the activity of popularizing science and technology in rural areas, work teams were organized to help the activity of spring afforestation and forest economic demonstration bases. Secondly, afforestation supervision work teams were organized to supervise and guide the spring afforestation. During the afforestation in springs and autumns, the Municipal Forestry Bureau adopted the method of leaders taking charge of large areas, office staff of counties and districts to supervise and guide construction in selected spots in order to ensure the construction quality and progress. Moreover, they stationed in and patrolled key counties and districts, and adopted “subdivision” and “tracking” supervision modes. Thirdly, the afforestation supervision of “One River and Six Lines” (namely Yangtze afforestation and six express ways: Yuxiang, Yuwu, Yuyi, Yulin, Chengyu and external ring expressway) were carried out. Fourthly, Financial Department, Audit Department and other related departments audited and checked the management and use of the fund for construction of the Forest Chongqing Project.
4. Appraisal on Benefits of Forest Chongqing Project

4.1. Appraisal on social benefits

4.1.1. Relieve urban heat island effect and improve investment environment

Urban heat island, an apparent feature of urban climate, is caused by the man-made alteration to the original natural underlying surface. Because Chongqing is enclosed by mountains and is foggy, it is affected greatly by heat island effect when developing rapidly. According to the report from Chongqing media in 2007, heat island covered 1/3 of the main urban area, or 32.30% of the 511.4-square-kilometers total main urban core area. Surprisingly, the heat island in the Yuzhong Peninsula (with the area of 9.3 sq meters) even accounts for 55.91%. Large urban greenbelts properly laid out can alternately create consecutive low temperature areas among high temperature urban building groups, which changes concentrated heat islands to central type heat islands. Accordingly the temperature is reduced greatly. Because at present, the data on Chongqing are not acquired, Shanghai is taken as an example. In Shanghai, before Yan’an Mid Road greenbelt is constructed, Yan’an Mid Road area was affected worst by heat island effect. In 2000, after 74 thousand m² green areas of the first phase project was constructed, the temperature measurement in July, August and September of the year carried out by Shanghai Municipal Weather Bureau showed that the average temperature in the day has reduced by 0.6 °C on a year-by-year basis, and the average temperature during the night has reduced by over 1 °C. So, the construction of large-scale afforestation project plays an important role in reliving urban heat island effect, makes contributions to the improvement of the appearance and ecological environment of the main city area of Chongqing, all counties and districts, creates a better investment environment, promotes greatly the introduction of talents, technologies and funds; accordingly, it is surely bound to facilitate the social and economical development of the whole city and the construction steps of urban-rural integration demonstration area.

4.1.2. Improve health level and urban inhabited environment

Using forest community theory and pushing the development of forest community can form scenic forests suitable for local climate to meet urban inhabitants’ requirements of rest and sightseeing. The Forest Chongqing construction fulfilled, various forest plants and forest plant views would emerge, having a positive influence on the urban view while being taken as new places for the sightseeing, vacationing and relaxation. At the same time, under the forest project, more body-building environments are provided for people, which is beneficial for interactively promoting the construction of “healthy Chongqing”; Green areas in the new urban area enlarge, including half of the old city area (after relocation) to be built as greenbelts and green plazas. In 2009, there were 85 thousand mu newly constructed greenbelts; 430 newly constructed forest parks and community parks, of which some were big urban parks (each covered over 1 thousand mu), such as Hong’en Temple Forest Park in Jiangbei District, Longtou Temple Forest Park, etc.; the per capita public green space in the main city area rose to 10.8 square meters from 9.9 square meters of 2008; the ratio of green space in the completed areas to 34.5% from 32.9%. Basically, there was a park every square kilometer, and a public leisure green area every 500m in the main city area. These made the inhabited environment in Chongqing much more livable.
4.1.3. Transfer of surplus rural labor force

Carrying out the forest project can not only improve the ecological environment apparently but is of important realistic significance in providing jobs for many people and pushing forward the transfer of surplus rural labor. Firstly, continue to execute the project of converting cultivated land into forests for directly transferring the rural labor; secondly, the seedling cultivation, forest planting and management need a lot of rural men; thirdly, tycoon enterprises in the forestry industry can be introduced through attracting investment, so as to provide jobs for rural people. It is estimated that under the project, 880 thousand rural men can be transferred, and in 2009 the rural laborers had participated in the forest project construction for 51000 thousand days, and earned RMB 2.1 billion yuan.

4.1.4. Continue to promote the Chongqing forest culture

Forest Chongqing is not only an afforestation project, but also a reflection of culture. Today, people of all countries aspire for the reciprocal and symbiotic coexistence of nature and human, which has become a development trend in the world. Attaching importance to the harmonious development of human and nature and the construction of ecological environment is very valuable thought wealth of human beings. The construction of “Forest Chongqing” can enhance people’s responsibility consciousness of loving, planting and protecting green trees through pushing the five great items—“urban forest, rural forest, passage forest, water system forest and nursery base” and taking a series of activities as the carrier, hence, planting green trees became very popular among people. During the construction of the forest project, Chongqing founded the first provincial and municipal ecological cultural association; focusing on forest ecological construction, carried out the activities with the cardinal line of “green declaration”, “green revolution”, “green pilgrimage” and “green monument” to propagandize ecological culture; established the ecological cultural platforms through magazines, websites, series, feature films and the Song of Forest Chongqing. Chongqing enriches the connotation of ecological culture continuously through Asia-Pacific Orchid Convention, Chinese Orchid Expo, Chongqing Forest Tourism Festival and various festivals with local features. Through reconstructing Chongqing gardens, rebooting Chongqing culture, reconstructing beautiful mountains and rivers, resuming the beauty of Three Gorges as carriers of Chongqing cultures, modern people’s consciousness of loving nature and environmental protection are aroused so as to pass down the Chongqing culture with a history of several thousand years and the long standing forest culture of Three Gorges.
4.2. Appraisement on economical benefits

4.2.1. Directly drive forestry to develop

The forest area of Forest Chongqing Project increased by 11 million mu, including 10 million mu of arboreal forest. After the arboreal forest grows up, 121,429 thousand square meters of living trees will be accumulated, being worth RMB 60.71 billion yuan. The Forest Project construction which contains the forest culture, quickly-luxuriant forest base, economical forest base, etc. will push the development of forest tourism, wood working, wood pulp papermaking and other forestry-related industries. It is estimated that till 2012, the gross output of the forestry industry in Chongqing will hit over RMB 25 billion yuan and RMB 50 billion yuan in 2017. 1100 thousand mu of economical forest bases are planned to be constructed under the forest project; after this task is finished, its production value will be RMB 1.1 billion yuan per year if the per unit of output is 500 kg per mu and the unit price RMB 2 yuan per kg.

4.2.2. Enhance the aftereffect of economical development in rural areas

According to the data provided by Chongqing City, the rural forest project of the Forest Chongqing has constructed 2520 thousand mu quick-luxuriant forest bases, 240 thousand mu economic forests; after these forests are put into production, peasants will increase RMB 1.8 billion yuan in earning. The rural forest project increases the earning-increasing channels for peasants. By the end of 2009, the total workday when the peasants in Chongqing participated in the construction of the forest project was 54000 thousand days, which has brought them RMB 3.08 billion yuan, which accounted for 17.3% of the investment of the project construction. The forest project has caused the upgrade of Chongqing forestry industry: at home and abroad, there are approximately 200 enterprises which invest in nursery construction, base foundation and factory foundation. Accordingly, the production value of forestry industry has risen from RMB 12.5 billion yuan in 2007 to RMB 21 billion yuan in 2009. Peasants can participate in the nursery cultivation, afforestation, management, the base construction of quick-luxuriant forest and economical forest through direct contract, becoming a shareholder or becoming an employee in order to get work or operating income. The prediction shows that after the item is completed, the average income of per peasant will be over RMB 1000 yuan in forestry. The general prediction shows that the average income of per peasant in industry in 2009 will exceed RMB 400 yuan, which is RMB 120yuan more than 2008.

Diagram 6  Output Value of Forestry in Chongqing (2007~2009)
4.2.3. Raise land class

At home and abroad, scholars have studied a lot on the urban forest’s improving environment quality and increasing the value of real estate. The studies from American scholars show that the value and price of the inhabited land covered by urban forest can be 6--15% higher than the same without covering by urban forest. According to the case provided by Bishan County of Chongqing, in January 2010, Bishan invested RMB 20000 thousand yuan for the construction of Nanhe Park, which has raised the price of the commercial land near this park to RMB 3000 thousand yuan/mu from RMB 500 thousand yuan/mu (this is the price during the first half of 2009). Nanhe Park has improved the environment greatly for the buildings near it. So although the apartment price of Bishan Yingjia Real Estate Co., Ltd. has risen from RMB 2200 yuan/square meter at the beginning of 2009 to RMB 3800 yuan/square meter, its uncompleted buildings has been sold out. As a result, the county-level financial revenue of Bishan County hit RMB 1.39 billion yuan, which is over RMB 90000 thousand yuan more than last year(RMB 1.3 billion yuan).

4.2.4. Raise the related industries and the comprehensive urban competitive power

Forest Chongqing has promoted the development of the related industries. Counties and districts have cultivated bamboo culture, flower culture, tea culture, sightseeing culture according to local features, which has constructed many ecological holiday view places and promoted the development of commercial trade, architecture, transportation, service industries and other related industries. At the same time, the urban comprehensive competitive power has risen, the grade of the city has risen, the investment environment has been improved; accordingly, these attract a lot of people to come to Chongqing to develop their business. At the same time, according to the study, the construction of farmland forest net can raise 3-20% of the yield of the main crop in per unit area, of which 5-20% of wheat yield can be increased, 7-20% of corn, 3-18% of soy, 4-20% of rice. Taking the grain output 1148 tons in 2007 in Chongqing as a base, the increased grain output can hit 1380 thousand tons per year if the average increased output is 12%.

4.3. Appraisal on ecological benefits

4.3.1. Maintain the balance of carbon and oxygen in air

The forest plant is a main adjuster adjusting oxygen and carbon dioxide in the air; it absorbs carbon dioxide and releases oxygen to keep the balance of the two. 1hm2 broad leaved forest can absorb 1 ton carbon dioxide and release 0.73 ton oxygen simultaneously per day during its growing season. An adult consumes about 0.75kg oxygen and breathes out 0.9kg carbon dioxide per day; therefore, a woodland of about 10m2 is needed to maintain this balance. If the dormancy period of trees and the large amount of oxygen consumed by the burning of urban industrial fuel into account, 2 to 3 times more forest area is necessary. The evaluation (calculated according to the population of 30000 thousand people in Chongqing) shows that 60000—90000 hm2 forest is necessary to keep the balance of carbon and oxygen in the air. The construction of Forest Chongqing has increased forest area and greenbelts greatly, and the ecological effect of carbon and oxygen balance becomes more and more apparent.

4.3.2. Purify air and reduce noise

Because urban forest can filter, absorb and block dust particles very effectively, it can relief the urban air pollution caused by dust. According to the determination, the forest can reduce dust most effectively in summer, it can reduce 61.1% dust, and the averagely reduced dust ranges from 21% to 39%. Even in the defoliate stage in winter, the forest can reduce about 20% dust. During the growing period, the float dust in the forest is 42.2% (37.5% in winter) lower than that of the vacant space. The Ipomoea cairica in residential area can reduce 22% dust in the room comparing with that without plant. The grandifoliate banians can reduce 18.8% dust where
they exist. In addition, forest is bactericidal because all kinds of plants can absorb some toxic and harmful gases like SO2, HF, CI2, etc. to some extent. So forest can make great contributions to keeping people healthy. The Forest Chongqing, especially the road item can slow down wind velocity, reduce urban noise, provide comfortable and quiet living environment. The combination structure of green hedge, high trees, short trees and grass can low noise three to five db down or six to eight db down.

4.3.3. Water and soil conservation as well as keeping water source

The urban development and construction activities carried out by people make the problems of sand storm and water and soil loss become worse and worse. Urban forest can block and trap rain water, slow down wind speed and consolidate earth, and the water and soil are conserved accordingly. According to the related data, the crown of the pine can hold up 40% of rain water, and the broadleaved tree can hold up 20%. According to the data from Chongqing Water Source Bulletin (2006), the area of water and soil loss in Chongqing hit 40000 square kilometers, and the average soil erosion modulus is 3641.95 ton /square kilometer. However, the average erosion modulus of natural forest land or protective forest land with proper structure usually does not exceed 500 ton/square kilometer. According to this, after the forest project of Chongqing is completed, this project will reduce 23.0305 million ton lost earth per year, keep 1.1 billion cubic meters water source, release 22 million ton oxygen, absorb 20 million ton carbon dioxide. The completed project can enhance the forest's capacity of adjusting water source greatly. The Forest Chongqing Project, especially the water system forest project plays a very important part in the water and soil conservation of Yangtze River, Jialing River, Wujiang River drainage areas as well as the safe working of Three Gorges Reservoir.

4.3.4. Keep biological diversity

Because improper development and construction activities carried out by human being destroyed the ecological environment in which all kinds of organisms live and the environment pollution become worse and worse, the varieties of the organism in the world becomes less and less continuously. The city is better than the rural area in talent, technology, facility and capital, which determines that it is in duty bound to and can keep biological diversity. Because of the large area of forest, Chongqing can keep biological diversity relatively effectively, and then reflect the harmonious coexist of human and nature, human and organism accordingly. The Humid Place Protection Test Project cooperated by the ECBP Chongqing demonstration project and Chongqing Olympic Garden Investment & Property Co., Ltd has tested the Villa Project of the Sixth Phase and the Xigu Park located at Olympic Park, New District EDZ, North Chongqing, and their test report shows that the varieties of the plant and insect has increased in the areas where the project of Forest Chongqing covers.

5. Problems and Bottleneck Existing in Construction of Forest Chongqing

5.1. Various misunderstanding existing in thought and notions

Construction of “Forest Chongqing” is a long-term and large systematic project and a project providing “merit at the present times and interest in the future”. However, driven by mistaken view of achievement and rights view, short-term actions appear in some regions, e.g. seeking quick success and instant benefits, transportation of a large number of large trees, neglect of rural and montanic natural environment and failure to combine construction of Forest Chongqing with regional economic and social development. If things go on like this, it is possible
to turn the forest construction project in the public interest into a “merit project, an “image project”, even a “manpower-wasted project”. Additionally, common people do not have sufficient confidence in development of forest economy due to their ineradicable awareness, traditional economic model, working habit, little knowledge about forest technology or worry about forest product market risk.

5.2. Planning layout and implementation scheme to be future improved

Due to higher requirements on the timeliness, technicality and policy of the construction of Forest Chongqing Project, early planning, layout and industrial support need to be improved further. At present, implementation schemes for forest engineering are rough in some districts and counties, and no site investigation is carried out for operation design. Tree species lose “localization feature” or single variety of trees are closely planted as there are problems to a certain degree, such as will of leading officials, personal preference, insufficient professional practice, etc when tree species planting according to the environment are selected. These need to be improved further.

5.3. High forestation cost and large difficulty in ecological management

At present, the land not afforested in Chongqing mostly distributes in regions with serious stony desertification, which show unproductive soil layer, poor land occupation condition, frequent land occupation condition, and difficulty in forestation. Especially survival rate of forestation is low and the forestation cost is high in Three Gorges Reservoir Area due to server summer drought, and impact by soil, weather conditions, etc. However, the ecological management must be strengthened as the ecological situation is severer and green ecological barriers are not established in Reservoir Area. Calculations show in Chongqing, that the forestation cost is RMB 1500/mu in barren mountain; the forestation cost is RMB 3000/mu in barren land.

5.4. Much construction and less maintenance, management and maintenance to be strengthened

The forestry is a basic industry and public welfare establishment requiring permanent investment and slowly providing benefit, featuring in “30% forestation and 70% maintenance”. Subsequent management and maintenance are very important to consolidate forestation results. The forestation results are poorer in some lands in Chongqing forestry due to low technical level, imperfect basis forestry service system, and no implementation of responsibilities for management and maintenance of new reproducing area. With the acceleration of industrialization and urbanization development, some forest lands are occupied. At the same time, such situations as forest fire, threat from pest, damage of wild fauna and flora, loss of forest trees germplasm resources are severe, so it is urgent to establish a perfect forest resource management and monitoring system. Additionally, as some people are weaker in awareness of forest living and forest protection, more publicity and education are required to improve greening consciousness, consciousness of participation of the people, and make the people to consciously love plant and protect the forest.

5.5. Poor technical support and new technology development to be future strengthened

At present, a pilot project has been started in such new technical applications as aerial seeding and sapling planting, satellite remote sensing (RS), geographic information system (GIS), global positioning system (GPS) in Chongqing; however, implementation and popularization need to be accelerated. Due unscientific forest construction planning, tree species selection, tree species configuration, planting and subsequent management and maintenance, such tree species and scattered bamboos unsuitable for growing in location with poor land occupation conditions
scattered bamboos as cedar, Cinnamomum japonicum is planted in the location with poor land occupation conditions. The pertinence and validity of such common forest technologies as “bottle hanging”, “trunk cutting” need to be improved further. More studies and innovation are required for the forest technology concerning soil and root systems. At the same time, more forest science popularization publicity is required. The people have many doubts as they don’t understand tree species selection and tree specie configuration by the Ministry of Forestry and Garden in the forest engineering construction.

5.6. Limited total land resources, and prominent contradiction in land for greening

With acceleration of urbanization development and increase in land for construction year by year, land for ecological construction is in shortage as the nation implements strict cultivated land protection policy in order to ensure food security. The contradiction in land is prominent as the cultivated land shall be occupied in implementation of Chongqing Forest Project, especially forest city construction in urbanized area, passageway forest engineering, and economic forest base construction. If a new plan on conversion of cultivated land to forestry is not implemented, it is more difficult to acquire the land for construction of passageway greening, fast-growing forest base planned in the forest engineering. Therefore, if construction of Forest Chongqing is to be continued, improvement on speed and total scale only is far insufficient. It is a large difficult point in construction of Forest Chongqing to expand greening space and improve the ecological benefits per unit area.

5.7. Low productivity of forest land and resource utilization ratio

Although the area of forest land is large in Chongqing, the structure of forest category and tree species is not reasonable, land resource utilization ratio is low, and the combined revenues of the forest is still lower. At the same time, the degree of forestry industrialization and marketization and reform atmosphere are low, the resident in the forest zone is slowly driven to become prosperous by the forest and the position and effect of the forest is out of proportion with the area of the forest. Statistic shows forestry output value of Chongqing is only 1.3% of total national forestry output value, ranked at 23rd, 11.2% of that Guangdong (RMB 131.5 billion) and 29.0% of Sichuan (RMB 50.7 billion). Ratio of the area of the forest land to the area of the cultivated land is 1.9: 1, while ratio of the output value of the forestry (RMB 2.59 billion, Chongqing Statistical Bureau) to crop and plant cultivation output value (RMB 42.38 billion, Chongqing Statistical Bureau) is 1:16.4, and the average output value per one mu forest land (RMB 42.3) is 3.3% of that of the cultivated land (RMB 1263).

5.8. Large funding gap, investment and financing mechanism to be perfected further

Construction of Forest Chongqing is long-term and large, and expected to need RMB 48 billion. Although Chongqing attracts various funds for construction of economic forest by acceleration of forest ownership reformation, and raises construction fund by such measures as planning state subsidies for natural forest protection and municipal subsidies for construction of public welfare forest as a whole, establishment of “Chongqing Forestry Investment Company”, and establishment of financing platform in form of forest area reserve, etc. Investigation and survey results show construction funds for Forest Chongqing is mainly provided by government finance. The funds for subsequent engineering construction are still in shortage, and the investment and financing mechanism for the construction funds needs to be perfected further.
5.9. Long lasting mechanism in forest engineering to be perfected further

Forestation and management and maintenance are boosted mostly by administrative means, which is hard to continue in long term. Further improvement shall be made on how to handle relation between the government and the market, make full use of roles of various social subjects, and encourage and attract various social funds for the forest engineering.

6. Strategic Thinking and Measure Suggestion for Further Boosting Construction of Forest Chongqing

6.1. Understanding of general requirements for construction of “Forest Chongqing” during 12th FYP

Remarkable results have been obtained in the previous round of the construction of “Forest Chongqing” by strategy planning of Municipal Party Committee and Municipal Government and enthusiasm of “the trees planted in one year is equal to the trees planted in ten years, and the trees planted in ten years is equal to the trees planted in 100 years, and given with attention by and praised by all parties. Standing at starting line of “Twelfth Five-year Plan”, for the construction of “Forest Chongqing”, based on the established strategy, the general requirements of construction development in future five years is clarified to achieve the overall objective of the construction of “Forest Chongqing”. According to the social and economic development strategy of Chongqing during “Twelfth Five-year Plan”, we believe the guiding ideology and general requirements for construction of “Forest Chongqing” are given below:

Scientific development perspective is implemented fully, and according to “314” overall scheme of Chongqing, increase of area, improvement of quality, adjustment of structure, and increase of benefit by ecological priority and such a main line as improvement of the quality of the people's livelihood. In terms of the key point of construction, more attention are given to rural forest engineering, water system forest engineering, and forest engineering of two banks of Yangtze River on the basis of planning the urban and rural forest engineering as a whole; in terms of development orientation, the development target of basic completion of “Forest Chongqing” is clarified, the construction of a national forest city and ecological garden city is planned based on such cores as great improvement of forest acreage, quantity increase and quality improvement of city urban green space, and developed forest economy and stable ecosystem; in terms of development mode, “promotion of the forestry by applying scientific and technological advances” and scientific operation are more intensified to further increase the ecological, social and economic benefits of “Forest Chongqing”; in terms of construction speed, after consideration the overall strategy position of Chongqing forest development and current development base, more attention is given to more stable and solider implementation of the strategy, it is insisted to attach equal importance to construction and protection, and simultaneously implement new construction and reformation, and brand and landmark construction is implement by improvement of greening quality with effort and elaborate planning of the major engineering; in term of industrial cultivation, the forest characteristics of Chongqing is highlighted, the under-forest economy is cultivated and developed, forest structure is optimized, forest industry is expanded, and forest product market is cultivated; in term of development environment, the full-social positivity of forestation and greening is mobilized by insistence in governmental guide and all the people’s participation, development energy is released furthest by market forces, the policy support of Forest Chongqing is strengthened, and reform of collective forest property right system is deepened; and in term of development ideology, ecological project ideology is established further, ecology compensation
system is established, green consumer awareness and consumer culture is leaded, and a ecological civilization demonstration area is built on the upper reaches of the Yangtze River.

6.2. Ideology for construction of Forest Chongqing to be changed future

6.2.1. Ideology of sustainable development

On one hand, the forest of the forest city is not just a greening concept, long-term management and maintenance are required after planting the sapling until the forest has ecological function; on the other hand, the requirements and indicator of the construction of Forest Chongqing continuously vary with economic and social development and enhancement of the people’ requirements. Long term development must be established to provide sufficient space for future development of Forest Chongqing.

6.2.2. Ideology of pro-nature and harmonious development

The sole value orientation of the construction of Forest Chongqing is harmony between man and nature, and the final judgment standard is the level of the harmony between man and nature, and man and forest. Therefore, when the construction of the forest city is directed, we shall avoid disharmony factors acting contrary to nature as much as possible, avoid a mode of boots by planting a large number of trees as much as possible, and prevent social contradictions by using such moderate and win-win means as lease to acquire the land for construction of forest city as much as possible.

6.2.3. Ideology of healthy forest

The ideology of healthy forest means forest ecosystem is healthy, maintains its own good existence and upgrade, and has ability to show necessary ecological service function. The content includes: modern forest not only has environmental property and resource property but also is the infrastructure of modern society, and the evaluated space-time dimension and function of the “forest” can not be changed optionally; healthy forest needs to continuously “recover” its own ecosystem. The construction of Forest Chongqing shall show the ideology of healthy forest, achieve optimal service function of the forest, increase the adjustment ability to reduce the loss resulting from such factors as fire, plant diseases and insect pests, environmental pollution, man-made over-exploitation and use, natural calamities, etc. by scientific establishment and operation of the forest and maintenance of the reliability of the forest ecosystem and diversity of organism according to natural progression, make the sustainable ecosystem to obtain timely upgrade and recover from damage states and keep ecosystem balance, and meet the requirements of multiple target, multiple value, multipurpose, multiple product and multiple service level.

6.2.4. Ideology of serving the people's livelihood

The service object of Forest Chongqing is the public; therefore, the public must be guided to actively participate in construction to share the results. Sufficient publicity and planning is conducted by advocating the important role of the urban forest and the important significance of construction of forest city by all kinds of medium to obtain the support and understanding from the public. At the same time, to facilitate people to get close to the forest is deemed as important standards during planning and construction to enable the urban forest to serve for the public. Social mobilization is comprehensive. Without doubt, various circles of society should be mobilized to participate in construction of the forest city. The construction of the forest city has lasting power only after whole society is mobilized. The people’s knowledge about the urban forest shall be changed. The public and the resident are the basis for participation and supporting
development of the urban forest. The public, officers, scientific and technical personnel, planning officers and etc. are mobilized to participate in construction and protection of the urban forest.

6.2.5. Ideology of systematic management

Chongqing forest engineering management should follow a principle of systematic management. Firstly, the urban forest, the rural forest, the passageway forest, the water system forest, forest at two banks of Yangtze River, and nursery engineering are separately constructed and managed according to their functions; secondarily, ecological forest of the forest engineering should be distinguished from the property of commercial forest. For determined commercial forest, new fast-growing forest and industrial raw material forest, the operators determine the variety to be planted, management mode and operation target, and sell the wood at their own discretion. For the public welfare forest, under the condition the ecological function is used, it is allowed to develop under-forest economy to increase income of farmers by reasonable use of the forest land resource.

6.3. Relevant strategy suggestion for further boost of construction of Forest Chongqing

6.3.1. Combination of construction of Forest Chongqing with construction of low-carbon city

At present, climatic change has profound impact on human survival and development, and imposes great challenge for all countries in the world. Active respond to the climatic change is a major strategy in economic and social development of our country, and major opportunity to accelerate change of economic development mode and adjust economic structure. Our country is in key period of building well-off society in an all-around way, and important stage of accelerating development of industrialization and urbanization, and energy demand still continues to grow. During economic development and improvement of the people's livelihood, effective control of greenhouse gases and proper respond to the climatic change are new problem. At present, Chongqing is one of low-carbon pilot cities determined by NDRC. Two main methods for development of low-carbon economy include: direct emission reduction, i.e. energy saving and emission reduction and carbon source reduction; indirect emission reduction, i.e. carbon fixation and carbon sink increase. The construction of low-carbon city is combined with the construction of Forest Chongqing, and focuses on increase of the carbon sink capability of the forest by energetic construction of Forest Chongqing. Special measures are given below:

Firstly, the forestation is accelerated in the mountainous area to truly ensure the presence of green hill. Second, protection of wet land along two banks of the Yangtze River is accelerated. The blue sky and white cloud over Chongqing and the green mountains and rivers of Reservoir Area are ensured by protection of forest ecology and active pollution treatment to provide safe water source for the middle and lower reaches area of Yangtze River and assume the responsibility of a large city. Third, the forestry, forest product process and relevant product manufacturing industry are listed in the low-carbon industrial system to enjoy policy supporting low-carbon green development. Fourth, use of such green low-carbon building material as bamboo building material and wood building material is actively popularized, the government procurement of wood and bamboo office supplies is increased, market demand is expanded, and a green building material manufacturing base is established.

6.3.2. Development of forest carbon sink and active exploration of carbon sink trade mechanism

The carbon fixation and the carbon sink increase are the main methods for indirect emission reduction, and new mode and new method for promotion of low-carbon economy under
the background of global warming and increasingly aggravation of energy and environmental crisis. The carbon sink generally refers to the process, activity and mechanism for removal of carbon dioxide from air. In the forestry, it means the plants absorb the carbon dioxide from the air and fix it in the vegetation or soil to reduce the concentration of the carbon dioxide in the air. According to the provisions of Kyoto Protocol, by 2010, the discharge value of such six greenhouse gases as the carbon dioxide shall have been reduced by 5.2% in comparison with that of 1990 in all developed countries; the target of emission reduction to be achieved by the developed countries in 2012 are decomposed and assigned; however, requirement of emission reduction is not provided for developing countries. As the developed countries can hardly achieve the specified target of emission reduction by its own effort, they may achieve the target of emission reduction by “foreign emission reduction”, that is to say, obligation of emission reduction is fulfilled by buying emission reductions of the carbon dioxide from developing countries. It is called “carbon sink trade” or “carbon trade”. The forecast of the United Nations and the World Bank show the market size of the global carbon sink trade is respectively USD 60 billion in 2008-2012, market size of the global carbon sink trade is USD 150 billion in 2012, and it is undoubted that a large market forms. Due to large business opportunity of the carbon sink trade, corresponding exchanges are established in United States, European Union, Australia, etc. Considering China does not assume the obligation of emission reduction in the first commitment period, it is undoubted that construction of Chongqing forest city will play an active role in control of global climatic change. Chongqing has a large quantity of forest “carbon sink” and “carbon credit” available for trade, which will undoubtedly become new factors for promotion of low-carbon economic development. Construction of Forest Chongqing may be thereby boosted in the following:

1) **Intensification of forest carbon sink publicity**

The forest carbon sink is considered as important as industrial emission reduction, and the construction of forest engineering being implemented in our city is really put into the international action of respond to climate change. Publicity of the forestation and the forest carbon sink is strengthened to achieve full recognition that forest construction is an important method for development of low-carbon economy, and specific embodiment of implementation of scientific development perspective and national strategy and improvement of the people's livelihood. The construction of Forest Chongqing should be publicized and educated as the important content of development of the forest carbon sink to help the public get better understanding of the climatic change, the low carbon, the forest carbon sink and carbon offsets, and to strengthen the awareness of forestation carbon fixation.

2) **Scientific planning and layout of carbon sink functional area**

A plan for construction of the forest carbon sink functional area is made according to the scientific system of the carbon sink. First, taking the forest carbon sink functional area as an entry point, ideology focusing on the forestation is transited to the planning focusing on ecology step by step to achieve that forest engineering construction catches up with the ideology and target of the ecological development of the global sustainable development. Second, the regional layout suitable for construction forest carbon sink project is determined in the whole city. According to the experience in the foreign and domestic projects successfully earning foreign exchange from the forest carbon sink, the area for development of the forest carbon sink is determined based on international rules, regional economic benefit and ecological benefit, and economic benefit brought for the local, and condition for sustainable development of biological diversity. Third, in current and future forest engineering, the carbon fixation of the forest is considered as much as possible and taken as the important indicator of the forestation to combine construction of the carbon sink forest with construction of Forest Chongqing and achieve win-win among multiple parties.
3) **Implementation of forestation and re-forestation carbon sink project by clean development mechanism (CDM) to attract international fund for development of Forest Chongqing and to promote innovation of the development mechanism for urban forest engineering in Chongqing**

While the forest engineering is constructed, attention should be given to the whole combination of relevant carbon sink industry development and establishment of environmental resource industry to ensure coordination between income increase and environmental protection. First, forest carbon sink pilot project is launched. The target of “earning construction fund with fresh air” should be achieved by CDM, buying and selling of carbon sink stocks according to the relevant carbon trade rule provided by Kyoto Protocol and other literatures of the United Nations. The municipal government is recommended to formally start the pilot project of the forest carbon sink forestation engineering in the whole city, plan respond to future possible high-carbon and high strength emission reduction pressure, and participate in national respond to the climatic change. Proper area is selected for construction the forest carbon sink pilot project to drive construction of other carbon sink forest project. The forest carbon sink project may be implemented by full use of rich water source, the forest land around the reservoir, and wasteland resource in the relevant river basin, mountain system, and water system of Three Gorge Reservoir Area, the Yangtze River, the Jialing River, and the Wujiang River in which it is very difficult to develop other industry. Second, the under-forest economy shall be energetically developed. Such under-forest economy as planting, breeding, etc. is developed to increase forest and agriculture income by use of the basis provided by conversion of cultivated land into forests in a few years and application of the resource superiority of the forest, the water source, photothermal and pure natural environment. Third, the carbon sink forest is constructed with the ecological forest and the economic forest. While the carbon sink forest and the ecological forest is developed, such economic forest as bamboo, citrus, pepper, nursery garden are reasonably developed according to local conditions to maintain life and daily operation of tree cultivator before certification of the carbon sink forest. Forest secondary industry is developed energetically, the following industry chain by combination of the capital and the market: nursery cultivation → forestation → wood processing → furniture and floor board → biomass energy, etc. Fourth, organic agriculture is developed and popularized. An agriculture ecosystem with a complete structure, perfect function and smooth energy flow and circulation of materials is established. The organic agriculture has larger “carbon sink” effect than the conventional agriculture, and “carbon sink credit” created by the producer of the organic agriculture may be converted into return in currency form after certification.

4) **Actively strive for the national support for Chongqing to establish carbon sink trade pilot project**

First, a carbon sink trade platform in line with the international standard is established. It is recommended that the municipal government accelerate establishment of Chongqing Carbon Sink Exchange in coordination with municipal functional departments and make it become the first national carbon sink exchange to promote the development of the low carbon economy in more fields and in an all-around way. Second, a carbon reserve credit platform is established. Enterprises are encouraged to denote money for increase of carbon sink by the forestation and obtain carbon dioxide reduction credit indicators. The enterprises providing the fund may participate in the forest carbon sink project according to their own wish to strive for larger space for future development. The enterprises obtain the carbon sink credit indicators measured as per specifications by implementation of the forest carbon sink project, and the credit indicators reserved in advance will be specially recorded and may be used in market trade in domestically full implementation of carbon trade actively. Third, relevant rule and policy concerning compensation for marketization of the forest carbon sink is established and perfected to clarify rights and obligations of the related parties compensated with the forest ecological benefit. Fourth, a regional greening carbon sink fund is explored and established.
5) **Establishment of sound carbon sink information databank**

The carbon sink resource differs from the traditional natural resources. Investigation, analysis and classification of the carbon sink resource of Chongqing is an important precondition for development of carbon sink trade. First, the government contacts with relevant organizations of the United Nations to understand and grasp the latest development information and relevant rules concerning international climate problems; support and help are active strived for form relevant international carbon sink organization, and the market operation rules are prepared according to the international conventions and the actual situation of China and Chongqing. Second, an investigation and research management organization is established. Office of Forest Chongqing initiate jointly with Municipal Forestry Bureau, Environmental Protection Bureau, Nature Reserve Management Institution, etc. to establish a special organization (office) to direct, plan and manage the carbon sink ecology service work. Third, carbon sink information bank is established. The construction time of various forest lands, and such ecological conditions as main forest categories, surrounding climate, etc. are classified and recorded in detail. An ecological research station is established in the mountainous area, the forest land, etc. to detect CO2 absorbed by and released by the vegetation, and long lasting dynamic monitoring mechanism is established. Fourth, the information is analyzed. The developed industrial countries have looked at the developing countries placing China in the center, expecting to achieve the target of the emissions mitigation by buy of the carbon sink indicators, and this is an uncommon chance for construction of the forest engineering in our city. Large-scale carbon sink trade pilot projects begin to be established in Guangxi, Inner Mongolia, etc. Sichuan obtains some results from forest carbon sink and gathers rich experience. The personnel are organized to analyze and classify the information on international and domestic relevant carbon sink trade, and know the trends of the carbon trade to provide a basis for development of forest carbon sink project in Chongqing.

6) **Intensification of technical support for forest carbon sink**

First, the forest science and technology input of the carbon sink is increased. The advanced ideology and technical results of the forest construction and management of the developed countries is introduced while improvement of independent innovation capability of the construction and management technology of the carbon sink forest is intensified to promote the technical level of the carbon sink forest. Second, science and technology studies on the carbon sink forest are intensified to improve the production capacity and carbon fixation capacity of the forest of the whole city, especially the carbon sink forest. Third, training on carbon sink knowledge is intensified. The personnel are appointed to the carbon sink exchange of the United States, Europe, Australia for study and training so as to cultivate forest carbon sink expert team and made reserve of talents and promote the deepened and orderly development of the carbon sink forest.

6.3.3. **Persist in the reform and innovation, continuously improve and innovate the mechanism of Forest Chongqing building**

1) **Further deepen and improve the reform of the collective forest system**

On the basis of the completion of main reforms focusing on clarifying the property rights and the realization of the fact that “a mountain has its owner, the owner has his/her right, the right accompanies its responsibility and the responsibility accompanies its benefits”, the coordinated reforms focusing on regulating the circulation, liberalizing the businesses and perfecting the services will be gradually improved to form the sound development mechanism and strive to achieve the rich forest resources, developed forest industry, increased income of farmers, stable ecosystem and the flourishing ecological culture. Further implement the woodland contractual management rights and the ownership right of trees to the farmers of the local collective economic organization through the way of household contracting. For current forests managed by the collective management, of which the woodlands and trees can either be allocated to farmers,
or take the mode of "dividing the mountain without dividing trees" or "dividing shares without dividing the mountain" to clarify the rights and interests of farmers. For woodlands that are not suitable to be contracted to the formers, the rights and interests of farmers can be clarified through the way of equal division of shares or equal division of interests, etc in the agreement of the members of the local collective economic organization according to law. The village’s collective economic organization may retain a proportion of the collective woodland, which will be democratically managed by the collective economic organization according to law. After the property rights have been clarified, the operation and management right should be further liberalized. In accordance with the requirements of classified operation and management, the operation and management rights of the commercial forests will be fully liberalized. The business runners are allowed to independently dispose the management right of the woodland, the ownership right or the management right of trees. The management right of the woodland, the ownership right or the management right of trees can be inherited, mortgaged, used as a condition of a capital contribution or cooperation. The contractor of the contracted management can develop and utilize his/her contracted woodland and trees according to law. The interests of farmers for the contracted management of woodland should be guaranteed. When acquiring the collectively owned woodland, the compensation fee of the woodland, the resettlement fee, the compensation fees for the estate in land and trees, etc should be fully paid. The social security costs of the farmers on the acquired land should also be considered. For the public welfare forest, the forest ecological benefit compensation should also be paid to every farming household involved.

2) Steadily enhance the innovation of the forest harvesting management mechanism

Further improve the management of commercial forest harvesting quotas, simplify the approval procedures and provide convenient services. Establish the quota carry-forward system for the planted forest and the unused quota in the year can be carried forward to the next year. Improve the management on the consumption type of harvesting quota and reasonably control the harvesting methods and intensity. For the commercial forest, the owner can prepare the operation and management plan and the annual forest harvesting quantity can be determined according to the operation and management plan. The allocation of the cutting quota should be open and transparent, and it is suggested to gradually implement the way that the cutting quota will be directly assigned to the operators. Forests planted on the contracted non-basic farmland and where its owner has not enjoyed the policy of converting the cultivated land into forests will not be included in the woodland and cutting quota management and the owner can independently make logging.

For the operational entities or large individual business runners who are operating more than 1000 mu commercial forests, the newly built fast growing bases and the specifically planted industrial raw material forest, the operators can independently determine the logging cycle and independently develop the logging plan according to the market demands; while the logging quota, logging mode and the tree’s logging age, etc can be determined according to the approved operation plan.

For the newly developed fast growing industrial-use forest, in terms of logging, the forest growing stock will be mainly used for the quota control and the wood output control will be relaxed; in addition, the wood transport certificate will be issued according to the wood output designed in the logging area. The levied forest growing fund will be fully refunded.

3) Improve the transfer system and regulate the transfer of woodland and trees

Under the legitimate, voluntary and paid premise, it is actively encouraged to have the reasonable transfer of the ownership right of the forest and trees and the management right of the woodland, to implement the mass operation and management so as to create the best gains. The
transferred duration shall not exceed the remaining period of the contracted period of this round; in addition, after transfer, the use purpose of the woodland shall not be changed.

The transfer of the collectively managed woodland management right and the ownership right of trees shall have a notification in advance within the collective economic organization and be agreed by more than 2/3 members of the collective economic organization or more than 2/3 of the villagers' representatives according to law. Under the same conditions, the members of the collective economic organization have the preferential right to undertake the transfer. The income of the transfer of the collective woodland management rights and the ownership right of trees and compensations shall be distributed among the members of the collective economic organization or used for public welfare.

4) Promote the forest right mortgage loan and vigorously enhance the policy-related insurance in the forestry industry

Financial institutions should establish and perfect the forest right mortgage loan measures in accordance with relevant provisions to allow for the application of loans mortgaged by woods, woodland and other forest resources. All financial institutions should make innovations on the variety of the forest right loan, simplify the loan procedures and expand the scale of small loans for forest farmers. The competent forestry authorities at all levels should arrange the verification work on the legitimacy and authenticity for the forest right certificates and the registration and right confirmation work related to the mortgaged property right. For the mortgaged forests and trees with default loans and for which there is no way to cash in after the public bidding, if the logging conditions are met, the logging quota can be issued preferentially.

In accordance with the principle of government guidance, policy support, market operation, farmer’s willingness and steady progress, it is suggested to focus on promoting forest fire insurance business; actively carry out the insurance business in forest pest control operations and gradually expand the variety and scope of the insurance. The premium required shall be undertaken jointly by the government and the owners. The specific implementation measures will be formulated separately by the Municipal Bureau of Forestry, Municipal Finance Bureau and the Municipal Government Financial Office.

5) Establish the forestry factor market and build forestry property right trading platform

To have an overall planning, a rational distribution and gradually establish a multi-level forestry production factor market. To select some of the districts (counties) with rich resources, convenient transportation and good basis to have a pilot run, and gradually establish and perfect the forestry factor market in the whole city and establish a city-level trading center and the district (county) trading office. The competent forestry authorities at all levels should coordinate and corporate with the related departments to strengthen the regulation over the forestry factor markets.

6) Develop the forest greening social organizations, and improve the quality and efficiency of the construction of the "Forest Chongqing" through the government purchase of services

The social organizations that have a new cooperative partnership with the government are the important assistants of the government public administration, and the important channels for the society to express the public interests and the right appeal. The development of the social organizations is conducive to a more effective offering of public goods with respect to ecological environment and urban greening, etc, and the enhancement of the social management as well as the change of the government functions. Government purchase of public service is the international trend since the 1980s in the 20th century. In the construction and management of the ecological environment, urban greening, etc, compared with the public services provided by
the government itself, the professional services provided by the non-profit social organizations is more conducive to reducing the costs and improving the quality; the professional personnel team is also conducive to the improvement of the management efficiency. It is suggested to strongly support all types of folk social organizations associated with forests and afforestation. Through government purchase of services, make them undertake the public welfare services in ecological environment, forest greening, etc. In addition, through the non-government afforestation organizations and institutions, establish the international cooperation and communication channels, introduce the management concepts and business model and build an output and input platform of the forest management and technical talents.

6.3.4. Intensively use land to build the urban forest with three-dimensional greening

1) Have a clear plan to guarantee the land use for forest construction

In terms of the overall land use policy, it should incline to the forest construction; the urban built-up areas should have certain portion of planned land for forest construction that can be used to plant the vegetation-based forests; for the non-build-up areas, the scaled urban forest should be built in conjunction with the urban and rural unified planning. Meanwhile, it is planned to explore the way of the joint construction of suburban forests with the local farmers. The basic farmland involved in the greening projects and forest project of water system on both sides of the Yangtze River shall be moderately adjusted to maintain the overall balance of a district/county. For all sloping farmland except for the basic farmland on both sides of the Yangtze River, the policy of converting cultivated land into forests will be implemented fully. Barren hills and wasteland suitable for growing forest must be covered by plants within one year period by the owner of the forest right. Those without greening within the specified period of time, the land shall be transferred by the district/county (autonomous county) government to have it fully covered by the plants within one year. For the surrounding areas of the city, the areas adjacent to rivers of important connection points, the land of 100m landscape forest above 175m shall be acquired one-time by the district/county (autonomous county) government for forest plantation by the state-owned forestry centre or forest plantation investment company. For the original residents scattered in the project planning areas, the way of the ecological migration shall be implemented and their owned land shall be acquired by the government for the use of forest plantation. The reform of household registration system in the project planning area shall be vigorously promoted and all land left by farmers after their move into cities shall be converted to the forest land for plantation. The housing land left by the farmers who have ecological migration or moved into the city shall be converted into the “land ticket”, and its benefits shall be used for the greening on both sides of Yangtze River. The land with inconvenient traffic and poor location can be transferred uniformly by the district/county (autonomous country) government for mass operation; and the landless farmers can enjoy low-cost housing in the city and the minimum living allowance and participate in social endowment insurance. In the project construction area, where the owners, who have used the transferred land for forest plantation for a long term or that the contracted management forest land has reached certain scale, are allowed to use the “land ticket” left by farmers who have moved to cities to build the ancillary facilities in the planned urban construction areas or the rural concentrated residential areas. Various districts/counties shall establish state-owned forestry centers or state-owned companies, which will uniformly manage the land acquired by the government and complete the forest plantation and greening as well as carry out forest business.

2) Develop vigorously the three-dimensional greening and expand the space for greening development

It is suggested, by learning from the international experience and utilizing the modern technological means of architecture and gardens, the upper space of the green land, the regeneration space of all kinds of buildings and structures can have the multi-level and multi-form
greening, such as, the greening of walls, roof, rooftop, indoor and balcony, etc. The vertical greening, bio-walls, green roofs, green buildings, green wall networks and other new greening can be developed. The plant-built landscape, the green fence, plant carving, etc are promoted for development to allow plants to have certain functions of the construction materials.

6.3.5. Further increase the technological support efforts for the forest projects to enhance the technology content and level

1) Speed up the independent innovation, and strive to conquer the key technology of the Forest Chongqing construction

Make full use of the technological advantages of scientific research institutes, give full play to the role of scientific and technical personnel and establish a technology research and development system with scientific research colleges and universities as the principal part to strengthen the fundamental research. Targeting the actual demand of the technological innovation in the large-scale forest construction of Chongqing and centering on the bottleneck-like technical difficulties that has restricted the forestry ecological construction and industrial development for a long time, carry out the scientific research and tackle the key research project, striving to earn a number of major scientific and technological achievements as soon as possible to achieve a new leap-forward development in technological innovation. Based on the order of priorities, the technological innovation focus and direction in regard to ecological engineering, forestry industry development, forest protection, forest tree seedlings, etc. in current and future period of time shall be determined; and the cutting-edge researches in energy forestry, carbon sink forestry, wetlands protection and water-saving irrigation, etc shall be given preferential support. Pay attention to the technological innovation of the key technologies to achieve a major breakthrough and accomplish some research results; and adhere to using the large project to drive major breakthrough. The title-election of the project and the research direction should closely link to the forest construction.

2) Accelerate the transformation of research findings, and comprehensively strengthen the promotion and popularization of the practical technologies

The 3-level forestry technology popularization system for the city, district/county and township should be established and improved to strengthen the popularization and promotion of forestry practical technology so as to continuously improve the quality of forest growing, culture and management. To establish the promotion and service system of the engineering and technical training with the forestry as the mainstay to strengthen the technical training promotion of the forest culture and management. Vigorously promote water-saving irrigation, sapling growing by facilities, sapling growing by containers, forestation in the difficult-to-use land, drought resisting forestation and other forestry advanced and practical technologies to ensure "planting one, one surviving" and "afforesting an area, plants in the area surviving, and the area being greened". Increase the processing and development efforts of forest products and actively cultivate the follow-up industries of the forest project in both sides of Yangtze River and comprehensively consolidate the construction results of the projects. To actively update the mode of forestry technological result promotion, expand the scale, make in-depth advancement and truly allow the practical technologies to be promoted to the basic-levels. The technology demonstration should be carried out widely. It is suggested, in the construction of key projects in forestry, to carry out the "ecological construction technology demonstration project" (a demonstration area or a demonstration section). By integrating the practical technologies, using the scientific and technological achievements, to increase project’s science and technology elements to make it become a high standard model project and an application platform of the new technologies and new research achievement, realizing the “two promotion” in the project quality and technology promotion. Meanwhile, it is proposed to build the Forestry Science and Technology Demonstration Zone, which will mainly demonstrate the forestry industry technology, combined with the construction of scientific research promotion bases, to actively carry out the
new varieties and new technology demonstration, radiating and leading forest farmers to improve efficiency of forestry industry.

3) Accelerate the use of information technology to build the digitalized Forest Chongqing project

Accelerate the building of the open digital forest system that is based on the forestry multiple information sources network database, applies the remote sensing technology, computer technology, digital technology, network technology, intelligent technology and visualization techniques and is characterized by three-dimensional display and seamless multi-level data sharing, to provide a broader and more figurative information processing environment and support system for Forest Chongqing building and promote the informatization process on all aspects of the forest project, providing services for the forestry and the whole society to ensure the healthy and rapid development of Forest Chongqing.

4) Extensively carry out the technical training and make efforts to strengthen the talent cultivation

It is recommended to widely carry out the technical training. Various levels and departments as well as various Project Offices should appropriately carry out the multi-form technical trainings according to their own actual situations. The scientific research entities, technology promotion entities, various associations and organizations shall undertake the tough task of training to form the climax of technical training in the whole province. Training must be practical, be grassroots-based and be focusing on the training of forestry engineers and technicians, the construction workers of the professional forest building team and the massive forest farmers to improve their capability of understanding, applying and disseminating forestry technology and gradually enhance the technical strengths and personal quality of vast basic-levels and front lines of production.

5) Strengthen the construction of the basis and enhance ability and conditions of forest technology

Scientific and technological capacity will determine the strength and development potential of technology. The service and innovation capability of the technological entities and technological personnel should be truly enhanced by improving the technological basis and conditions and facilities. The focus is to enhance the working conditions of various forest science and technology institutions and the science and technology units at all levels. Strengthen the construction of scientific research equipment, laboratories, science and technology test base point and base, technology promotion base, forestry science popularization base and the field observation stations; to build several fixed forestry research and experimental bases in a planned manner to comprehensively strengthen the scientific research means. The construction of the forestry science and technology information network and the collection of the reference materials should also be strengthened.

6.3.6. Devote greater efforts of investment to attract multi-channel social funds to participate in construction of the Forest Chongqing

1) Further increase the investment in construction of Forest Chongqing

Establish and improve the forest ecological benefit compensation fund system to collect the public welfare forest compensation fund from multiple channels and carry out the ecological benefit compensation on the public welfare forests according to the principle of graded responsibility. Establish the forest planting, tending, and protection and management investment subsidy mechanism and provide subsidy for forest fire-fighting, forest pest prevent and control and the improved varieties of forest tree breeding. Further increase the support efforts to the forestry industry and offer discount loans to such four featured forestry industry projects in the
forestry enterprises as the wood and bamboo processing, forest tourism, seedlings & flowers and forest food products. Government at all levels should incorporate the administrative funds of forestry departments into the financial budget. The infrastructure construction in forest fire fighting, forest pest prevent and control and the forestry administrative law enforcement system, etc. should be included in the basic construction planning of government at all levels. The transportation, water supply, power supply, communications and other infrastructure construction should be included in the development planning of related industries according to law. The forest investment in the southeast Chongqing area and northeast Chongqing area should be specifically increased.

2) **Attract multi-channel social funds to invest in the forest project**

Encourage various social subjects to have a cross-ownership, cross-sector, inter-regional investment in the forestry. Encourage capable farmers, urban residents, scientists & engineers, private entrepreneurs, cadres and workers of enterprises and public institutions to invest in the forestry development alone or in partnership and involve in the forestry development and construction. Strongly advocate contracting the barren hills for forestation, creation of a memorial forest and attending of ancient tree. Conscientiously implement the policy "Whoever plants, whoever will have; whatever is jointly planted, whatever will be shared" and "whoever invests, whoever will benefit". Actively create a fair competitive environment for a variety of forest management subjects in the tax, resource use and investment and financing and other aspects.

3) **Encourage to attract investment in the forestry industry**

For the industrial raw material forest base established by the pulp and paper companies with wood as the raw material, the industrial raw material forest base construction fund can be withdrawn according to the rate of 10-20yuan per cubic meter of timber consumption, which will be specifically used in the forestation, culture and management and other production activities of the raw material forest base. The collected funds will be recorded as the operating cost of company's product production. The comprehensive use of the secondary or small fuel wood, shrubs, and three residues and the recycling and utilization of the waste wood materials and disposable wood products shall enjoy the tax preferential policy according to relevant provisions. For those owning more than 100 mu newly growing forest, a small number of ancillary facilities and management offices are allowed to be built.

6.3.7. **Accelerate to build the Yangtze River green ecological barriers to maintain the ecological safety in the Three Gorges Reservoir Area and its middle and lower reaches**

Yangtze River flows through 19 provinces, regions and cities and the entire drainage area accounts for 18.75% of total land area. The middle and lower reaches of Yangtze River are one of the China's most developed areas in economy and the society. The ecologic location of the Yangtze River basin is very important and is the key area of China's forestry development and ecological construction. The ecological conditions in the Three Gorges Reservoir Area and the middle and upper reaches of the Yangtze River are directly related to the safety of the Three Gorges Reservoir and the well-being of the people in the Yangtze River basin. However, the ecology in this area is comparatively fragile. According to the survey, the forest coverage of the Three Gorges Reservoir Area in Chongqing is only 22%, large areas of "bare soil" can be seen everywhere, there are serious soil erosion and land desertification, which is extremely not consistent with its ecological status. To create the green and ecological barriers in the Yangtze River basin and to improve the ecological situation of the Three Gorges Reservoir Area are an urgent challenge.

1) **Accelerate the implementation of the greening project on both sides of the Yangtze River, to promote the practice of "Greening Yangtze River, Chongqing action"**
By taking the ecological improvement in the reservoir area, the landscape building of the reservoir area and the stable and rich development of migrants as the main line, to carry out the greening and forest growing in the area of 175m reservoir bank line from the main stream and the lever-I tributary of Yangtze River to the first layer ridgeline area to increase the forest coverage, improve the ecological situation of the reservoir area and maintain the ecological safety of Yangtze River watershed.

2) **Strive to get the state support to make the Three Gorges Reservoir Area a comprehensive experimental area of ecological compensation**

Try to get the state support to make the Three Gorges Reservoir Area a comprehensive experimental area of ecological compensation. In order to explore the way of the ecological civilization construction, from the perspective of the national level, it is necessary to select one or more provinces or cities to have a trial run to create some experiences for nation-wide reference. As a national ecological compensation mechanism comprehensive test city, Chongqing has many advantages and conditions that other cities can not compare with, including the important strategic position in the location, ecology and resources. Particularly due to the special strategic importance of the Three Gorges Reservoir Area for the long-term safe operation of the Three Gorges Project, the flood control and ecological security in the middle and lower reaches of Yangtze River and the inter-regional allocation of North-South water resources, meanwhile, due to the huge pressure and difficulties of resettlement and the maintenance of the social stability, it is proposed to set the Three Gorges Reservoir Area as the ecological compensation comprehensive experimental area by the state. For the Three Gorges Reservoir Area, the central coffer can withdraw a certain rate of fund from the Three Gorges Reservoir power revenue to set up an ecological compensation special fund and the ecological compensation content can be incorporated in the vertical fiscal transfer payment system of the central government to the local government.

3) **Increase the transfer payment efforts to carry out multi-channel and multi-form ecological compensation**

Firstly, increase financial transfer payments efforts of the central government. Financial transfer payment is the most direct means of ecological compensation and is also the most easily implemented means. On the one hand, it is suggested for the state to establish the special financial transfer payment system for the ecological compensation to increase the financial transfer payment efforts in the restricted development zone and the prohibited development zones. On the other hand, it can be considered to increase the weight of the ecological environmental impact factors in the financial transfer payments to increase the support to the ecologically fragile areas and the ecological protection areas; according to the public service principles of equality, to increase the financial transfer payment in the ecological function areas and establish a long-term sound investment mechanism for the economic development and the improvement of farmers’ living standard, etc. in the key areas of ecological construction. Secondly, the local government should strengthen the support for ecological compensation. In addition to the responsibility for the establishment of the ecological compensation mechanism in the jurisdiction, the local government should, according to their own financial situation, provide support and cooperation to some ecologic compensation that mainly depend on the fiscal support to give play to the dual roles of the central and local coffers. Thirdly, improve the fiscal policy system of ecological compensation and actively explore and establish a multi-channel financing mechanism. Government investment is still the main ecological compensation measure. Meanwhile, the possible ways of using the market means to compensate the ecological benefits should be actively explored to make diverse compensation main parties and diverse compensation approaches.

4) **Fully put in place construction funds for forest projects on both sides of Yangtze River**
In accordance with the "government-led, financial support, society participation" principle, it is proposed to vigorously raise the Yangtze River greening funds. To set up the Yangtze River greening ecological compensation fund so as to establish a stable long-term investment mechanism. Put the better use of the funds for the post-support planning project of the Three Gorges Project, integrate the funds for migrants, agriculture, forestry, water conservancy projects, maximize the usage of the funds for urban construction of district/county, land transfer, new rural construction and the tourism development project. Increase the financial support for forestry and actively carry out the forest right mortgage loan. For all government forestry financing platforms, their all financing funds must be used to forest growing and greening. Improve the investment environment and set up a platform for fund attraction and forest growing to attract investments from outside of the region and from the outside of the industry to participate in the construction of the forest projects on both sides of Yangtze River.

5) Promote the normalization of the "Greening Yangtze River & Chongqing Action" fund donation activity for forestation

Make use of the Chongqing Yangtze River special platform of the China Greening Foundation to continuously collect the social donations for greening Yangtze River; carry out the specific tree growing and tendering activity and mobilize all social forces to participate in the Yangtze River Greening activity.

6.3.8. Establish the supporting policy system related to Forest Chongqing construction

Integrate existing various types of policies in Chongqing to form the policy duplicate effects for Forest Chongqing construction, strive to have a breakthrough in the forest ecological benefit compensation policy experimental practices, and actively strive to implement partial compensation to the ecological service value of forests by way of direct financial payment. In this matter, Chongqing has had some practices. For example, in the Notice on the Improvement of the Follow-up Policy for Converting Cultivated Land into Forests issued by the Chongqing Yubei District government, the proposed compensation standard is that the annual cash subsidy for one mu converted cultivated land is 105 yuan, etc.; there are 8 years of subsidies for the ecological forest converted and 5 years of subsidies for the economical forest converted, and so on. “This is a significant progress for the compensation mechanism of forest ecological benefit. But this is only the compensation to the affected interests of forest farmers, a kind of interest compensation, which is a far cry compared to the ecological effects provided by forests. It is suggested, on the basis of the scientific measurement and evaluation of the service value of forest ecology, according to the principle that “the beneficiary pays and the maleficiary be compensated”, to gradually establish a fair, open and just mechanism where the ecological benefits and the related responsibility can be shared. The focus should be, by the introduction of the market mechanism in the process of the compensation for converting the cultivated land into forests, such as, the public bidding, reversed leasing and reversed contracting, "company + farmers ", etc. to attract the international and domestic enterprises that have the ability to undertake and contract the carbon emission reduction obligations to establish the carbon storage base so as to improve the economic benefits of the forest land.
SECTOR REPORT OF PEACEFUL CHONGQING

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SUMMARY

A. Connotation, features and great significance of construction of Peaceful Chongqing

The construction of Peaceful Chongqing reflects public will, meet the wishes of the people, connect the overall situation and serve for people’s livelihood.

“People live and work in peace and contentment and investors feel safe and reassured” is profound connotation of Peaceful Chongqing

Stepping into the new age, with the rapid economic development and continuous improvement of people’s living standard, the needs for public safety is becoming more and more urgent, and that people being rich seek for security has been a universal mentality. However, due to profound changes of economic system, great changes of social structures and significant adjustment of interest pattern and deep change of concept, and because numerous social risks will still exist for a long time, break out under certain conditions and threaten people’s life. For the construction of Peaceful Chongqing, the development issue is considered based on fundamental interests of the overwhelming majority of the people, which profoundly embodies the connotation of scientific development perspective.

Peaceful Chongqing construction not only benefits Chongqing people, but also strengthens the confidence of investors, which lays a foundation for further great opening-up, reform and development of Chongqing

1) Main features of the Peaceful Chongqing construction

As the foundation and guarantee in the construction of “five Chongqing”, Peaceful Chongqing demonstrates the four features of “primacy”, “demonstrativeness”, “directiveness” and “necessity”.

Peaceful Chongqing construction conforms to the development and change of domestic and international environment with primacy in China. Viewed from the world, Public security guarantee in cities all over the world has increasingly drawn attention from different parties and Peaceful Chongqing construction complies with international trend; Viewed from China, China with rapid development is experiencing the period where contradictions are prominent, and Peaceful Chongqing construction is in the right time. Viewed from Chongqing, at transition period, Chongqing has higher requirement on safety and harmony, and Peaceful Chongqing construction meets people’s current demand on safety.

Peaceful Chongqing construction is scientific development mode with Chongqing characteristics, which has obvious demonstrativeness. Peaceful Chongqing construction takes “314” general plan of Chinese Party Central Committee as general outline, takes improvement of people’s livelihood as an important aim, and is an effective sample to resolve conflicts and disputes and construct harmonious society. Safety Chongqing construction eliminates a lot of social unstable factors, improves investment environment to make Chongqing become an safe area and assured area for investors, and lay a solid foundation for Chongqing to become a national central city.

Peaceful Chongqing aims at accumulated risks brought with the transition of Chongqing, which has accurate pertinence.
Currently, Chongqing is in the critical period of economic development pattern, system deep-level transferring and overall opening-up to the outside world. In this period, long-term accumulated and deep-seated contradictions will be mixed together with newly-emerged contradictions and unstable factors, which will make systematic risks gradually increase and exacerbate vulnerability of economic society. Constructing a safer society is closely connected to the realization of Central Committee of Chinese Party’s great blueprint of building a well-off society in an all-around way, is closely connected with well-being of thousands of families in Chongqing and it is an important task that Chongqing faces in the transition period.

Peaceful Chongqing construction is based on the current situation and people’s demand for safety in Chongqing’s economic and social development transition period, which has necessity. So far, Chongqing has entered a development mode transition period in which various contradictions are interwoven and interest is profoundly adjusted. The prominent features in this period are rapid transition of economic structure and dramatic change of social interest pattern. Under this background, people’s “security need” increases gradually. As a result, it is based on Chongqing’s fact and a timely response to people’s continuously elevated security need to put forward the construction of security Chongqing.

2) The great significance to construct Peaceful Chongqing

The construction of Peaceful Chongqing is the focus of Chongqing reform. In the social transformation period, the public’s needs on government are increasingly broad and diverse as to social management and service. And the government is called for to speed up the transformation of functions, and provide better services to the public. The construction of Peaceful Chongqing is, starting from the demand of people, to pay more attention to provide high-quality and efficient public services and ensure that the city can operate safely and orderly.

Peaceful Chongqing is an open brand of Chongqing. City competition of the future will be the competition of safety factors. Since it is of great significance for Chongqing to form its own core competitiveness, the development of Peaceful Chongqing is a flag and brand in the construction of open framework and it is need to make Chongqing the safe and easy area for foreign investors and appeal more of them to invest and start an enterprise in Chongqing.

The construction of Peaceful Chongqing is the foundation and guarantee for the development of Chongqing. According to international experience, when the per capita GDP of the emerging market country is up to near $3000, the accumulated contradictions in the rapid development would get centralized outbreaks. In this phase, periodic outbreaks of economic crisis, social polarization between the rich and the poor and class conflicts may occur in many developing countries, and make them into the so-called "moderate income trap" phase. "Five Chongqing" insists on the fundamental method of overall consideration to correctly handle various complex problems related to the overall development and Chongqing reform, and is the basic idea to avoid falling into the "middle-income trap". Among them, the construction of Peaceful Chongqing can be said as the "stabilizer" of well-off society. The guarantee of the safety is to assure the development, the people's livelihood and the stability.

B. Successful experience, achievements and bottleneck problems in the construction of “Peaceful Chongqing”

1) Building safety culture and innovating ideas constantly

Firstly, Adhering to the advanced concepts of people-oriented and serving the masses. According to the principle of "conforming to the morale, condensing the resource of the people and benefit people", it is to continuously improve mass participation on the construction of "Peaceful Chongqing". Secondly, creating public opinion atmosphere and forming strong joining
forces; firstly, propaganda and launching has been strengthened. Secondly, the propaganda channels have been expanded, the propaganda contents have been enriched, the propaganda carriers have been renewed and the forms have been activated.

2) **Enhancing leadership and constantly innovating the structures.**

- Integrating various resources and co-constructing safety. Firstly, the leading organs have been improved. Chongqing has established the leading group for the construction of Peaceful Chongqing, which is taken the head by the main leaders of municipal committee and the principal leaders of various departments as members. Secondly, the responsibility system has been strengthened. Chongqing, according to the principle of local management and graded responsibility, has created the leader, departments and unit responsibility systems with various levels. Thirdly, the cooperation between ministries and commissions and municipal party committee has been strengthened. Actively strive for the attention and support on the construction of Peaceful Chongqing of the relevant national ministry offices.

- Strengthening the supervision and evaluation, safeguarding the safety. Chongqing has established and improved the systems on inspection and supervision, assessment appraisal, reward and punishment and accountability, in accordance with the scientific and reasonable principles.

- Strengthening construction of primary-level organization and strongly build line of defense. Chongqing safe construction takes strengthening construction of primary-level organization as the key link all the time. Chongqing safe construction concentrates on building sound working system, perfecting working system, improving personnel quality and promoting primary-level standard of service.

3) **Building a harmonious society and constantly making innovations**

- Firstly, perfecting mechanism for mediating and setting social conflicts and disputes. Chongqing safe construction is to build and to perfect the working system of receiving masses’ visits by publically receiving visits, visiting masses with cases and receiving visits by appointment for leading cadres at all levels, to organize and develop visit activities and to defuse long-pending cases of petition letters.

- Secondly, perfecting protection of public security and security mechanism of production and life. Protection mechanism of security of society has been perfected. Safe operation mechanism of production has been strengthened. Safe operation mechanism for food and drugs has been strengthened. Home security working mechanism has been greatly enforced. Traffic safety working mechanism has been greatly reinforced.

- The third is to strengthen emergency safeguard mechanism, including strengthening the work of monitoring, early warning and information release and strengthening the work of emergency support.

- The fourth is to promote peace construction with continual creative measures, including further prompting activities of “Great Visit” by the leading cadres, further promoting the struggle to fight against and eradicate the criminal syndicate to maintain social stability, carrying out the united reform of police and patrolmen to further improve the social security prevention and control system and effectively promoting safe model city construction.

Since construction of “Peace Chongqing”, the social harmony, safety management, legal environment, quality of the legal law enforcement department and open developing environment have been greatly improved. These achievements strongly prove that a peace of Chongqing has brought benefits for 32 million people. Facing with the results, we must realize that the major
conflict between the increasingly security needs of people and the aggravation of social risks still exists. CQ still enjoys space for improvement of soft environment and hardware.

C. International experience reference and general thoughts on further putting forward construction of “Peaceful Chongqing”

Developed countries in metropolis, safety operation and emergency management, have more mature experience, with representatives of New York model, Tokyo mode, etc. General trend of operation safety management: change from single, bump type passive emergency response mode to the comprehensive and active whole processing management pattern. The following points are worth learning in construction of “Peaceful Chongqing”:

- Duty orientation of different departments and social organizations in city public safety management shall be defined by legislation, in order to establish advanced information management system. A new city public safety management system, which is centralized and uniformed, well-arranged, and sequence coordinative, shall be established by breaking barriers between departments and regions.
- A perfect reaction mechanism of crisis classification shall be constructed.
- A perfect crisis emergency preparation system shall be established.
- NGOs are encouraged to widely participate in coping with emergencies, which shall become important supplementary force of government leading force.
- Emergency education shall be widely popularized.

D. Countermeasures and Suggestions on Further Putting Forward Construction of “Peaceful Chongqing”

Combined with the experience of international metropolitan in safety management of city operation, “Peaceful Chongqing” shall firmly hold “Four Persistence” during the next process of putting forward: persist in putting people first, and serving for people’s well-being; overall consideration needs to be given to urban and rural; persist in treating both root causes and symptoms and breaking through key points; persist in participation of all the people, and common share based on common construction. Based on integration, legislation and diversification, the following measures shall be carried out:

- Perfect comprehensive prevention and control system of public safety, with establishment of government coordination mechanism, early warning mechanism, risk graded response mechanism.
- Perfect security mechanism of public safety, with improvement relevant policies, laws and regulations to ensure the support of information, finance, human resource, etc.
- Improve government service effectively. Improve government public service ability, put forward city grid management and eliminate potential risks in advance.
- Actively guide social active participation, construct “Big Safe” pattern.
Chongqing is the only municipality in the central and west regions, which enjoys significant strategic position in promoting regional coordinated development and carrying forward the overall situation of reform and opening-up. Since Chongqing was designated as a provincial-level municipality, its economic society has developed very rapidly. In 2010, Chongqing’s GDP per capita reached 4000 USD, which indicates that Chongqing has entered a new historical development stage towards the aim to build a moderately prosperous society in all respect. In the next 10 years, it will be a new period for the great development of Chongqing. But we shall also clearly realize that, during the rapid economic growth, the accumulated and latent contradictions will gradually appear, the contradiction of interest distribution pattern adjustment will be more acute, and the development of economy and society will have more acute contradictions with population, resources and environment. To resolve contradictions and make a breakthrough development needs to lay a solid foundation of Peaceful Chongqing. Chongqing municipality is comprised of a large urban area, an enormous rural area, a huge reservoir area, vast mountainous territory and an ethnic minority area with prominent contradiction on dual structure of urban and rural economy, heavy task on balanced urban-rural development and heavy responsibilities on safety construction. The development foundation and favorable conditions owned by Chongqing is unprecedented, and Chongqing also faces risks and challenges. Under this background, in order to ensure sustained and rapid growth and social stability of Chongqing, it is of great significance to probe into Chongqing current social economic development stage and its features, analyze achievement and bottleneck problem of construction of Peaceful Chongqing, and raise corresponding countermeasures and suggestion.

1. Connotation, features and great significance of construction of Peaceful Chongqing

1.1. “People live and work in peace and contentment and investors feel safe and reassured” is the profound connotation of Peaceful Chongqing

The construction of Peaceful Chongqing reflects public will, meets the wishes of the people, connect the overall situation and serve for people’s livelihood.

Safety is the fundamental requirement and basic guarantee for the living and development of people. The construction of Peaceful Chongqing is based on meeting safety requirement of people and enhancing people’s sense of security. It adheres to the core of “people- orientation” and it fully reflects the fundamental purpose and governing idea of CPC. Stepping into the new age, with the rapid economic development and continuous improvement of people’s living standard, the needs for public safety is becoming more and more urgent, and that people being rich seek for security has been a universal mentality. However, due to profound changes of economic system, great changes of social structures and significant adjustment of interest pattern and deep change of concept, and because the unbalanced, uncoordinated and unsustainable development problem cannot be solved fundamentally in short period of time, numerous social risks will still exist for a long time, break out under certain conditions and threaten people’s life. Unsafe factors such as natural disaster, crimes, unemployment, communicate illness, production accident, terrorism, ecological crisis and polarization between the rich and the poor will affect individuals’ safety and even social stability. For the construction of Peaceful Chongqing, the
development issue is considered based on fundamental interests of the overwhelming majority of the people, which profoundly embodies the connotation of scientific development perspective.

   Peaceful Chongqing construction not only benefits Chongqing people, but also strengthens the confidence of investors, which lays a foundation for further great opening-up, reform and development of Chongqing.

   To expand opening-up in Chongqing needs good environment, and the safety is the precondition to establish good open environment. The more open one area is, legal construction as well as protecting investors’ legitimate interest and the safety of lives and properties are more needed. Peaceful Chongqing construction takes optimizing opening-up environment as strategic altitude, builds stable, peaceful and harmonious environment, and provides solid guarantee for attracting investment and constructing inland open region.

   Peaceful Chongqing construction is a great social system project, in which maintaining political safety is fundamental factor, economic safety is core and cultural safety is spiritual motivation and intellectual support. Social safety is the focal points of constructing Peaceful Chongqing. To be specific, the focal points of constructing Peaceful Chongqing is to pay adequate attention to “five great aspects of safety” on society, production, food and drug, residence and transportation, as well as “two great construction projects” on legal environment and law-enforcing ranks, and realize the five big aims of realizing good public security order, enjoying safe living and production, effectively resolving conflicts, having law enforcing and judicial fairness and cadre team honestly serving people.

1.2. Main features of the Peaceful Chongqing construction

   Since the construction of “five Chongqing” is carried out, the economy of Chongqing has grown sustainable and rapidly, social undertakings have had an overall development, the general situation of social security has been stable, and people’s sense of security has been enhanced continuously. As the foundation and guarantee in the construction of “five Chongqing”, Peaceful Chongqing demonstrates the four features of “primacy”, “demonstrativeness”, “pertinence” and “necessity” and it fully embodies and specifically implement scientific development perspective in social work.

1.2.1. Peaceful Chongqing construction conforms to the development and change of domestic and international environment with primacy in China

   1) Public security guarantee in cities all over the world has increasingly drawn attention from different parties and Peaceful Chongqing construction complies with international trend

   With the acceleration of industrialization and urbanization of human being, the security threat faced by cities all over the world is growing and the public security problem has attracted more attention. Major issues such as American “9.11” event and social unrest in Thailand indicate that, as a cluster area for economic activities with intensive population and infrastructures, cities, especially big cities, will suffer more damage and loss than rural areas once disaster occurs. Major disasters will not only bring direct casualties, but also severely impact the economy of that country causing long-term and deep-seated influence. For example, the “9.11” event in America leads to death of 2973 people and causes huge economic loss. According to the report issued by APEC, during the four years from 2011 when “9.11” event occurred to 2005, America had thus suffered loss of about 662 billion USD, which accounted for about 1.5% of GDP over the same period. “11.15” big fire in Shanghai also fully proves this. Therefore, countries all over the world have come to realize the importance of the safety of cities and actively take measures to guarantee safety. Peaceful Chongqing construction conforms to this international trend, and it is forward-looking from both raising and implementing Peaceful Chongqing construction.
China with rapid development is experiencing the period where contradictions are prominent, and Peaceful Chongqing construction is in the right time

With thirty years’ rapid development, China has gained remarkable achievements in economic and social construction, but China is still in the critical stage where society and economy are undertaking full transition, which is a period where contradictions are prominent and unharmonious factors frequently occur. With the acceleration of process of industrialization, urbanization, marketization, globalization and informatization, various social contradictions are increasingly obvious, mass disturbance constantly grows, the harm and effect caused are sharply enlarged through spreading of internet, therefore, it is especially important to correctly handle contradictions in this stage and provide security service guarantee. Hu Jintao, general secretary of Communist Party, emphasized on the 23rd collective learning of Political Bureau of CPC Central Committee on September 29th that facing complicated and changeable international situation and facing arduous task of reform and development, we shall profoundly understand the importance and urgency of correctly resolving contradictions among people, focus on stimulating the society for creating vitality, increasing harmonious factors and reducing unharmonious factors at maximum level, promote scientific development, boost social harmony and create good social environment for comprehensive construction of affluent society and accelerating carrying forward socialism modernization. The general secretary’s speech reminds us of paying close attention to and correctly responding to strong and significant social influence caused by profound changes that the current economic society is undertaking as well as earnestly safeguarding social safety and stability. Peaceful Chongqing construction carries out the spirit of general secretary’s speech spirits, takes the lead to make efforts to resolve contradictions and promote harmony and good effects have been yielded.

At transition period, Chongqing has higher requirement on safety and harmony, Peaceful Chongqing construction meets people’s current demand on safety

With economic transition, the social development of Chongqing has also entered transition period. To judge whether a society has entered social transition period, there are some characteristics features in the world, and if indexes such as GDP per capita, disposable income, expenditure ratio of education, culture and entertainment, expenditure ratio of transportation and communication, life expectancy undertake critical change, it shows that the society has begun to make the transition. Since the beginning of the 21st century, Chongqing has great change on these indexes, and it has revealed the clue that it will make the transition towards development stage with higher level. The change of GDP per capita is fundamental index of the change of social development stage. In 2004, GDP per capita in Chongqing was just about 1000 USD, and in 2009, GDP per capita in Chongqing was over 3000 USD. In just five years, Chongqing had jumped to the level of middle-income countries. In 2009, per capita disposable income of Chongqing urban and rural households are respectively 15749 RMB and 4621 RMB with an increase of 11% and 12% respectively than last year. Average life expectancy has reached 76 years old, and the expenditure ratio of education, culture and entertainment has gradually stayed at 12%. These key indexes of Chongqing are generally consistent with those of developed countries and regions such as Hong Kong and Singapore when they experienced similar stage. These key indexes of Chongqing are above national average level, and Chongqing takes the lead to show obvious social transition features. At this stage, Chongqing is full of opportunities for social development strategy and is also full of risks, and promoting Peaceful Chongqing construction is to accumulate sustainable momentum of development and ensure future sustainable development of Chongqing.
<table>
<thead>
<tr>
<th>Indexes</th>
<th>Weight</th>
<th>Target value in 2010</th>
<th>Connotation of well-off society</th>
<th>The level achieved by Chongqing (2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Social structure index</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Proportion of employees in tertiary industry</td>
<td>5</td>
<td>35%</td>
<td>Socialization of industrial structure</td>
<td>43.3%</td>
</tr>
<tr>
<td>2. Proportion of urban people among the whole population</td>
<td>5</td>
<td>45%</td>
<td>Urbanization</td>
<td>51.6%</td>
</tr>
<tr>
<td>3. Proportion of non-agricultural added value over GDP</td>
<td>4</td>
<td>90%</td>
<td>Non-agricultural transformation of industrial structure</td>
<td>90.07%</td>
</tr>
<tr>
<td>4. Proportion of export value over GDP</td>
<td>3</td>
<td>30%</td>
<td>External dependence degree</td>
<td>4.35%</td>
</tr>
<tr>
<td>5. Proportion of educational expenditure over GDP</td>
<td>3</td>
<td>4.0%</td>
<td>Government intellectual investment</td>
<td>2.97%</td>
</tr>
<tr>
<td>II. Economy and science and education development indexes</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6. Per capita GDP (RMB)</td>
<td>6</td>
<td>12,800</td>
<td>Comprehensive economy output rate</td>
<td>22,916</td>
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<tr>
<td>7. Contribution rate of per capita social fixed assets (RMB)</td>
<td>4</td>
<td>5,340</td>
<td>Input level</td>
<td>18,600</td>
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<tr>
<td>8. Contribution rate of total assets of industrial enterprises</td>
<td>3</td>
<td>4.0%</td>
<td>Industrial investment output rate</td>
<td>12.1%</td>
</tr>
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<td>9. Actual urban unemployment rate (inverse index)</td>
<td>3</td>
<td>13%</td>
<td>Urban employment situation</td>
<td>3.96% (1)</td>
</tr>
<tr>
<td>10. Proportion of R&amp;D expenditure over GDP</td>
<td>3</td>
<td>1.3%</td>
<td>Investment on knowledge innovation</td>
<td>0.23%</td>
</tr>
<tr>
<td>11. Per capita education expenditure (budgetary, RMB)</td>
<td>3</td>
<td>300</td>
<td>Knowledgeable</td>
<td>680.3</td>
</tr>
<tr>
<td>12. Total Patent Applications Examined per 10000 people (pcs)</td>
<td>3</td>
<td>3.5</td>
<td>Innovation and creation capacity</td>
<td>2.62</td>
</tr>
<tr>
<td>III. Population quality</td>
<td>20</td>
<td></td>
<td></td>
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<tr>
<td>13. Natural population growth rate</td>
<td>4</td>
<td>5.6‰</td>
<td>Population control and natural carrying capacity</td>
<td>3.7‰</td>
</tr>
<tr>
<td>14. Professional technical personnel among 10000 staff (person)</td>
<td>4</td>
<td>4500</td>
<td>Knowledgeable and technical</td>
<td></td>
</tr>
<tr>
<td>15. Number of college students among 10000 people (person)</td>
<td>2</td>
<td>130</td>
<td>Knowledgeable</td>
<td>193</td>
</tr>
<tr>
<td>16. Proportion of population with college or higher degree occupying the population among 6 years old</td>
<td>3</td>
<td>7%</td>
<td>Knowledgeable</td>
<td>3.2%</td>
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<tr>
<td>17. Number of doctors per 10000 people (person)</td>
<td>4</td>
<td>20</td>
<td>Medical resources occupied</td>
<td>15</td>
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<tr>
<td>18. Average life expectancy (years)</td>
<td>3</td>
<td>73</td>
<td>High quality life</td>
<td>76</td>
</tr>
<tr>
<td>IV. Life quality and environment protection</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Engel coefficient (inverse index)</td>
<td>4</td>
<td>33%</td>
<td>Modernization of consumption structure</td>
<td>37.7% (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>49.1% (3)</td>
</tr>
</tbody>
</table>
20. Per capita household power consumption (kw.h)  4 320 Modernization of electric appliance  686.5

21. Telephones owned by per 100 households (pcs)  3 30 Informatization 86.26

22. Computers owned by per 100 households (urban area, pcs)  2 30 Informatization 72.96

23. Processing ratio of industrial "three wastes"  4 85% Environment protection level  84.45%

24. Rural population drinking tap water among rural population  3 85% Rural environment protection level 73.23% (4)

V. Legal system and public safety  15

25. Criminal case filing rate per 10000 people (inverse index, pcs)  4 22 Public security and legalization 70

26. Public security case incidence rate per 100000 people (inverse index, pcs)  3 20 Public security and legalization 111

27. Number of lawyers per 100000 people (person)  4 1.1 Legalization 1.5

28. Death toll caused by traffic accidents per 100,000 people (person)  4 6.4 Traffic order 4

Table 1: Index System to Realize the Goal of Well-off Society in an All-round Way in China and targets in 2010

Note: (1) registered unemployment rate; (2) urban residents; (3) rural residents; (4) at the end of 2007

1.2.2. Peaceful Chongqing construction is scientific development mode with Chongqing characteristics, which has obvious demonstrativeness

Peaceful Chongqing construction takes “314” general plan of Chinese Party Central Committee as general outline, takes improvement of people’s livelihood as an important aim, and is an effective sample to resolve conflicts and disputes and construct harmonious society.

In “314” general plan made by Hu Jintao, general secretary, in Chongqing, and No.3 document of the state council, the development of Chongqing was elevated as national strategy and Chongqing has stepped into the rapid development stage. Standing on a new historical beginning, Chongqing Municipal Party Committee and Municipal Government make the strategic plan of constructing “five Chongqing” and take constructing “Peaceful Chongqing” as important foundation and guarantee for reform, development and expanding opening-up. Safety Chongqing construction eliminates a lot of social unstable factors, improves investment environment, make Chongqing become an safe area and assured area for investors, and lay a solid foundation for Chongqing to become a national central city.

Peaceful Chongqing construction takes safeguarding and improving people’s livelihood as starting point and aim of work. It safeguards people’s personal, property and family safety by paying close attention to social public order and public safety. Taking the example of getting rid of wickedness, because Chongqing has had wharf culture with forthright folk and personal loyalty since time immemorial, during the development of market economy, some people combine personal relationship with market trading relationship and market competition relationship, which forms a distorted market economy relationship and gives birth to evil forces. Chongqing government follows public will, takes getting rid of wickedness as a breakthrough to reverse the Party’s work style and social general mood, brings fairness and justice, shows public credibility of Party Committee and government and brings an excellent situation for reform, development, harmony and stability.
1.2.3. Peaceful Chongqing aims at accumulated risks brought with the transition of Chongqing, which has accurate pertinence.

Currently, Chongqing is in the critical period of economic development pattern, system deep-level transferring and overall opening-up to the outside world. In this period, long-term accumulated and deep-seated contradictions will be mixed together with newly-emerged contradictions and unstable factors, which will make systematic risks gradually increase and exacerbate vulnerability of economic society. At present, construction of Peaceful Chongqing faces two categories of risks, namely the long-term accumulated risks and newly-emerged risks. For the long-term accumulated risks, firstly, Chongqing is an old industrial base focusing on heavy chemical industry, safety accidents are easy to occur and it will bring tremendous harm; secondly, Three Gorges Reservoir Area has a lot of immigrants with a little per capita arable land and employment situation for them is very serious. Thirdly, Chongqing has complicated landform. There are intensive high-rise buildings and high population density in urban area; and there are high mountains and deep valleys as well as ravines and guillies criss-cross which brought great difficulty to transportation and production and construction. For the newly-emerged risks caused by industrialization, urbanization and marketization, with the acceleration of the process of industrialization and urbanization, industrial hazards such as chemical plants in the former suburb area are now in densely-populated area which has huge potential safety hazard. Secondly, in the transition period of urban and rural structure, a large quantity of rural people go to the city, the task to transfer agricultural surplus labor power is arduous and the increasingly expanding migrant workers makes it more difficult to conduct social integration. Thirdly, with violent change of economic structure and social structure, the conflicts between different interest groups are intensified, which will lead to social contradictions and conflicts if not handled properly. Fourthly, the development of industry bring more pressure to ecological resources and natural environment, which may lead to pollution and endanger public safety. Constructing a safer society is closely connected to the realization of Central Committee of Chinese Party's great blueprint of building a well-off society in an all-around way, is closely connected with well-being of thousands of families in Chongqing and it is an important task that Chongqing faces in the transition period.

1.2.4. Peaceful Chongqing construction is based on the current situation and people’s demand for safety in Chongqing’s economic and social development transition period, which has necessity.

Peaceful Chongqing construction is a great measure that complies with periodic change features of development in Chongqing and macroeconomic social background. So far, Chongqing has entered a development mode transition period in which various contradictions are interwoven and interest is profoundly adjusted. The prominent features in this period are rapid transition of economic structure and dramatic change of social interest pattern. In this period, Chongqing is at an important historical juncture, and Chongqing faces both new opportunities and various social risks with characteristics that strategic opportunity, conflict of interest and risks are interweaved and superimposed.

1) Profound changes of social structures

With rapid advancing of industrialization and urbanization, Chongqing is changing from traditional urban-rural dual structure to modern social structure. Tens of thousands of farmers leave their land and rapidly gather in non-agricultural industry, and large quantity of rural population gathers in urban area. On one hand, this large-scale, high-speed and deep-seated social structure bring strong driving force for the transition of social structure in Chongqing, which causes profound changes of many important structures such as population structure, employment structure, class stratum structure, organization structure, interest relationship structure and social values structure; On the other hand, it makes social deep contradictions such as gap between urban and rural areas more apparent and makes the risks characteristics of transition period of Chongqing more prominent. The society is divided into different interest groups, different social
classes and scattered individuals with different interest demand. The profound changes of social structures and diversification of social interest subjects will make it more difficult for Chongqing to reach a consensus on the adjustment of interest. The government is required to pay more attention to people-orientation and to the overall development of people, and to change from management-oriented government to service-oriented government.

2) **Intensifying the adjustment of interest pattern**

Since “getting an equal share regardless of the work done” and “equalitarianism” was broken at the beginning of opening-up and reform, the change of economic system has been continuously deepened and the interest pattern has correspondingly been adjusted. The income gap tends to become larger between urban areas and rural areas, between different local regions and between different social members. Its main features are that different social members occupy different resources during opening-up and reform, and they have different starting conditions and opportunities, and under the effect of market efficiency, the differences are strengthened and enlarged. Meanwhile, because the reform in some key areas have not been finished yet, some non-market factors such as urban-rural dual social system arrangement, trade monopoly, corruption and incompleteness and unreasonableness of reallocation system have greater impact on the interest distribution pattern. Under this condition, obvious interest differentiation has occurred in Chongqing and income distribution gap has continuously been enlarged between different social classes and groups. According to investigation data, the Gini coefficient of labor force personal income has reached 0.438 which has exceeded 0.4, the international recognized warning limit. What is more, to reverse the expanding of the gap means re-adjustment of the interest distribution pattern that has been formed, which will meet obstructions from other structural forces and is difficult to implement. This requires that Chongqing at transition period shall pay more attention to fairness when providing public services. It shall take fair employment, equal income distribution, and impartial social security as basic principle for government service.

3) **Different stages of regional development**

At present, there is a coexistence of three different stages of development in Chongqing, that is capital accumulation stage of initial industrialization in the region represented by Three Gorges Reservoir Area and areas inhabited by the minority nationalities of Southeast Chongqing, industry upgrading stage of medium-term’s industrialization in the region represented by West Chongqing Area and structure transition stage of later industrialization in the region represented by main urban area. Besides, considering from the time aspect, several decades is needed for Chongqing to finish the process that main industrial cities in the world have experienced. The trait of less time and space surely leads to the fact that Chongqing needs to face many developing problems of different nature, many difficult choices, increased social contradictions and social conflicts. Less space and time accumulates a lot of social risks, reflected in many aspects, like problems of restructuring of enterprises, troubles between labour and management, land acquisition and removal, obtaining employment and becoming rich of million of immigrants in Reservoir Area. These problems find their expression in people’s petition letters, which are possible to cause groupment action to damage social public security and cause social instability and systematic risks to seriously influence the development of Chongqing’s society and economy.

4) **Gradual multi-element of thought and idea**

With the development of market economy, democratic politics and people’s idea, the trend of diversification has appeared in people’s life style, job choices, benefit appeal, value orientation, thought and idea. Cognition difference obviously increased between different regions, different strata, different generations and it is harder to realize common view and identity of society. It is possible to cause catastrophic results like economic retrogress, social instability and life poverty because of political risks and management crisis. Therefore, on the one hand Chongqing is requested to comply with the trend of social value’s diversification, actively promote the cultivation
and growing of social organization and strengthen people’s social autonomy ability; on the other hand Chongqing is requested to propose active and correct value and set the city’s cultural soft power.

Under this background, people’s “security need” increases gradually. “Security need” can be classified in to three levels from simple to profound. At the first level, “security need” is the security sense to life and poverty of oneself and his/her family as a social individual and this is people’s most basic psychological need. At the second level, "security need" is showed as social individual’s indemnificatory need for production and life, like guarantee of medicine and food, quality of houses, fireproofing, prevention of thievery, safety of trip and so on. At the third level, with the gradual strengthening of social individual’s democracy sense, right sense and law sense, “security need” gradually rises to the level of value and is specifically showed as social individual's approval and participation of social management, their feeling of harmony with other members of society, group thought and activity and their sense of trust of social management. As a result, it is based on Chongqing’s fact and a timely response to people’s continuously elevated security need to put forward the construction of security Chongqing.

### 1.3. The great significance to construct Peaceful Chongqing

The construction of Peaceful Chongqing is the focus of Chongqing reform. In the social transformation period, the public’s needs on government are increasingly broad and diverse as to social management and service. And the government is called for to speed up the transformation of functions, and provide better services to the public. The construction of Peaceful Chongqing is, starting from the demand of people, to pay more attention to provide high-quality and efficient public services and ensure that the city can operate safely and orderly. This function is the deepening of the previous reform, the development of service-oriented government, the strengthening of the administration according to law and system construction to meet new economic and social development of Chongqing and the requirement to safeguard the interests of the masses better.

Peaceful Chongqing is an open brand of Chongqing. Opening up is China's basic national policy. As the only municipality in the western region, it is the an inherent requirement of the national strategy for Chongqing to implement the strategy of expanding opening-up to the inland, contribute to the reform and development with opening policy, and actively explore new road for the development of open economy of inland areas. Currently, many major cities worldwide have suffered the widespread problem-urban safety, for example, the constant outbreaks of immigrant conflicts in Paris in recent years have seriously affected the international image of Paris. City competition of the future will be the competition of safety factors. Since it is of great significance for Chongqing to form its own core competitiveness, the development of Peaceful Chongqing is a flag and brand in the construction of open framework and it is need to make Chongqing the safe and easy area for foreign investors and appeal more of them to invest and start an enterprise in Chongqing.

The construction of Peaceful Chongqing is the foundation and guarantee for the development of Chongqing. According to the national "314" overall arrangement and the 3rd file by the state council, Chongqing shall achieve the comprehensive construction affluent society's goal firstly in the western area. And the construction of Peaceful Chongqing is the foundation and guarantee for the realization of this goal. According to international experience, when the per capita GDP of the emerging market country is up to near $3000, the accumulated contradictions in the rapid development would get centralized outbreaks. In this phase, periodic outbreaks of economic crisis, social polarization between the rich and the poor and class conflicts may occur in many developing countries, and make them into the so-called "moderate income trap" phase. While one of the important reasons leading to the emergence of this trip is that the new binary structure is formed in the urbanization process, the widening gap between rich and poor and the lack of social security intensify social contradictions. "Five Chongqing“ insists on the fundamental
method of overall consideration to correctly handle various complex problems related to the
overall development and Chongqing reform, and is the basic idea to avoid falling into the "middle-
income trap". Among them, the construction of Peaceful Chongqing can be said as the "stabilizer"
of well-off society. The guarantee of the safety is to assure the development, the people's
livelihood and the stability.

2. Successful experience, achievements and constraining
issues in the construction of “Peaceful Chongqing”

2.1. Successful experience

It is of great strategic measure for the implementation of scientific development concept in
new situation to carry out the construction of Peaceful Chongqing. Since the construction of
Peaceful Chongqing, Chongqing has gripped tightly the mainline to reflect public opinions,
mobilize the resource of the people and service people's livelihood, and conducted positive
exploration and beneficial practice on the aspects of ideology system, mechanism, work
measures and so on, which has effectively maintained the people's interests, promoted social
harmony and stability and created harmonious and stable social environment for economic
development and the improvement of social undertakings of Chongqing.

2.1.1. Building safety culture and innovating ideas constantly

1) Adhering to the advanced concepts of people-oriented and serving the masses

The construction of "Peaceful Chongqing" has implemented the advanced idea of
scientific development, whether it is on work anticipation and main goal, or working measures and
requirements, it is always focusing on secure and satisfying people's most fundamental and most
direct "safe needs", consciously taking people most looking forward, most pressing and most
urgent livelihood issue as the starting and acting points of work. According to the principle of
"conforming to the morale, condensing the resource of the people and benefit people", it is to
continuously improve mass participation on the construction of "Peaceful Chongqing". Give full
play to the main role of the broad masses, and make them beneficiaries of the social harmony
and stability and the builders of "Peaceful Chongqing".

2) Creating public opinion atmosphere and forming strong joining forces

Through the strengthening of propaganda and education, the construction of Peaceful
Chongqing has formed the strong joining forces with the leadership of party committee,
responsibility of the government, interaction of society and participation of the whole people.
Firstly, propaganda and launching has been strengthened. Through the continuous improvement
of news propaganda, and the strengthening of the supervision of public opinion, Chongqing has
aroused the masses and community's enthusiasm and creativity with maximum limit in the
construction of Peaceful Chongqing, and made it the conscious action of the masses to construct
Peaceful Chongqing. Secondly, the propaganda channels have been expanded, the propaganda
contents have been enriched, the propaganda carriers have been renewed and the forms have
been activated. Through the setting of columns on the construction of Peaceful Chongqing on
television, radio, newspapers and other media to build the “network of Peaceful Chongqing”,
organize safe literature and art team to the country and show the educational propaganda films
on the construction of Peaceful Chongqing, give out the free safety knowledge manuals to
countryside people, propagandize vigorously the achievements of safety construction, summarize
unceasingly and promote the typical experience and advanced individual in the propaganda of the
safety construction and other measures, which has created the national co-construction and co-sharing thick atmosphere of Peaceful Chongqing, and made the construction of Peaceful Chongqing enjoy popular support.

### 2.1.2. Enhancing leadership and constantly innovating the structures.

1) **Integrating various resources and co-constructing safety**

   Structure is the unity of management administration and system. The innovation of structure is the foundation and basis for the innovation of safety construction. The structure innovation of the construction of Peaceful Chongqing is to center on the requirements of socialist harmonious society and people's actual needs for safety. And it is in accordance with the basic idea of "municipal government leading, unified charging and joint administration by various departments and broad participation of the people", and has formed a tight organizational system, thus ensuring maximum concentration and optimal allocation of the safety resource. Firstly, the leading organs have been improved. Chongqing has established the leading group for the construction of Peaceful Chongqing, which is taken the head by the main leaders of municipal committee and the principal leaders of various departments as members. The office is set up under the leading group responsible for the daily work of the construction of Peaceful Chongqing. The various county party committees, governments and municipal departments and units have also set up the corresponding leading institutions and strengthened practically the organization and leadership. Secondly, the responsibility system has been strengthened. Chongqing, according to the principle of local management and graded responsibility, has created the leader, departments and unit responsibility systems with various levels, and practically carried out the various work on the construction of Peaceful Chongqing to the basic level and individual, and formed the responsibility system of "vertically to the end and laterally to the edge ". Thirdly, the cooperation between ministries and commissions and municipal party committee has been strengthened. Actively strive for the attention and support on the construction of Peaceful Chongqing of the relevant national ministry offices. Through the methods like signing memorandums or co-construction agreement with the State Administration of Work Safety and the State Administration of Food and Drug Supervision, Chongqing has gained strong support on policy, personnel, projects, funding and other aspects, which has effectively promoted the construction of Peaceful Chongqing.

2) **Strengthening the supervision and evaluation, safeguarding the safety**

   Make effective supervision and evaluation on the process and results of the construction of Peaceful Chongqing is the fundamental guarantee for the implementation of the requirements of party committee and the government and the expectation of the masses. Chongqing has established and improved the systems on inspection and supervision, assessment appraisal, reward and punishment and accountability, in accordance with the scientific and reasonable principles. Beginning in 2009, the municipal committee and government have introduced the construction of Peaceful Chongqing as objectives and tasks and made assessment on various districts and counties (autonomous counties) leading bodies and leading cadres of party committee and government, the leading cadres of municipal departments and units, and a number of advanced units and individuals would be recognized and rewarded awards every three years. Municipal Committee Supervision Office and Municipal Government Supervision Office work together with the office of the leading group for the construction of Peaceful Chongqing to strengthen the supervision and inspection on the implementation situation of various objectives and tasks on the construction of Peaceful Chongqing, and timely announce the supervision and inspection results. To those areas, units and individuals with great achievements, the municipal government will give recognition and make an announcement; to those causing to major mass incidents, criminal and order cases, safety accidents or other major issues due to dereliction of duty or malfeasance, implement one-vote-down system and pursue the responsibilities of related leaders and personnel.
3) Strengthening construction of primary-level organization and strongly build line of defense

Primary-level organization puts safe construction into practice and plays an important role in the first line of defense in safe construction. Chongqing safe construction takes strengthening construction of primary-level organization as the key link all the time. Chongqing safe construction concentrates on building sound working system, perfecting working system, improving personnel quality and promoting primary-level standard of service. Firstly, primary-level comprehensive organizational building has been strengthened. Chongqing conscientiously strengthens the organizational building of villages and towns; street comprehensive management of public security and floating population’s service and management work, further enriches leaders’ strength and enhances leaders’ authority, and completes full-time cadres in comprehensive management of public security and floating population’s service and management work. Secondly, construction of primary-level political-legal departments has been strengthened. This includes strengthening the construction of “two stations and one court (basic people’s court, public security station and judicial administrative station)”, enriching strength of primary-level political-legal departments and enhance primary-level standard of service and ability. Primary-level political-legal organizations should be future improved, primary court should be set more scientifically and reasonably and assize system should be constantly perfected. Thirdly, organizational building of mass prevention and mass treatment has been strengthened. Chongqing safe construction is to widely build safe volunteer team with various forms, unify marks, maintain public order at the local place and local units and to make the board masses become the main part for building Peaceful Chongqing. Fourthly, primary-level working system has been perfected. Chongqing safe construction is to perfect integration mechanism of comprehensive management of public security and its administrative body in country and district. Chongqing safe construction considers offices of comprehensive treatment of social security as platform in villages and towns, and comprehensive treatment working stations as platform in villages and communities to integrate resources and strength of pubic security, judicial administration, civil administration, petition letter, court, safety supervision and militiamen. Chongqing safe construction is to carry out integrated running, realize united protection for public security, united conciliation for social conflicts and disputes, combined service force and united implementation for important work, joint administration for striking problems and to realize united foundation for primary-level safety. Fifthly, establishment activity for primary-level safety has been widely developed. Chongqing safe construction is to actively develop “establishment activity for safe community” to extend safe construction into all fields and aspects in the society and to mobilize the initiative for primary-level units and the board masses participating safe construction.

2.1.3. Building a harmonious society and constantly making innovations

1) Perfecting mechanism for mediating and setting social conflicts and disputes

Mechanism for mediating and setting social conflicts and disputes has been perfected. Firstly, mechanism for appealing and expression has been further perfected. Chongqing safe construction is to build and to perfect the working system of receiving masses’ visits by publically receiving visits, visiting masses with cases and receiving visits by appointment for leading cadres at all levels, to organize and develop visit activities and to defuse long-pending cases of petition letters. Chongqing safe construction is to greatly carry out office rules of “one station type” in reception hall of petition letter. Chongqing safe construction is to build Complaint acceptance center and information system for petition letter, develop petition letter through the internet and video, carry out correspondence system for masses’ appeal and to standardize order of petition letter. Chongqing safe construction is to build Complaint acceptance center and information system for petition letter, develop petition letter through the internet and video, carry out correspondence system for masses’ appeal and to standardize order of petition letter. Chongqing safe construction is to build and perfect working mechanism, strengthen the construction of checking petition letter, increase the force of supervising and handing petition letter and to realize “everything has response” for masses. Secondly, stable risk assessment system for petition letter has been built. The social stable risk assessment is considered as essential procedure and essential condition of formulating policy, implementing construction
perfecting protection of public security and security mechanism of production and life

Firstly, protection mechanism of security of society has been perfected. Campus safe and new police system and service mechanism have been built to comprehensively strengthen the work of maintaining security and stability in campus and the surrounding. Community and rural police strategy has greatly implemented and the system of police stationing in the community and village (group) has been comprehensively implemented. Service management system of "one certificate" for floating population has been perfected and supervision and service for the floating population have been strengthened. Protection mechanism of public security of mutual cooperation of adjacent provinces, cities and counties has been perfected. Daily joint conference and information flow have been built. The protection mechanism of three-dimensional patrol with large range of dynamic monitoring, timely tracking control, timely information transmission, police strength with rapid speed has been built. Secondly, safe operation mechanism of production has been strengthened. Enterprise's safety standardization mechanism has comprehensively promoted and enterprise's safety management standardization system has been perfected. Supervisory system for safe production has been strengthened and the mechanism for high-risk industries' market access, market exit and elimination has been built. Thirdly, safe operation mechanism for food and drugs has been strengthened. It is to strengthen the supervision for food production, circulation and consumption. Off-limits system lifelong has been implemented for those manufacturers who result in significant food safety incidents. The supervision for consumption in catering services and dining hall has been strengthened. Food demand permits in catering services has been implemented and perfected. And the system of health management for catering employees and publicity system of health have been perfected too. It has built safety monitoring network for the fourth level drugs in cities and towns, counties (autonomous counties), street (villages and towns) and communities (groups) and constantly perfected long-acting mechanism of supervising drugs. Fourthly, home security working mechanism has been greatly enforced. It has increased the strength to protect geological disasters and perfected long-acting mechanism for protecting disasters in reservoir region to solve the geological disasters' protection problem incurred by stage in reservoir region during the changing period. It has strictly made fortification demands and standards for quake-proof and implemented the veto system of special review and acceptance of quake-proof. It has prohibited unqualified civil architecture without quake-proof acceptance and record and to put into use. It has carried out safety engineering of environmental protection of building materials. And it has also built the elimination and identification mechanism of building materials and products. Fifthly, traffic safety working mechanism has been greatly reinforced. It has reinforced road traffic safety management and carried out integrity's check-up system to ensure safety, quality and reputation of transportation enterprises. Safety control mechanism of passenger transportation in rural roads has been carried
out to improve the ability to resist accident risk of public traffic vehicles in rural area. It has reinforced safety management of water transportation and built mechanism of sharing hydrology and meteorological information to timely transfer the hydrology and meteorological information to water transportation units and ships. It has built system of reward for salvaging human life and ships to encourage societal forces to participate in water salvation. It has carried out safety control mechanism for passenger ferry in rural area to enhance the ability resist accident risk of passenger ferry in rural area. It has reinforced aviation safety supervision and greatly carried out safety management system and safety audit work. It also has constantly enlarged investment in safety infrastructure to build and perfect long-acting mechanism for governance hidden investigation.

3) **Strengthening Emergency Safeguard Mechanism**

Firstly Strengthening the work of monitoring, early warning and information release. Establishing six mechanisms including monitoring mechanism in check and treat of hidden risk, monitoring and early warning mechanism, information study, judgment and report mechanism, emergency response mechanism, social mobilization mechanism and information release and public opinions guidance mechanism improves monitoring, early warning and comprehensive analysis of sudden natural disasters, accidents, public health incidents and social security incidents. Secondly. Strengthening the work of emergency support. Construction of emergency preplan and management system, mechanism and rule is strengthened and monitoring, early warning, risk control, rescue team and emergency support is improved by building the emergency rescue team, management expert database and volunteer team. Diverse emergency funding input mechanism based on government investment and supplemented by social fund-raising is established to ensure emergency funding, supplies, transport and communication support.

2.1.4. Promoting Peace Construction with Continual Creative Measures

1) **Further prompting activities of “Great Visit” by the leading cadres**

Chongqing organizes the activities of “great visit” with “Listen to the people’s opinions, ease their anxieties and resolve their difficulties” as the main theme. 200,000 government functionaries from Chongqing mobilization organizations at all levels extensively and deeply carry out “great visit” by taking the form of leader in full charge of the work of handling letters and visits from the people, signing the letter of responsibility, visit with the case, active visit, home visit, etc in accordance with the working thoughts of “not just stopgap remedy but drastic measures to deal with a situation”, which really changes “mass petition” into “visits by the cadres”. Therefore, large quantities of long-pending cases are deeply checked and treated, most of which are “old debts” that can not be resolved for many years.

Since 2009, 200,000 government functionaries have participated in “great visit” in Chongqing, with the visited people up to 2,000,000, financial invested fund of RMB 9.97 billion and contradictions and problems solved up to 219,000. In 2010, the total complaint letters and visits drop 17.8% and 9.3% respectively, which is highly praised by Central Steering Group on Petition Work as follows: “from organization and leadership, work arrangement to implementation of every measure, this activity of “great visit” in Chongqing has achieved unprecedented results and reached the top level in China”.

2) **Further promoting the struggle to fight against and eradicate the criminal syndicate to maintain social stability**

Chongqing Municipal Committee and Government make a resolute decision to carry out a new round of special struggle to fight against and eradicate the criminal syndicate in the city in conformity with the unified plan of the government and construction requirement of Peaceful Chongqing. Departments of legal, discipline inspection and supervision, economic, and other
fronts work jointly and closely, attack on their duties. Insisting the seven principles of "the scope of attack is neither reduced not expanded, the quality is not weighed down or overstating, the achievement is not in vain, not vertical or missed" heavily combat all kinds of criminal syndicates, and quickly gain significant results. In the special struggle, total 3,193 criminals were arrested and the involved assets of 2.175 billion Yuan is frozen, seized or sealed up. In the struggle, insist on fighting against the criminals and anti-corruption combined with attacking umbrella and upholding the good and suppressing the bad, adhere to strict accordance with the law, widely mobilizing the crowd to participate in, focusing on protecting economic development and establishing a long-term mechanism, these actions form "Chongqing model" of fighting against and eradicating the criminal syndicate. Beginning with the fighting against and eradicating the criminal syndicate, Chongqing organized a crime-solving and comprehensive improvement regulation and powerfully promoted social security investigation in the key areas which caused a rapid change about security in these areas and enhanced the safety of the mass. In 2009 the number of homicide drop 8.5%, the detection rate of the present homicide cases reaches 94.8% which is higher than the national average level. In 2010 the city cracked 86,500 criminal cases and punished 35,000 Criminals that separately rises 7.2% and 0.5%, created a new historic high again.

3) Carrying out the united reform of police and patrolmen to further improve the social security prevention and control system.

In 2009 Chongqing sets 350 police and patrolmen platforms of four functions "to eradicate crimes and protect the safety, to regulate the traffic and serve the people", 12,000 police and patrolmen construct new social security prevention and control system, reduce the crime effectively, strengthen the security of the masses. In 2010, the eight main criminal cases and "two robberies", affecting the safety of the masses, decreased separately 20.9% and 23.8%. The open platform becomes the forefront of fighting against crime and “the first window” of cherishing the people, the united reform of police and patrolmen gains good reaction.

4) Effectively promoting safe model city construction

Firstly, carry out the “the safety year in production” and “strengthen the basic foundation” as the carrier, in based on grasping early and firmly, do a lot of work in laying the foundation, governing problems, catching regulation and pressure accidents etc, carry out actions in deep safe and danger investigation, supervision of safe production,“two hundred” law enforcement and widely investigation and remediation in the key industry, to ensure the security and stability of the city at this sensitive and important time. Secondly, strengthen the safety of the source of food and drug, promote the housing security and traffic safety construction, controlling high-rise building fire hazards continually, promote the road traffic “the life project”, every year except highway 1000 kilometers highway guardrail, prevent the heavy traffic accidents effectively. In 2009, Chongqing, the traffic accidents drops 17.5% and the number of deaths declines 1.6% over the previous year. In 2010, accidents in production and the death separately drop 6.1% and 7% over last year in Chongqing.

2.2. Major Achievement:

2.2.1. Improving social harmony

From 30 years of reform and opening-up, directly under 11 years, with rapid economic development in Chongqing, simultaneously cumulating many complicated contradictions directly affect the stability and harmony of society and the trust of the people to the party and government. In 2009, Chongqing starts the construction of “peace in Chongqing”, strengthening the safeguard of "steady peaceful" and improving the conflicts and disputes resolution mechanism, in the second half of 2008 based on visits, develop cadres to solve the problems. By the end of 2009, with going down to the basic of 0.2 million cadres from the whole city, resolved a number of prominent contradictions and problems in stability, conformed to the public opinion and evacuated
discontent to improve the people's livelihood and maintains stable. Total letters of cities and countries, the letters and visit from the crowd and so on concentrated reflection social contradiction and the complaint related six index are down, and drop indexes in more than 25%, greatly enhancing the social harmony.

2.2.2. Promoting safety management

In the construction of “peace in Chongqing”, Chongqing focuses on the most direct and basic peace requirements, emphasises on catching the "five safety" about social security, production, food and drug, housing, transportation etc. First, further promoting the struggle to fight against and eradicate the criminal syndicate to maintain social stability; second, strengthening safety supervision and the "double-base" construction to promote safety production; third, strengthening the control of source and supervision of environment to safeguard the safety of drug and food; fourth is vigorously catching hidden investigation and remediation to promote the living safety; fifth, sticking to pay equal attention to construction and management, promoting intelligent traffic system construction, and further road traffic "life project, strengthen traffic safety". In 2009, obviously enhancing of the masses' security reach 94.3%, setting the highest level recorded in the survey.

2.2.3. Having a good legal environment and obviously enhancing quality of the legal law enforcement department

Chongqing actively promotes the" fifth five" to propagandize legal knowledge, implements many projects and carries out kinds of legal propaganda activity, to all the cadres, returning peasant labors and the elementary and middle school students etc in different populations respectively formulates education training of legal knowledge to create a good legal environment for promoting legal system construction. The political legal is the backbone for create “peace in Chongqing”. To further enhance diathesis of the political legal in the whole city, Chongqing widely carries out activities "great learning, great training, great communication, and great correction and propaganda", by implement of rotational training to improve professional skills and the thoughts and perfect the system of political communication. It also announces a series of measures to strengthen the team and seriously deal with a lot of officers violating the law and discipline, has promoted the team image and level of law enforcement powerfully.

2.2.4. The open developing environment is constantly getting better

While fighting the crime, eliminating hidden dangers and making people feel life safe, “Peaceful Chongqing” has also created a good social environment for economic development, and has maintained the normal economic order, being beneficial to promote economic development, and has attracted more external investors. In 2010, the economy of Chongqing achieved a great progress, and GDP increased by 17.1%, which is higher than the national average ratios of 6.8 percent, the financial revenue surpasses 190 billion Yuan, with remarkable achievements in opening, the income of urban and rural resident receives great increase, and the whole social environment has changed greatly. These achievements strongly prove that a peace of Chongqing has brought benefits for 32 million people.

2.3. Primary Contradiction and Bottleneck in Construction of Peaceful Chongqing

2.3.1. Primary Contradiction

The primary contradiction at the stage of Peaceful Chongqing construction lies in the conflict between the increasingly security needs of people and the aggravation of social risks. Being in the economic and social transition period, there are still lots of rampant structural and
institutional inconsistencies in the city, which can be embodied in "six un-suitability": 1. the unsuitability between the rapid economic growth and the insufficient social undertakings; 2. the unsuitability between the building of harmonious society and the social class divisions; 3. the unsuitability between the leap-forward urban development and the lopsided population structure; 4. the unsuitability between the rural-urban balancing development and the regional disparity at certain stages; 5. the unsuitability between the optimized social regulation and the hysteretic government reform; 6. the unsuitability between the deepening opening policy and the core value paucity. The "six un-suitability" cause rampant risk factors which may lead to social unrest when they exceed the threshold of the social acceptability and thereby threaten the development and stability of the city. Therefore, to better meet the needs of people for security and enhance the overall urban competitiveness, Chongqing must vigorously advance the Peaceful Chongqing construction and defuses contradiction and risks.

2.3.2. Cognitive Difference

Firstly, from the government’s perspective, lack of awareness of new trend of economic and social development and transition as well as preparation still exists, with safety awareness to be strengthened. It reflects in lacking of a new crisis form and origin of thinking, and the idea of "focusing on rescue and ignoring precaution" still exists. Some local governments still adhere to the idea of "focus on development and ignore safety", without strong responsibility consciousness and service awareness as well as overall consideration and deployment of safety and major businesses. For peace, "Implementing the documents in accordance with documents as well as meeting with meeting" still exists. Secondly. From the enterprise’s perspective, little attention is paid. Many enterprises, especially small and medium-sized enterprises and private enterprises, place great importance on production but little on safety. Input due to benefit but not to safety is more prominent. Thirdly. From the public’s perspective, the lack of long-term, comprehensive and conscious education on public safety causes the public's weak awareness and skills of prevention and public safety, which is to be further strengthened.

2.3.3. Soft Environment Gap

1) **Public security system lacks of integrity**

Comprehensive and network public safety management system is still not perfect. Firstly. the resources scattered, the lack of a unified, authoritative and standing coordination departments. The government is stronger in coordinating the relationship between the longitudinal departments but weaker in coordinating the relationship between the lateral sections. Establishment of Chongqing municipal peace office relieves the problem, but the disadvantages of barrier between different departments and distributed functions have not been fundamentally solved. In addition to the public security and police system, each unit has its own security team and corresponding mechanism for various types of disasters and emergencies. The intersected style of management enjoys strong specialization, but under new situations, various security incidents is characteristic of the massive and chain type. Once the complex safety accidents occur, it is not good for dealing with the public crisis since the resources and information cannot be integrated and shared in a short time. Secondly, cross overlap or division of the interloper still exists in the functional disposition. Overlapping functions coincidence forms bull management while more specific function division can cause separate power, which will lead to increase of the cost for coordination and go against formation of overall strength in peace construction. Thirdly. public safety management operation mechanism is not standardized, without a full set of rules, procedures and standards throughout the whole process.

2) **Defects of policies, laws and regulations related to public safety**

At present, a set of effective legal system has been established in our country, such as Communicable Disease Control Act, Fire Protection Law, Road Traffic Safety Law, etc. According
to the relevant regulations of the state, Chongqing government also established some work rules and emergency measures. However, there are some problems: Above all, these regulations are lack of macroscopic integrity, compatibility and relevance, with conflict in some issues but without link with each other. Then, the public safety regulations are imperfect, and some aspects such as city public security management regulations are still vacant. Moreover, some policies and regulations are prescribed in the principle and abstract, which is lack of the detailed implementation regulations and rules.

2.3.4. Hardware gap: urban basic operation system is relatively fragile and security infrastructure is relatively backward

From the city, the urban infrastructure network composed of six big systems in road, communications, water, electricity, heat and gas is the lifeblood of any city, whose operation condition often determines urban safe state. But in recent years, massive urban construction, together with various inflammable and explosive items in the home has increased the security hidden danger of urban infrastructure network, which also brings about a huge test. On the other hand, the city public security infrastructure construction is relatively weak. Firstly, it is the key project with low standard and fragile protective system disaster; Secondly, it is lack of comprehensive system of public safety project planning, and the different professions does not match to different divisions; Thirdly, it is weak comprehensive detection prediction capability and imperfect warning and telecommunications network. From the countryside, rural basic conditions are far behind. Firstly, Highway to the villages is not available. If any, it is the fine-weather highway in low level, with great impact on traffic safety. Secondly, it is water conservancy projects that don't match, and the rural drinking water safety problem is relatively conspicuous.

3. International experience of Public safety and emergency management

Developed countries in metropolis, safety operation and emergency management, have more mature experience, with representatives of New York model, Tokyo mode, etc. General trend of operation safety management: change from single, bump type passive emergency response mode to the comprehensive and active whole processing management pattern.


To effectively handle emergency public events that threaten the urban management, New York government gradually sets up an urban public safety emergency management system. New York Crisis Manage office is the standing body in charge of public safety emergency management and became an official functional department in 2001. It takes charge of crisis affairs in daily work, and starts emergency system in the event of crisis outburst. On the view of crisis management operating pattern, it mainly includes the following aspects:

1. The main daily work of New York Crisis Manage office includes three aspects as below: Crisis monitoring, crisis processing and information communicating with the public.

2. New York’s preparation project for crisis. To timely and appropriately handle any emergency event, New York designed and developed plenty of projects to help the citizens and business communities for their “Preparation”, such as: ① Project preparing for crisis on community. ② Project preparing for crisis on business community. ③ Training and exercising.

3. New York’s crisis response project. New York Crisis Management Office ensures to offer the information and sufficient support in personnel and organization for fast and rapid
response if the risk occurs by a series of projects, including: ① Urban crisis manage system. ② Urban contingent resources manage system.

4. New York’s crisis recovery project. The last but the most important sector of crisis management in New York is to help individuals, enterprises and communities recover from the crisis as quickly as possible.

Generally speaking, New York crisis management adopts an all-governmental, all-social, all-stately, multi-tiered urban security and crisis control mode, observes the principle of “focusing on prevention and adequate preparation”, makes constant improvement on a working mechanism of consolidated command, definite obligation and unified coordination, makes non-governmental organization participate in and handle emergencies, and widely publicizes emergency education.

3.2. Urban Operational Security System in Tokyo

Tokyo accumulated a rich disaster and emergency prevention experience in dealing with unexpected disasters for over 50 years after World War II and developed a more mature and advanced urban operation and crisis manage system.

In April 2003, Tokyo established a magistrate of the county controlling crisis system, in which the chief of a bureau “Crisis Management Director” and a standing body “Synthetically Disaster Prevention Department” are set up in order to establish a system which can united all government department in emergency.

Tokyo enacts corresponding rules and regulations based on individual needs and immediately after enacting a state law, to definite respective duties and responsibilities, keep highly efficient implement of crisis management during the whole crisis management process. Meanwhile, to ensure an ordered, efficient rescuing and cooperation with non-governmental organizations, different provinces and volunteer groups, Tokyo adopts a system of making contract before the disaster, and enacts many rules and contracts. Moreover, all departments make corresponding disaster prevention guide, manual and emergency preplan to their own characteristics.

Also, to ensure the effective information transmission in emergency, Tokyo establishes wireless communication system against the disaster, which consists of Japan and Tokyo wireless communication system, including three sets of subsystems: fixed wireless system, mobile wireless system and regional satellite communication.

Remarkably, Tokyo government regards establishment of “a powerful disaster-control society and community” as the key to prevent disaster and minimize losses and makes all citizens set up ideas of “protect our own lives” and “protect our own city and community”.

In contrast, safety management of Chongqing is still far behind that of the above developed cities in the following aspects as detailed in the table below:
<table>
<thead>
<tr>
<th></th>
<th>NEW YORK</th>
<th>TOKYO</th>
<th>CHONGQING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development stage</td>
<td>Comprehensive society-based crisis management</td>
<td>Comprehensive society-based crisis management</td>
<td>Regarding single disaster prevention as principal is gradually changing toward crisis management and crisis prevention.</td>
</tr>
<tr>
<td>System of laws and regulations</td>
<td>Combining fundamental regulations with general regulations and clearly providing crisis handling procedures, with a better operability.</td>
<td>Combining fundamental regulations with general regulations and clearly providing crisis handling procedures, with a better operability.</td>
<td>Department regulations and management scenario regarding single disaster prevention as principal lack of legal support.</td>
</tr>
<tr>
<td>Organizations</td>
<td>New York City Office of Emergency Management is permanent establishment of crisis management, which cooperates with each professional department.</td>
<td>Tokyo Metropolitan Disaster Prevention Council and Comprehensive Disaster Prevention Department are respective policy-making body and permanent establishment, which pay attention to coordinate with each department.</td>
<td>Department system regarding management of single disaster as principal. To establish coordinating organization but without integral operation management, part of which functions need to be assumed by other departments.</td>
</tr>
<tr>
<td>Planning and scheduling</td>
<td>Give consideration to both development and disaster prevention</td>
<td>Give consideration to both development and disaster prevention with putting people first. Combine disaster prevention planning with economic development planning.</td>
<td>Regarding development as top priority, with little consideration to importance of disaster prevention in the planning.</td>
</tr>
<tr>
<td>Participants</td>
<td>Government, community, private enterprise, volunteer, NGO, media and etc.</td>
<td>Government, community, enterprise or public institution, volunteer, NGO, media and etc.</td>
<td>Government is the leading role, with little chance for participation of citizen and enterprise.</td>
</tr>
<tr>
<td>Information communication and disclosure</td>
<td>① Educate public before emergency happening; ② Transmit important information to public when emergency happening.</td>
<td>When disaster happens, transmit information from subordinate to superior according to specified process, give more publicity and report and listen to resident response.</td>
<td>Barriers between departments and regions, government regulations, blockade of departments and regions.</td>
</tr>
<tr>
<td>Departmental coordination</td>
<td>Each department is well-defined responsibilities and makes internal and external coordination with information support provided by the general coordination organization.</td>
<td>Coordination over departments and inside departments.</td>
<td>Barriers between departments and regions.</td>
</tr>
<tr>
<td>Technical support</td>
<td>Effective sharing mechanism such as GIS system, relevant data base.</td>
<td>Information contact system + Vulnerability information collection system + Publicity, information disclosure and media response system</td>
<td>Lack of integral cooperative technical support system. Department information is blocked between departments and regions.</td>
</tr>
<tr>
<td>Regional cooperation</td>
<td>Cooperate with local regions, states and federation.</td>
<td>Establish emergency rescue coordination mechanism with seven counties and cities around capital, and jointly organization exercise.</td>
<td>Mechanism is defective, and coordination between regional cooperation is weak.</td>
</tr>
</tbody>
</table>

**Comparison of urban safety management mechanism in New York, Tokyo and Chongqing**
3.3. Drawing experience of international metropolitan in safety management of city operation

1. Duty orientation of different departments and social organizations in city public safety management shall be defined by legislation, in order to establish advanced information management system. A new city public safety management system, which is centralized and uniformed, well-arranged, and sequence coordinative, shall be established by breaking barriers between departments and regions, so as to assume functions providing systematic and complete public safety service to the society.

2. A perfect reaction mechanism of crisis classification shall be constructed, which mainly includes: First, provide rating system of city state of emergency to define nature and severity of crisis, so as to establish classified crisis reaction system. Second, Emergency decision center, command center and headquarter shall be set up. Third, relevant emergency response plan shall be promptly launched and emergency forces shall be mobilized according to nature, kind and severity of crisis, to cope with crisis. The crisis reaction mechanism shall include: issue crisis information in time, ensure a sound communication system, and guarantee normal operation of city transportation system, a sound city search and rescue system, and a sound crisis recovery system.

3. A perfect crisis emergency preparation system shall be established. Through scientific crisis planning and resource reserve, as well as repeated exercise and professional training, this makes government managers, and social organizations as well as people involving in crisis capable of orderly coping with crisis according to established process and eliminating crisis in a shortest time.

4. NGOs are encouraged to widely participate in coping with emergencies. Except for depending on widely manpower, resources and financial resource mobilized by government, NGOs is capable of playing a very important role in disaster relief and during recovery after disaster, which shall become important supplementary force of government leading force.

5. Emergency education shall be widely popularized. Relevant departments may consider preparing citizen disaster protection manual, basic contents of which shall include emergency protection countermeasures, protection countermeasures list, security area and evacuation maps, useful telephone numbers of relevant organizations for hurricane, flood, cyclone, and dangerous physical events as well as crisis management.

4. Countermeasures and Suggestions on Further Putting Forward Construction of “Peaceful Chongqing”

4.1. General thoughts on further putting forward construction of “Peaceful Chongqing”

“Peaceful Chongqing” shall mainly embody requirements of three aspects during the next process of putting forward:

Firstly, Integration. “Peaceful Chongqing” construction requires establishing “Big Safe” concept, breaking public resources layout of barriers between departments and regions and strengthening cooperation of public safety resources in each department, all walks of life and each unit, in order to establish an integral cooperative integrated and multi-functional public safety system. Seen from international experience, the basic trend is to safeguard public safety through
integrated management system. For example, the United States has established Federal Emergency Management Agency, and set up an integrated command and dispatching system combining units of army, police, fire fighting, medical, and civil relief organizations etc., consequently it has effectively integrated resources. Secondly, Legislation. A sound legal environment and perfect legal system is the important institutional security of social safe. “Peaceful Chongqing” construction requires perfecting relevant laws, in order to ensure administration by law and judicial justice, to reduce risk inducements of social economy. Government by law is of the most importance during governance of social economic risks. At present, many economic and social risks encountered by Chongqing are closely related to imperfect government by law. Therefore, the key to reduce economic and social risk factors from the source is to further improve justice level and quality. Thirdly, Diversification. During rapid development of Chinese economy and society, safe construction is facing with more rich and various social conditions. Situation that government controls almost all kinds of resources has gone, so the government inevitably needs to cultivate and strengthen people’s subject consciousness and participation consciousness to public safety, in order to make itself capable of completing public safety service with low cost. On the other hand, people have the right to know about and participate in flow and layout of public resources. Effective public supervision will improve transparency of government behaviors, which is the specific manifestation of scientific and democratic administration. Therefore, “Peaceful Chongqing” construction must actively guide society participation, and construct a new society public safety system combining government management with public participation as well as combining socialization with marketization.

Seen from putting forward principles, the key to put forward “Peaceful Chongqing” construction is to firmly hold “Four Persistence”. First, persist in putting people first, and serving for people’s well-being. As the basic and supportability engineering of “Five-Chongqing Program”, “Peaceful Chongqing” must put people’s well-being problem to be solved in most expectation, most urgency and most desire need of people as cut-in point and key point of its working, and must reflect people's requirements ever and everywhere. Second, persist in overall consideration and completely putting forward. Firstly, overall consideration needs to be given to economic development and social stability; “Development is the fundamental principle and the first priority; while stability is the indispensable task and the first responsibility” shall be completely realized. Therefore, reform enhancement, development speed and resilience of public are required to be integrated in order to achieve scientific development of society and economy of Chongqing well and quickly. Secondly, overall consideration needs to be given to urban and rural. On one hand, city area shall be paid attention to its characteristics like concentrated population and social resources, relatively developed economy, high population mobility, population from other places gradually increase and concerning degree growing, which shall be made as key area of safe construction consequently; On another hand, increase input to rural area, in order to strengthen fundamental construction of gross roots, to shorten difference of public service supply between urban and rural and to change current situation of inadequate safety security resources in rural area. Last, overall consideration needs to be given to main task of safe construction. “Social Safety, Production Safety, Food and Drug Safety, Residence Safety, Transportation Safety”—none of which shall be weaken, but to completely put forward. Third, persist in treating both root causes and symptoms and breaking through key points. Treat the symptoms strictly and the root causes in effort to achieve governance by law, combining ethics and law, combining punishment and prevention, dredging and blocking simultaneously and cooperative both bottom and top, in order to seek substantive breakthrough on key problems, and to make effort to solve construction problem of structure, mechanism and system from the source. Fourth, persist in participation of all the people, and common share based on common construction. Firstly, strengthen leading function of organization; secondly, constantly improve public participation degree of “Peaceful Chongqing” construction; last, strengthen publicity, and construct atmosphere.
4.2. Specific measures

4.2.1. Perfect comprehensive prevention and control system of public safety

1) Government coordination mechanism

Municipal government’s functions of unified leadership and general coordination preventing and disposing serious risks and emergencies shall be strengthened, which shall be implemented on organizational structure. First, establish risk management institutions. The municipal government may establish risk response center as non-permanent organization which may exert policy-making and coordination functions in the manner of meeting. Director of such organization shall be held by municipality major leaders, to be in charge of basic principles, policy-making and command, and general coordination of prevention and disposition of serious risks and emergencies. Risk response center of the municipality government may set up special groups with different functions internally like financial crisis, social crisis, ecological crisis etc., which may also set up special groups according to requirements. Each county, relevant department and large organization is necessary to consider setting up risk management institutions. Second, establish permanent management organization, in order to handle daily affairs. Such organization shall be permanent working organization of government risk response center, which shall be in charge of management of daily risks.

2) Early warning mechanism

First, early warning information system in key industries and enterprises closely related to public safety shall be established, to closely track and on-line monitor every kind of risk factors against safe construction, so as to evaluate relationships between risk source, symptom, crisis symptom and crisis happening. Contents and indicators of risk monitoring and critical point of risk early warning shall be confirmed according to evaluation results. Organization system of risk early warning system, which shall be provided with necessary manpower, resources and financial resource to support normal operation, shall be established. Moreover risk early warning information of key monitoring targets shall be issued instantly. Second, a working preparing case disposing emergencies with a unified form and a large coverage shall be formulated, contents of which shall include: organization duty segregation, early warning and prevention mechanism, last-stage disposal, and security measures of public safe events.

4.2.2. Perfect security mechanism of public safety

1) Policies and laws

First, refer to experience of local governments in developed countries, so as to formulate laws and policies of serious risks. Responsibilities of relevant departments of government, enterprises, responsible person of communities during emergency of serious risks and accidents shall be clearly stipulated by local laws. Second, relevant provisions of Emergency Law shall be specifically detailed. Management regulations and disposition method related to public safety emergency shall be formulated. System of administrative responsibility and information publicity shall be improved. Encountered problems shall be disposed by utilizing laws, in order to achieve disposition by laws.

2) Information assurance

First, construction level of “Peaceful Chongqing” shall be improved depending on high-new technology. Such technology like digital technology and information technology shall be completely used; popularizing application degree of GIS, GPS and network technology shall be increased; perfect risk basic information base, information management system as well as monitoring and early warning network of disaster accident shall be established. Second, special
numbers of wired and un-wired communications shall be uniformly planned; risk management telephone numbers of risk management units shall be unified like all levels risk management command, rescue team and logistic security etc.

3) **Human resources security**

First, system of full-time staff for risk prevention and rescue shall be established, in order to improve quality and performance of disaster prevention rescue profession. Meanwhile, risk management professional training to government risk management departments and managers of large high-risk enterprises and institutions shall be organized, so as to improve ability and efficiency of risk prevention and rescue. Second, professional consultancy provided by public management and technical experts to government risk management shall be absorbed. Third, publicity, training and exercise shall be organized for common disaster accidents and key groups.

4) **Materials and equipments security**

Material list and standards of risk management and crisis emergency shall be made, so as to program material reserve of government risk management, to define duty carrying out unified management and coordination to middle-and-long term and annual material reserve (rotation) plan of municipality comprehensive economic adjustment department, to arrange scientifically combining with distribution plan, so as to avoid waste due to multi-reserve and repeated reserve. Equipment security is the necessary premise for ensuring risk prevention and emergency disposition, as a result, we shall make equipments lists and standards for all kinds of emergency disposition teams.

5) **Financial security**

Finance from all levels shall set up special reserve fund for risk management with a certain amount. Such fund reserve shall be specially used for risk management expenses, unused part of which shall be carried forward for the next year. Annual budget shall make up the reserve fund.

6) **Emergency shelter security**

For characteristic of Chongqing like densely urban population, mass high-rise building, and tense urban land, construction of emergency shelters may combine constructing or rebuilding open spaces like parks and squares, which may also consciously regard stadiums and classrooms as temporary emergency shelters in making preparing case, so as to arrange emergency evacuated public and sufferers.

4.2.3. Improve government service effectively, eliminate potential risks in advance

1) **Improve government public service ability**

Government working mode shall be further improved. During providing public service, government shall enhance service consciousness and persist in putting people first, to ensure that government public service is close to public requirements. On supply of public service, the government shall persist in giving benefit to the whole society, and highlight social justice. Facing with social contradictions emerging in social transformation, the government shall give priority to citizen practical benefits, and properly coordinate relevant interest groups. On handling of relevant social contradictions, the government shall start from perspective of public with more attention, and adopt soft and flexible handling mode, in order to prevent upgrade of contradictions.

2) **Put forward city gird management**
Operation mechanism of city grid management—“discover timely, coordinate orderly, handle forcefully, supervise effectively” shall be perfected quickly, according to requirements of modern cities management mode. Based on improving permanent mechanism of city management, increasing effort of putting forward and constantly expanding functions and service contents of grid management platform, cities management level of Chongqing shall be made to be raised to a new level.

3) **Standardize law enforcement behavior, strengthen team construction**

First, rules and regulations shall be established and improved, supervisory and disciplinary to law enforcement shall be effectively strengthened. Firstly, handling process needs to be further detailed, in order to minimize arbitrariness of law enforcement. Secondly, law enforcement responsibility system and accountability system need to be perfected. Internal supervision need to be strengthened, in order to further implement law enforcement responsibilities of leaders from all levels, every law enforcement department and every law enforcement link, and to avoid domineering and corruption by duty segregation and mutual restraint; evaluation system combining daily evaluation and annual evaluation needs to be gradually established, to make evaluation more scientific, fair and reasonable. Second, professional training shall be strengthened, and quality of law enforcement personnel shall be improved. Firstly, training of knowledge related to laws and regulations etc., carried out to law enforcement personnel shall be improved. Law enforcement level of law enforcement personnel can be improved in the manner of cases discussion and communications etc. Secondly, strengthen cases guidance, highlight experience promotion. Files appraisal activities need to be organized regularly; excellent cases can be collected and promoted.

4) **Strengthen publicity and education**

Education on public risk prevention consciousness shall be strengthened. Social risk education shall be developed and risk prevention shall be popularized by means of TV, broadcast, network as well as pamphlet, this shall enable the public to own an adequate understanding to characteristics of high risks during social transformation. Exercises for responding to social risks shall be organized regularly, to improve ability of handling risks and self-protection against risks of all kinds of organizations, so as to avoid helpless when risks happening.

4.2.4. **Actively guide social active participation, construct “Big Safe” pattern**

1) **Perfect public policy-making mechanism**

Normative and rational mechanism of public participation and democratic decision-making shall be established; express channels of citizen benefit shall be expanded. Hearing system of government public policy system shall be put forward, applicable range of which shall be enlarged. Public policies with wide coverage, significant influence and relation to citizen vital benefit shall adopt hearing system. Functions of organizations like labor union, industry association etc shall be further exerted, to avoid contradictions between the public and the government through all kinds of organizations centralized responding benefit requirements of all sectors of society. Legal aid shall be further strengthened and complaint procedure shall be simplified, in order to guide and eliminate all kinds of social contradictions by judicial procedure.

2) **Put forward NGOs development**

First, supportive policy shall be perfected, to boost NGOs development. A batch of NGOs applicable to "Five-Chongqing Program" construction shall be supported, cultivated and developed. Behavior of Japanese government acting as hatcher of weak non profit organizations can be referred to, to provide equipment, fund and technology support to NGOs, give a certain tax relief, and to detail operating methods of donation as deduction of personal income tax for units or personal of public welfare donation. Second, system innovation shall be accelerated to exert
energy of NGOs. Study and define functions and boundary of NGOs providing public safety service, to strengthen independence of NGOs. Part of public safety service function of government shall be further stripped and transferred to NGOs. NGOs energy shall be completely utilized in order to improve supply capacity of public safety service.

3) Develop harmonious community construction actively

First, enrich gross-root police force according to actual population, to strengthen relationship between gross-root police and community residents, to establish sound relationship between public and police, and to maintain a stable public order in community. Second, cultivate and perfect system and mechanism of community autonomy. Community autonomy is to implement self-management, self-education and self-service under guidance of government. In such a way, not only working efficiency of government can be improved, but also stability of gross-root regime can be consolidated in the manner of community residents interacting with the government to eliminate contradictions. Third, establish an injury prevention plan which is long-term, continuous and capable of covering persons of different genders, ages and all kinds of environmental conditions, to carry out evaluation and improvement according to reasons and frequency of injury, so as to promote social public safety. Fourth, strengthen construction of joint prevention mechanism of community public order, and increase community patrol. Further improve high technology content in prevention and control system of public order, and highlight the probe monitoring of key area.
SECTOR REPORT OF HEALTH CHONGQING
(HEALTH CARE)

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SUMMARY

As a response to the international notion of “Healthy City”, CPC Chongqing Committee and Chongqing Municipal Government made a significant decision on building a “Health Chongqing” in July, 2008, which integrates healthy people, health services, healthy environment and healthy society into the development of cities, stressing constantly improving and eliminating factors which affect health, and promoting health level and life quality of citizens by engaging the government and people, to achieve the goal of health for everybody.

The political pledges made for the construction of “Health Chongqing” are: Residents’ health quality exceeds that of the national average and their healthcare level leads the western regions of China by 2012. Organizations and their tasks are well defined, with a leading group set up at municipal level. A widely-accepted long-term plan is formulated, ie, children will grow strong, the elderly will live long, and all people will enjoy health. A stable mechanism is established to guarantee funds. “Health Chongqing” reflects the idea of prioritizing people’s livelihood while seeking development, brings the medical and health system reform in Chongqing to a deeper level, and reinforce the city’s attractiveness and competitiveness.

A. The opportunities and the challenges facing the construction of “Health Chongqing”

The opportunities: The sustainable and rapid development of the economy and the society of Chongqing since its status as municipality was established provide solid foundation for the construction of “Health Chongqing”. The central government’s drive to deepen medical and health system reform is supplementary to the construction of “Health Chongqing”, and charts the path for the latter. The great attention paid by the government and the engagement of the whole society inject power and energy into the construction of “Health Chongqing”.

The challenges: The international economic crisis in the context of globalization, the changes brought by international and domestic economic development, and regional gaps existing between “one circle and two wings” pose challenges to “Health Chongqing”. The tendency of concentration, rise and ageing of population, and the changes in distribution, structure and scale of the population as a result of the urbanization impose challenges on “Health Chongqing”.

B. The judgment on the effect of the construction of “Health Chongqing”

First, local financial investment in health sector increases. Overall expenditures on health grew at a higher rate than local financial revenue in 3 years. Attention was given to rural and remote areas. But the total size is still low. Second, the construction of living environments was intensified, and as a result, people’s living quality and environmental quality have improved remarkably. But it is still widely away from goals. Activities have been carried out to promote people’s health, but their health habits are still to be effectively developed. Third, the construction of health service system has been stepped up, having gradually enhanced access to health services, and relieved the difficulty in medical treatment. But Chongqing lags behind the national average, west China average, and the other three municipalities in terms of major indices. The aggregate health resources are still insufficient. Health resources are not evenly distributed between urban and rural areas. Grass-root medical institutions suffer weak service capabilities. Fourth, health service policies and systems have been worked out, but people’s healthcare hasn’t been integrated into basic state policies. Staff quotas and daily operation fees haven’t been ensured. Public health services haven’t achieved desired results. Fifth, Chongqing has made some innovations in medical insurance systems, constantly increasing medicare coverage and level. But it is weak in medicaid and subject to risks of medical funds. Sixth, Chongqing people have enhanced their ability to make use of health services, but the problem of “high medical costs” still exists. A comparison between 2008 and 2009 shows that per capita medicare costs...
saw a higher growth rate than per capita incomes and consumer expenditures among city, town and rural residents. High costs and their fast increase constitute the main reason for people’s dissatisfaction.

C. Major conditions for the building of “Health Chongqing”

1) Establish a mechanism to ensure steadily growing financial investment

With the economic and social development and increasing demands for basic health services, the funds for “Health Chongqing” shall mainly come from public financing with users’ payment as control means and other sources as supplement. The municipal and district/county government shall increase the investment in the “Health Chongqing” project and health sector year on year in line with the requirements that “the investment in ‘Health Chongqing’ shall increase faster than regular financial revenue, that the growth rate of funds allocated to health undertakings shall not be less than that of regular financial expenditures, and that the funds used for rural health projects shall take up no less than 70% of the newly added part of the funds allocated for health undertakings”. Investments shall be guaranteed by laws.

2) Government takes a leading role while working in cooperation with different departments and making use of other social resources

Government’s leading roles can be described as follows: First is to integrate “Health Chongqing” into the overall plan for the economic and social development of Chongqing. Second is to develop a scientific assessment system to materialize health action plans. Third is to develop a clear strategy of health promotion by making public policies. To realize cross-department cooperation, it is necessary coordinate goals and tasks of “Health Chongqing”, and develops a network which covers municipal and district/county government, different functional departments and neighborhood. Chongqing can draw on the pattern of “traffic patrol” stations when planning and coordinating the supply of a certain service by evidence-based medicine and cross-department coordination. To mobilize social resources is to motivate and involve different parties in the cause, emphasizing accountability mechanism, incentive mechanism and engagement mechanism such as accountability and incentive mechanism for public and private sectors, mechanism for sharing community resources, and volunteer mechanism.

3) Projects are comprehensively designed, and reform advances in an all-round way.

Any measure or reform with regard to “Health Chongqing” concerns financial guarantee system, administration system, internal operation mechanism of health institutions. A survey and analysis can be done upon residents’ health status and demands before priority programs are identified in line with goals, available resources, methods, importance, feasibility and effectiveness. Then they can be implemented by coordinating resources, mobilizing all walks of life, and carrying out concrete activities. Its process can be promoted through supervision and assessment.

4) Establish regional health information platform by making use of information means.

An information platform shall be fostered in the way that it takes residents’ electronic health archive and electronic medical records as its core, realizes resource sharing longitudinally at “municipal – county – township - village” levels, horizontally between “medical health – public health” sectors, and dimensionally between “health institutions and residents”. Be aware of the following key issues while developing such a platform: It shall abide by the standard and unified principle. It shall keep the idea of “decentration of system functions, design of modules, streamlining of processes, and division of tasks”. Hardware and software constructions shall be given equal attention to.

D. Policy suggestions on the acceleration of “Health Chongqing”
1) Identify goals of “Health Chongqing” in the “12th Five-year Plan” period.

- Indices of health resources will reach the national average.
- Resident’s healthcare and health indices will lead west regions and exceed the national level.

2) Seize the opportunity to increase investment through various channels

Chongqing should seize opportunities brought by the implementation of west development strategy, the construction of pioneer zone of the coordinated and balanced development between urban and rural areas, and joint effort made by the ministries and Chongqing municipal government, seeking funds from various channels. Chongqing shall first of all try to obtain the support from the central government. Second, it shall attract foreign investment. Lastly, it shall actively play the role of its peer provinces and municipalities which pair up with Chongqing and offer assistance and cooperation.

3) Identify priorities in each domain in line with the goals of “Health Chongqing”.

First, a complete medical and health system is to be established to solve the problem of “high costs and lack of medical resources”. Specific measures include:

- Making a rational regional health plan, optimizing the distribution of medical resources, and improving accessibility to health services by intensifying the construction of key medical institutions at municipal and district/county levels, the construction of standard medical institutions at two grass-root levels, TCM teaching and the development of TCM hospitals, and the constructions of private hospitals.
- Introducing integrated management at township and village levels, promoting coordination between them, and enhancing grass-root health service capacity.
- Establishing performance assessment mechanism and improving health service quality and efficiency.
- Ensuring government’s backup for public hospitals in their reform effort, promoting their public benefit, and enhancing their staff’s motivation.

Second, strengthen health staff force, and improve their service capability. Specific measures include:

- Attaching importance to recruitment and cultivation of health staff, and enhancing their service level and ability. We should develop a set of standards for HR distribution and post qualifications based on scientific baseline surveys. Health sector shall pay attention to the recruitment and cultivation of three categories of personnel: By drawing on methods adopted by universities to bring in high-profile talents, health sector shall put emphasis on the recruitment of leading scientific figures and management staff. By referring to the methods adopted by universities to manage their students’ counselors, health sector shall intensify the recruitment and management of grass-root medical staff. Chongqing can first try medical social work.
- Making a scientific plan for the training of health staff, and developing sustainable and effective training patterns.
- Financial authorities should set full staff quotas in line with population and scope that health institutions serve, especially working out professional health staff and grass-root staff quotas, employment mechanism and welfare guarantee mechanism.

Third, promote the equality of basic public health services. Specific measures:
- Raising public health services to the same status as medical services.
- Identifying and expanding contents of public health services to develop and adjust core public health projects, while per capita public health allocations and subsidies for some service items should be synchronously raised.
- Defining contents, procedures, responsibilities and assessment standards for each item of public health services, and providing standard and incentive public health services.
- Securing health education funds (for activities and teachers’ salaries), and promoting effectiveness of health education.
- Actively exploring the distribution patterns of public health service funds in grass-root medical institutions.
- Identifying effective measures to control chronic diseases: The government should put it on its work agenda and integrating it in performance assessment indices. We should actively screen and develop reliable, safe and cheap medicines for major chronic diseases, and incentive and favorable policies are to be introduced for their production and use. We should pool resources to develop supporting measures and tools for the health management of chronic diseases and disease control.
- Paying attention to disadvantaged groups, especially pregnant and lying-in women and children, rural children left at home, and poverty-stricken senior people in cities and countryside, and fully ensuring fairness of public health services.

**Fourth**, stepping up the development of basic medicare systems which cover all the people to fundamentally solve the problem of “high costs”. Specific measures:

- Keeping up with urbanization, and expanding coverage of basic medical insurance while actively developing commercial medical insurance.
- A mechanism should be established to define a rational share respectively paid by the government, unit and individual so as to strengthen basic medical financing. We should expand and increase the reimbursement rate and scope of out-patient treatment, adding basic medicine costs for hypertension, diabetes and other major chronic diseases, and screening costs for some cancers, to the scope of reimbursement of outpatient-treatment costs covered by basic medical insurance.
- Imposing strict management on basic medical insurance funds to lower their operation risks by following the principle of “expenditures to be set according to revenues, achieving balance between income and expenditure, and striving for surplus”.
- Improving basic medical insurance and seamless medicaid integration system by accommodating more people, adopting different means, and intensifying medicaid.

**Fifth**, promoting urban eco-environmental quality, stepping up health safety project construction, and developing healthy lifestyle. Specific measures:

- “Health Chongqing” should follow the overall plan of “Five Chongqings”, closely linking health with environment, the two major themes. Districts and counties shall increase the coverage of vegetation, and eliminate dirty, chaotic and poor phenomena.
- Chongqing should put emphasis on the implementation of healthy food project and drinking water safety project.
- Chongqing should promote healthy lifestyle in order to engage people in the joint effort of building “healthy homeland” by making use of TV, newspapers, internet and other mass media to inform people of health knowledge, health culture and health awareness.
Sixth, developing health-related industry to meet demands for diversified and multi-level health services. Specific measures:

- Chongqing should develop two major health industries, ie, medical and non-medical health services, and gradually form four basic industry clusters.

- The future development of health industry should be integrated into the strategy of cultivating new economic growth points, with emphasis on two health industries: disease prevention industry and industry of health care for the aged.
1. Background of “Health Chongqing”

Health is not only the aim of social and economic development but one of the important goals that humanity peruses. More than 3000 cities in the world have launched projects to materialize “Healthy City” since the concept was proposed, which integrates healthy people, health services, healthy environment and healthy society into the development of cities, stressing constantly improving and eliminating factors which affect health, and promoting health level and life quality of citizens by engaging the government and people, to achieve the goal of health for everybody.

CPC Chongqing Committee and Chongqing Municipal Government made a significant decision of building a “Health Chongqing” in July, 2008 to respond to the “Healthy China 2020” strategy, deepen the medical and health system reform, and implement the “314” overall arrangement outlined by President Hu Jintao and the spirit of the Third Plenary Session of the Third CPC Chongqing Committee. A complete set of health behaviors plans and sports action plans were drafted with a view to inspiring Chongqing’s city spirit, upgrading people’s health conditions, improving their well-being, and promoting the development harmonious society.

2. Values of building a “Health Chongqing”

There are three major values embodied in “Health Chongqing”: First, it is the largest heart-winning project with far-reaching implications currently launched by Chongqing. It has become an important practical channel through which to promote the sustainable development of economy and the society in Chongqing and to improve people’s quality of life. It reflects the idea of prioritizing people’s livelihood while seeking development. Second, “Health Chongqing” helps governments of all levels coordinate and balance the development between economy and health and other social undertakings, thus conducive to formulating a comprehensive plan for the development of health cause, bringing the medical and health system reform in Chongqing to a deeper level, and realizing the goal of “everybody enjoying basic medical care and health services”. Third, “Health Chongqing” serves to build up the soft strength by creating desirable humanity environment, sound public health environment and welcoming medical service environment, which in turn produce positive effect to reinforce the city’s attractiveness and competitiveness. This echoes the policy of “expanding domestic demand, promoting growth, restructuring industries and benefiting people” enacted by the central government.

3. Ideas and features of “Health Chongqing”

“Health Chongqing” follows the four conditions on the construction of “Healthy City” outlined by the WHO Regional Office for Europe, and highlights the following ideas based on the actual situations of Chongqing.
First, Chongqing puts forward clear political pledges and building principles. CPC Chongqing Committee and Chongqing Municipal Government promulgated the “The Decision on Building a ‘Health Chongqing’” (hereinafter referred to as “Decision”) in 2008, and at the end of the same year they issued “The Health Action Plan for ‘Health Chongqing’ (2008-2012)” and “the Sports Action Plan for ‘Health Chongqing’ (2008-2012)”. The overall goals of “Health Chongqing” defined in the documents are: By 2012, a basic medical and health system framework will be established and perfected. The medical and health service standard and guarantee level will be remarkably raised. Residents’ health quality exceeds that of national average and their health guarantee level leads the western regions of China. Residents will have basically developed healthy habits. The documents set four major principles, including “putting people first by focusing on their health”, “prioritizing prevention while combining prevention with treatment”, “government playing the leading role with the whole society engaged” and “making overall arrangements for the sake of all-round development”.

Second, organizational guarantee and task division are well defined. A leading group is set up in CPC Chongqing Committee and Chongqing Municipal Government to look after the construction of “Health Chongqing”, which adopts a working mechanism of “the government taking the unified leadership with collaboration from all parties involved, all aspects of the work complementing each other to an end of overall advancement”. “The Health Action Plan for ‘Health Chongqing’ (2008-2012)” outlines six action plans and job assignments for parties involved.

Third, a widely-accepted long-range city plan is identified, ie, children will grow strong, the elderly will live long, and all people will enjoy health. Six main jobs are specified in line with the “Four Systems” stipulated in China’s new medical and health reform, including behaviors to improve public health, behaviors to enhance medical service capabilities, behaviors to promote health habits, behaviors to create healthy communities, behaviors to ensure food and drug safety and behaviors to popularize medicare.

Fourth, a stable mechanism to guarantee funds is established. Specifically, while the government inputs the most part, funds will be raised through various channels and levels. It is stipulated in “The Decision” that from 2009 the growth rate of input in “Health Chongqing” at governments of both municipal and county/district levels shall be higher than that of regular financial revenue to ensure that the ratio against the financial expenditures will gradually rise. For the past two years, the input in residents’ well-being takes up 52% of the municipal general budgetary expenditures, which offers a strong support to the construction of “Health Chongqing”.

4. Opportunities and challenges facing the construction of “Health Chongqing”

4.1. Opportunities

4.1.1. Sustainable and rapid development of the economy and the society of Chongqing provides solid guarantee for the construction of “Health Chongqing”.

Chongqing harvested financial revenue of 153.54 billion yuan in 2009, leading the western regions of China, and the per capita GDP hit 22920 yuan, ranking the second. Against 2007, the growth rate of per capita GDP (39.65%) exceeded that of the national average (29.01%) and the other three municipalities of Beijing, Tianjin and Shanghai. The increase of financial revenue and the well-being orientation of government’s work lay a foundation for the construction of “Health
Chongqing”. The expenditures for medical and health uses in 2009 increased 48.60% compared with 2008, far higher than the growth rate of local financial expenditures of the same period. The input in health field has amounted to 17.14 billion yuan over the past two years, 61.1% of the total to be invested over a stretch of 5 years. The construction of “Health Chongqing” will enjoy strong guarantee thanks to the prospect of sustainable economic development, the implementation of the western China development strategy, and the favorable status of the trial zone of coordinated and balanced development between urban and rural areas.

<table>
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<th>GDP (100 million yuan)</th>
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Table 1  A Comparison of GDP and Financial Revenue and Expenditure between Chongqing and Some Other Areas in China in 2009
Note: The numbers in brackets stand for the descending order of rankings of a certain index in the western regions of China.

4.1.2. Central government's drive to deepen medical and health system reform is supplementary to the construction of “Health Chongqing”, and the former charts the path for the latter.

The “one goal” and “four beams plus eight pillars” outlined in the medical and health system reform launched by the central government in 2009 serve as the coordinates for Chongqing to identify the goals, paths, action plans and guarantee measures of “Health Chongqing”. The establishment of the leading groups unveiled the beginning of the construction of “Health Chongqing” and the medical and health system reform in Chongqing. Guided by the policies of the new medical reform, the medical and health authorities of Chongqing actively make explorations, innovations and summaries. The achievements and experience will further consolidate the construction of “Health Chongqing” in the future.

4.1.3. Great attention paid by the government and the engagement of the whole society inject power and energy into the construction of “Health Chongqing”.

CPC Chongqing Committee and the Municipal Government put the construction of “Health Chongqing” and the medical reform on top of their agenda and energetically and effectively work on them by formulating a series of supporting policies and launching a variety of popular projects to promote health education. “Health Chongqing” is supported by more than 70% of its residents.
Aspiration of good health has become a tradition and a fashion in Chongqing. A sound atmosphere in which “everybody peruses health, everybody manages his health and everybody enjoys health” injects energy into the construction of “Health Chongqing”.

4.2. Challenges

4.2.1. Challenges posed by the changes emerging from the international and domestic economic development, and by regional discrepancies

Chongqing is a municipality which has metropolises, mountain areas and reservoir areas, featuring a relatively weak economic foundation compared with the national level and the other three municipalities of Beijing, Tianjin and Shanghai. The per capita GDP of Chongqing was still lower than that of the national average and the other three municipalities in 2009. The urbanization level (51.6%) is still low, with a large gap among regions as commonly described as “one circle and two wings”(The highest is the metropolis circle which reaches 89.1% while the lowest is 26.1% in the southwest of Chongqing, one of the two wings). Chongqing’s economic development is still subject to the influence of the international economic crisis in the context of globalization. Therefore, Chongqing is facing the challenges of how to tap its own advantages and seek more chances to keep its economic development on a healthy track and ensure its “one circle and two wings” to keep abreast in the course of development.

4.2.2. Challenges posed by the changes emerging from its population development

Chongqing’s permanent population has been presenting a trend of concentration and rise since it became a municipality. The metropolis circle has seen inflows while the other three areas outflows. In the mean time, Chongqing is experiencing an accelerating trend of aging population. The population of 65 and above took up 12% of the total in 2009, ranking the first in west China and the sixth in China. The phenomenon of “getting old before getting rich” looms fairly grave especially in the economically disadvantaged countryside. The urbanization of population is picking up pace. People move more often among regions of Chongqing and more people migrate to Chongqing from outside with a growing urbanization rate. The distribution, structure and scale of the population will impose immediate influences on the optimization of medical and health resources, the total input in health sectors, the provision of health services and the changes of spectrum of diseases.

5. Main measures of “Health Chongqing”

5.1. Increase the local financial input in health sector and give attention to the input in the remote areas

Table 2 shows that 2009 saw an increase of 52.4% of the funds against 2007 allocated to health sector in Chongqing. The growth rate of funds for health sector has exceeded that of local financial revenue in three years. The government expenditures took up 28.25% of the total funds in 2009 (5.7% up from 2007), higher than the national index (27.2%). The growth rate of funds for medical and health, maternity and child care, disease prevention and control, population and family planning all exceeded that of financial revenue during 2008-2009. The ratio of health expenditures against the total financial expenditures in the 40 countries and districts of the “two wings” is higher than that of regions of “one circle”, which indicates that the governments of all levels attaches greater importance to health undertaking in rural and remote areas.
5.2. Chongqing makes innovations in medical insurance systems to constantly increase the coverage of medical insurance and medicare level.

Chongqing makes innovations in medical insurance systems, such as the urban-rural residents cooperative medical insurance system introduced in 2007, “insurance for pregnant and lying-in women and newly-born babies in rural areas”, and the pattern of government purchasing commercial medical insurance. Chongqing constantly increases the financing standard for medical insurance and medical guarantee level while expanding the coverage of medical insurance. Following the establishment of the “urban-rural medicaid system” in 2007, Chongqing integrated the medicaid with medical insurance.

5.3. Chongqing steps up the construction of health service system to increase the accessibility of health services for urban-rural residents.

Chongqing gradually improves health service system to increase the accessibility of health services for residents by “establishing hospitals in every township and clinics in every village”. Chongqing steps up the construction of standard medical service system at grass-root levels, and enhances service capabilities of medical institutions with the help of special funds from central and municipal governments. A scientific plan for regional health undertakings was drafted to make high-quality health services available to residents following the formation of the plan for six regional central cities. The essential medicine system is adopted in grass-root medical institutions to lower medical costs.

5.4. Chongqing makes more effort in the construction of public health service system and gradually expands the scope of public health services.

Chongqing identified nine categories of basic public health services and eight categories of major public health services in 2009. The basic public health services are subsidized as per the standard of 15 yuan per capita per year. Chongqing reviewed and approved the size of staffs in township hospitals and the standard of subsidy, thus promoting the construction of “the bottom of the net” of public health services. Meanwhile, the capability build-up of professional public health institutions and the supervision over food and drug safety are intensified.
5.5. Chongqing intensifies the construction of living environment in both urban and rural areas, and carries out health-promoting activities.

Chongqing improves living environment for urban and rural residents. The project to create civilized cities and towns is launched in whole Chongqing to provide a healthy and hygienic environment for residents. The water and toilet renovation project has solved the problem of water safety which benefited 2.21 million people in rural areas. The construction of healthy campus is energetically advanced to build up students’ body. A variety of activities are carried out to enhance residents' awareness of health.

6. Judgment on the effect of “Health Chongqing” and the analysis of reasons

6.1. Local financial input in health sector increases but the total size is still low.

The past few years have seen a constant rise of financial expenditures on medical and health sectors as well as the construction of healthy environment, and the growth rate of input has been higher than that of regular financial revenue. As government expenditures on health sector keep increasing, personal expenditures tend to be lower. Horizontally compared, however, the health funds took up only 4.85% of GDP in Chongqing in 2009, still lower than the national index (The national health funds amounted 5.13% of the national GDP, 0.28% higher than Chongqing). The proportion of personal expenditures on health among total health funds was 2.99% higher than that of national index of 38.2%. This shows that the total input in health sector is still weak in Chongqing, with individuals bearing relatively heavy burden. The drive to pay less for medical services have made some achievements but there is still much work to be done.

6.2. Residents’ health condition has improved, but there is big difference between urban and rural areas. People’s healthy habits are still to be effectively developed.

The main indices of Chongqing residents' health condition have exceeded the national average since “Health Chongqing” was launched. Specifically, ① the average life expectancy of Chongqing residents increased from 2007’s 76.05 years to 2009’s 76.58 years, but not yet to 77 years, a goal set by “Health Chongqing” for 2012. ② The infant mortality rate dropped to 2009’s 7.09‰ from 2007’s 8.89‰ (thereinto, 6.3‰ in urban areas and 7.6‰ in rural areas), lower than the national index in 2009 (13.8‰), but not yet to 7‰, a goal set by “Health Chongqing” for 2012. ③ The mortality rate of children under 5 years old fell to 10.42‰ in 2009 from 15.1‰ in 2007 (thereinto, 9.5‰ in urban areas and 11.1‰ in rural areas), lower than the national index (17.2‰). ④ The mortality rate of pregnant and lying-in women dropped from 50.17/100 thousand in 2007 to 30.14/100 thousand in 2009, lower than the national index (31.9/100 thousand), western regions (50.45/100 thousand), and the other three municipalities, reaching the goal of 40/100 thousand set for 2012. ⑤ The birth defect rate rose from 2007’s 10.39‰ to 2009’s 10.88‰, higher than the goal of 10‰ set for 2012. ⑥ The physic sampling pass rate of Chongqing residents rose from 2007’s 86.7% to 2009’s 87.3%.

The figures show that there have been some improvements in residents’ health condition and the mortality rate has dropped by a big margin. However, the infant mortality rate and the
mortality rate of pregnant and lying-in women haven’t yet reached the goal set by “Health Chongqing” for 2012, much higher than that of the other three municipalities. It is far from optimistic that the WHO2010-2011 biennial survey conducted by the research team found that the above-quoted indices of the “two wings” are remarkably higher than those of “one circle” (higher than the national average). The direct reason is the low hospital delivery rate in the “two wings” (The southeast of Chongqing reports only 82.66% of hospital delivery rate, much lower than the municipal average of 92.24%), and home delivery or unprofessional midwifery poses great risks on the safety of infants and lying-in women. The data collected from the survey of people’s well-being and conditions in 2009 suggest that Chongqing residents’ dietary structure is becoming diversified but their eating habits have yet to improve. More than 20% of the residents feel heavy pressure from life and job which influences their sleep quality. Over half of the residents pay inadequate attention to health and show no interest in health knowledge. Nearly 50% of the residents have never had medical check, a proof of poor awareness and behaviors of keeping fit. More than 30% of the residents smoke, and smoking and drinking tend to indulge younger people. Approximately 60% of the residents don’t take physical exercises regularly. About 60% of the residents gave undesirable assessment to their health condition. In general, people’s healthy habits are still to be effectively developed.

6.3. Aggregate medical and health resources are insufficient and unevenly distributed. The service capability of grass-root health institutions is week.

6.3.1. Aggregate health resources are still insufficient, and the number of health staffs at “the bottom of the net” is far from meeting demands in Chongqing.

Given the current population in Chongqing, the allocation of its aggregate health resources is at a backward place in western regions of China. Table 3, based on the data from the “China Health Statistics Yearbook 2010”, shows a comparison between Chongqing and the national index, west China and the other three municipalities in terms of the number of health staffs and beds for every one thousand persons.

There are 3.05 health professionals, 1.36 medical (assistant) practitioners, 0.97 registered nurses, 0.08 disease prevention and control personnel, 0.12 maternity and child care personnel, 0.04 health supervisors, and 2.83 beds in medical institutions for every one thousand persons in Chongqing in 2009. There are 1.18 beds in township hospitals in every one thousand persons in rural areas. Except the number of beds in township hospitals for every one thousand persons in rural areas, Chongqing lags behind the national average, west China average, and the other three municipalities in other major indices. The insufficient allocation of aggregate health resources in Chongqing doesn’t match its status as the important growth pole in west China and the economic center in the upper reaches of the Yangtze River, and will possibly restrict the overall development of the “Health Chongqing” strategy.

Furthermore, according to the WHO2010 biennial project, “the Survey on the Current Situation of Public Health Service Provision in Chongqing”, there are on average 1.02 village doctors and health staffs for every one thousand persons in rural areas in Chongqing in 2009, tantamount to the average standard in west China, just closely above the minimum quota of one village doctor for one thousand persons in rural areas, but still below the national standard of 1.19. The number of health staffs in village clinics is widely different among regions of “one circle and two wings”. The number in “two wing” regions is only one, which obviously cannot meet the demand of basic medical service and public health service of “getting minor disease treated in villages”. If divided by jobs (clinics, prevention, nursing and administration posts), two thirds of the present staffs in township and village medical institutions are found to do clinical jobs, and only one fifth work on prevention. This shows the phenomenon of “giving priority to medical treatment
while making light of disease prevention” in job division is far from improvement due to the economy-oriented idea in grass-root medical institutions.

<table>
<thead>
<tr>
<th>Health staffs</th>
<th>Medical (assistant) practitioners</th>
<th>Registered nurses</th>
<th>Beds in medical institutions</th>
<th>Beds in township hospitals</th>
<th>Disease prevention and control personnel</th>
<th>Maternity and child care personnel</th>
<th>Health supervisors</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>4.15</td>
<td>1.75</td>
<td>1.39</td>
<td>3.31</td>
<td>1.05</td>
<td>0.15</td>
<td>0.17</td>
</tr>
<tr>
<td>West China</td>
<td>3.59</td>
<td>1.56</td>
<td>1.14</td>
<td>3.1</td>
<td>1.06</td>
<td>0.16</td>
<td>0.17</td>
</tr>
<tr>
<td>Beijing</td>
<td>12.92</td>
<td>5.04</td>
<td>4.95</td>
<td>7.22</td>
<td>0.88</td>
<td>0.21</td>
<td>0.26</td>
</tr>
<tr>
<td>Tianjin</td>
<td>6.9</td>
<td>2.8</td>
<td>2.34</td>
<td>4.71</td>
<td>0.86</td>
<td>0.15</td>
<td>0.16</td>
</tr>
<tr>
<td>Shanghai</td>
<td>9.48</td>
<td>3.79</td>
<td>3.73</td>
<td>7.11</td>
<td>全</td>
<td>0.16</td>
<td>0.15</td>
</tr>
<tr>
<td>Sichuan</td>
<td>3.37(8)</td>
<td>1.54(7)</td>
<td>1.01(8)</td>
<td>3.06(7)</td>
<td>1.37(2)</td>
<td>0.13(9)</td>
<td>0.15(8)</td>
</tr>
<tr>
<td>Guizhou</td>
<td>2.37(12)</td>
<td>1.1(12)</td>
<td>0.78(11)</td>
<td>2.39(12)</td>
<td>0.75(11)</td>
<td>0.12(11)</td>
<td>0.09(12)</td>
</tr>
<tr>
<td>Yunnan</td>
<td>3.02(11)</td>
<td>1.35(10)</td>
<td>1.04(7)</td>
<td>3.14(6)</td>
<td>0.85(9)</td>
<td>0.17(7)</td>
<td>0.13(9)</td>
</tr>
<tr>
<td>Tibet</td>
<td>3.49(6)</td>
<td>1.57(6)</td>
<td>0.69(12)</td>
<td>2.94(9)</td>
<td>1.17(4)</td>
<td>0.38(1)</td>
<td>0.17(5)</td>
</tr>
<tr>
<td>Shaanxi</td>
<td>4.46(4)</td>
<td>1.81(5)</td>
<td>1.42(5)</td>
<td>3.54(4)</td>
<td>0.93(8)</td>
<td>0.16(8)</td>
<td>0.22(4)</td>
</tr>
<tr>
<td>Gansu</td>
<td>3.38(7)</td>
<td>1.39(8)</td>
<td>0.98(9)</td>
<td>3.01(8)</td>
<td>1(6)</td>
<td>0.19(5)</td>
<td>0.15(7)</td>
</tr>
<tr>
<td>Qinghai</td>
<td>4.43(5)</td>
<td>1.88(4)</td>
<td>1.44(4)</td>
<td>3.55(3)</td>
<td>0.75(10)</td>
<td>0.33(2)</td>
<td>0.11(1)</td>
</tr>
<tr>
<td>Ningxia</td>
<td>4.48(3)</td>
<td>1.91(3)</td>
<td>1.55(2)</td>
<td>3.48(5)</td>
<td>0.6(12)</td>
<td>0.18(6)</td>
<td>0.24(3)</td>
</tr>
<tr>
<td>Xinjiang</td>
<td>5.47(2)</td>
<td>2.2(2)</td>
<td>1.92(1)</td>
<td>5.06(1)</td>
<td>1.55(1)</td>
<td>0.29(3)</td>
<td>0.16(6)</td>
</tr>
<tr>
<td>Inner Mongolia</td>
<td>5.5(1)</td>
<td>2.82(1)</td>
<td>1.44(3)</td>
<td>3.55(2)</td>
<td>1.07(5)</td>
<td>0.25(4)</td>
<td>0.25(2)</td>
</tr>
<tr>
<td>Guangxi</td>
<td>3.32(9)</td>
<td>1.28(11)</td>
<td>1.21(6)</td>
<td>2.52(11)</td>
<td>0.94(7)</td>
<td>0.13(10)</td>
<td>0.29(1)</td>
</tr>
<tr>
<td>Chongqing 09</td>
<td>3.05(10)</td>
<td>1.36(9)</td>
<td>0.97(10)</td>
<td>2.83(10)</td>
<td>1.18(3)</td>
<td>0.08(12)</td>
<td>0.12(10)</td>
</tr>
<tr>
<td>Chongqing 07</td>
<td>2.59</td>
<td>1.2</td>
<td>0.74</td>
<td>2.31</td>
<td>0.84</td>
<td>0.08</td>
<td>0.09</td>
</tr>
<tr>
<td>Growth rate %</td>
<td>17.76</td>
<td>13.33</td>
<td>31.08</td>
<td>22.51</td>
<td>40.48</td>
<td>0</td>
<td>33.33</td>
</tr>
</tbody>
</table>

Table 3 The Number of Health Professionals and Beds for Every 1000 Persons in Chongqing in 2009 (Unit: person bed)

Note: The numbers in brackets stand for the descending order of rankings of a certain index in the western regions of China.

### 6.3.2. Chongqing lacks high-level medical and health service institutions and personnel, which doesn't match its economic and social development.

Table 4 shows that Chongqing is at a backward place in terms of the number of high-quality health service resources, and in shortage of specialized talents and high-level research teams and leading personnel who work on forefront lines nationally and internationally. The situation is far from the goal of developing Chongqing into a medical center in west China.

<table>
<thead>
<tr>
<th>Medical research institutions</th>
<th>Beijing</th>
<th>Tianjin</th>
<th>Shanghai</th>
<th>West China</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chongqing</td>
<td>1</td>
<td>24</td>
<td>8</td>
<td>9</td>
<td>60</td>
</tr>
<tr>
<td>First-class hospitals</td>
<td>15</td>
<td>50</td>
<td>34</td>
<td>31</td>
<td>304</td>
</tr>
<tr>
<td>Upper First-class hospitals</td>
<td>13</td>
<td>37</td>
<td>22</td>
<td>28</td>
<td>166</td>
</tr>
<tr>
<td>Hospitals with &gt;800 beds</td>
<td>8</td>
<td>25</td>
<td>7</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>State-level key medical disciplines</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State-level key medical labs</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4 A Comparison of Indices of the Allocation of High-Quality Health Resources
6.3.3. Health resources are not evenly distributed between urban and rural areas, which leads to irrational flow of patients.

Table 5 shows that given the optimized allocation of health resources in the remote and poor southeast of Chongqing thanks to the implementation of the coordinated and balanced development between urban and rural areas, the nine districts of Chongqing metropolis far exceeds the other three areas in four indices: the number of beds, health professionals, medical (assistant) practitioners and registered nurses for every one thousand persons, whether by registered population or by permanent population.

<table>
<thead>
<tr>
<th>Central city</th>
<th>One-hour drive economic circle</th>
<th>Northeast wing</th>
<th>Southeast wing</th>
<th>Municipality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered residents (10,000)</td>
<td>600.56</td>
<td>1228.88</td>
<td>1083.84</td>
<td>362.33</td>
</tr>
<tr>
<td>Permanent residents (10,000)</td>
<td>694.49</td>
<td>1030.77</td>
<td>851.39</td>
<td>282.35</td>
</tr>
<tr>
<td>Beds</td>
<td>31422</td>
<td>29791</td>
<td>22427</td>
<td>9049</td>
</tr>
<tr>
<td>Health professionals (person)</td>
<td>37440</td>
<td>27608</td>
<td>23102</td>
<td>9049</td>
</tr>
<tr>
<td>Medical (assistant) practitioners (person)</td>
<td>15346</td>
<td>11790</td>
<td>10607</td>
<td>4200</td>
</tr>
<tr>
<td>Registered nurses (person)</td>
<td>14080</td>
<td>8521</td>
<td>6754</td>
<td>2401</td>
</tr>
<tr>
<td>Beds for every one thousand registered residents</td>
<td>5.23</td>
<td>2.42</td>
<td>2.07</td>
<td>2.50</td>
</tr>
<tr>
<td>Beds for every one thousand permanent residents</td>
<td>4.52</td>
<td>2.89</td>
<td>2.63</td>
<td>3.20</td>
</tr>
<tr>
<td>Health professionals for every one thousand registered residents (person)</td>
<td>6.23</td>
<td>2.25</td>
<td>2.13</td>
<td>2.50</td>
</tr>
<tr>
<td>Health professionals for every one thousand permanent residents (person)</td>
<td>5.39</td>
<td>2.68</td>
<td>2.71</td>
<td>3.20</td>
</tr>
<tr>
<td>Medical (assistant) practitioners per every 1,000 registered residents (person)</td>
<td>2.56</td>
<td>0.96</td>
<td>0.98</td>
<td>1.16</td>
</tr>
<tr>
<td>Medical (assistant) practitioners per every 1,000 permanent residents (person)</td>
<td>2.21</td>
<td>1.14</td>
<td>1.25</td>
<td>1.49</td>
</tr>
<tr>
<td>Registered nurses for every one thousand registered residents (person)</td>
<td>2.34</td>
<td>0.69</td>
<td>0.62</td>
<td>0.66</td>
</tr>
<tr>
<td>Registered nurses for every one thousand permanent residents (person)</td>
<td>2.03</td>
<td>0.83</td>
<td>0.79</td>
<td>0.85</td>
</tr>
</tbody>
</table>

Table 5: A Comparison of the Distribution of Health Resources among Four Areas of Chongqing in 2009

The first-class hospitals of Chongqing are mainly distributed in Yuzhong, Shapingba and other metropolitan districts. The large-scale medical equipment, especially CTs, MRIs, ECTs and linear accelerators are also mainly owned by first-class hospitals. The current situation is that the waste of health resources and less utilization of equipment as a result of excessive expansion and repeated purchasing by some leading hospitals in metropolitan areas co-exist with the shortage of high-quality resources facing the one-hour economic areas on outskirts of the metropolis, northeast and southeast of Chongqing. The uneven distribution of health resources impairs the benefit of high-end medical institutions, grass-root medical institutions and patients.

6.3.4. Rural residents have poor accessibility to health services, and township and village medical institutions have yet to meet standard requirements in Chongqing.

“Chongqing Statistics Yearbook 2010” shows that Chongqing has basically realized “a health center for a street” and “a clinic for a village”, but the baseline survey of the WHO 2010 bi-
ennial project found that the village clinics in 40 counties and districts are not evenly distributed with 19 of them (47.5% of all) devoid of clinics, especially where former township hospitals and village clinics disappeared during the campaign of merging smaller townships into bigger ones, and as a result, the residents who didn’t move out have poor accessibility to medical services. Geographic locations exert major influences on the provision and availability of health services. The mountainous terrain of Chongqing makes it difficult to gain medical services due to long distances and poor transportations, which is even harder for patients, pregnant women and old people who are supposed to need medical services more often. Take Qianjiang, a district in southeast of Chongqing, as an example, where a fairly complete health service network has been set up which covers counties, townships and villages, it is still perplexed with the poor accessibility to health services in rural areas. By the distance to travel, only 27.17% of households travel less than 1km to the closest medical institutions, and 15.33% are located 5km away and beyond. By the time to travel, people spend around 30 minutes on average going to the closest medical institutions, and 42.00% of them have to spend more than 30 minutes.

According to the data released by Chongqing Health Bureau, by August 2010, the coverage of standard township hospitals was 42.54%, and the coverage of standard community health service centers was 41.82%, a long way to go before the goal of 100% can be attained. The coverage of standard village clinics stood at only 30%. The survey also found that the campaign of merging smaller townships into bigger ones and restructuring administrative divisions led to some community health service centers, township hospitals, village clinics and community health service stations "working with the same staff but under two signs". The situation is helpful for the transition of their work in a short term, but is puzzling for identifying their staff quotas and functions, so not conducive to the establishment of their management systems and working mechanisms.

6.3.5. HR build-up in grass-root medical institutions is in need of financial guarantee, and is yet to be rational in structure.

At present, the specialist doctors, general practitioners and nurses working in community health sector most often have low academic degrees, and they have a long way to go to catch up with leading hospitals in terms of professional quality and treatment skills. Although 60% of them have received general practice training for a change of their professions, their skills are not expected to upgrade enormously due to the short sessions of training. Furthermore, the scope of their practices and requirements for determining their professional titles don’t match their work contents as general practitioners. Some doctors and nurses don’t work in community health sector when they obtain training certificates. Poor benefit offers make it hard for community health institutions to keep doctors. The rotating system adopted by some community health institutions leads to instability of their staff.

The picture in township and village medical institutions are not a rosy one either. By 2009, 40% of township hospitals haven’t purchased medical insurance for their staff, and 60% of haven’t purchased endowment insurance. Only 29% of township hospital staff were paid from government finance. The “village doctors”, “the bottom of the net” of basic public health service sector, have to get payment from their treatment practices, with neither medical insurance nor endowment insurance. Individual doctors join in the NCMS which only offers low guarantee. It is pronounced that health personnel in countryside own low academic degrees and professional titles: In terms of academic degrees, the proportion of personnel with degrees of junior colleges or above is only 39.51% in township hospitals, village doctors with degrees of middle vocational schools 73.5%, and those with degrees of junior colleges or above only 3.2%¹. In terms of professional titles, the proportion of personnel with associate professionships is only 0.94% in township hospitals. Personnel working in disease prevention sections have lower rate of senior and middle

¹ source: the fourth national health service survey 2008
professional titles than those working in clinical sections. In terms of qualifications, the baseline survey of the project team found that only three quarters of clinical staff possess practicing (assistant) physician qualifications in township and village medical institutions, and the ratio for disease prevention staff is only one fifth.

Data show that the “main force” who work in basic health and public health sectors, the village doctors, are caught in a serious vicious cycle: Their senior ages, low academic degrees and outdated knowledge make it hard for them to obtain practicing qualifications and desirable professional titles which in turn exert immediate influences on their personal development, medical skills and motivation, and eventually, on the accessibility and effectiveness of basic health services for residents living in areas of their jurisdiction.

6.4. Public health service guarantee mechanism is yet to be effectively established, and a desirable effect is yet to be achieved.

6.4.1. Policies and systems concerning the public health cause are already in place, but to be effectively implemented.

The Chongqing Municipal Government promulgated the “Health Action Plan for ‘Health Chongqing’(2008-2012)” in 2008, identifying a series of measures to intensify public health work. Taking the municipal implementation scheme as guidance, districts and counties worked out their own schemes, defining primary principles, scopes, funding and their sources, goals, missions, and contents. But the research team found that schemes haven’t been effectively implemented as regard to public health service policies and some systems. For example, two thirds of the districts and counties formulated performance-based assessment regulations in 2009 which, however, were not earnestly carried out. A subsidy of 200 yuan per month, supposed to paid to village doctors as public health funds, were not paid on time in some places, which brought negative influence to their motivation.

6.4.2. Discrepancies of public health input exist among areas of “one circle and two wings”, and the financial guarantee mechanism hasn't been effectively established.

The total input in public health sector by 40 districts and counties hit 1.055 billion yuan in 2009, 16.71% of their expenditures on health undertakings. The per capita public health input was 36.90 yuan if calculated by permanent population in whole Chongqing in 2009. Chongqing’s public health input mainly comes from the transfer payment of the central government (58.21%), followed by local finance of districts and counties (33.34%), and then municipal finance (10.59%). Horizontally compared, areas of “metropolitan circle” pay two thirds of their public health input from local government finance, and in contrast, the other three areas have two thirds of their public health input from the transfer payment of the central government, and one quarter from local government finance. The annual public health input of the districts and counties in southeast of Chongqing is on average half of their counterparts within “one hour circle”, and the public health input only takes up 13% of their health expenditures. This shows to some degrees that even though Chongqing is gradually orienting its health input to southeast areas and other rural and remote areas, these areas are mostly state-level or municipal-level poor counties which have low financial revenues, and which have weak input guarantee. This also indicates that the public health sector has been given priority by local governments.
6.4.3. Specialized public health institutions enjoy guarantee but there are loopholes, and the status of grass-root health work hasn’t been raised remarkably.

The three major specialized public health institutions (CDC, maternal and child care centers and health supervision stations) have their presence in each district or county, but mental health centers and health training institutions are not adequately allocated. The WHO 2010-2011 biennial project shows that 35% of the districts and counties have no health training institutions, which exerts immediate influences on the opportunities of health training and the enhancement of skills for public health personnel, and also imposes indirect influence on the quality of health education for residents. Meanwhile, 35% of the districts and counties have no mental health centers. The sampling survey found that Chongqing suffers a relatively high rate of mental diseases (which stands at 0.36%, 0.6% higher than the national rate of 0.2%), with a far higher rate in rural areas than in communities. The shortage of mental health institutions, specialized mental doctors and psychiatrists in Chongqing is far from meeting people’s demands.

In 2009, 17.16% of township hospitals in Chongqing established public health administration centers, widely apart from the requirement that “a public health administration center shall be established in each township hospital” stipulated in the documents concerning deepening medical and health system reform. Relevant surveys show that most districts and counties haven’t given equal importance to public health services of grass-root medical institutions against their medical services. Their idea of “non-basic and non-prevention medical services” remains unchanged. The majority of residents view grass-root health institutions as “pure hospitals”. Services available are mainly basic ones (diagnosis, treatment, prescription, infusion and injection), while disease prevention, health care, health recovery and health education are often out of reach.

6.4.4. Backwardness of public health informationalization impedes the effective provision of basic public health services.

Health institutions in townships and streets in Chongqing are equipped with computers with the construction of NCMS information system to make patients access the insurance system by swiping their cards. Village clinics, on the other hand, are poorly equipped, and the working information platform hasn’t been established for township and village doctors. This influences doctors’ efficiency and is not conducive to supervision. What’s more, Chongqing hasn’t issued unified plans and standards for a regional public health information platform. Except that three quarters of districts and counties have established infectious disease management information system, emergent events of public health report system and immune programming management information system, Chongqing has a lot to do in the construction of information systems for health archives, chronic diseases, maternal and child care, pregnant and lying-in women management and mental disease management, for the existing systems in these regards differ in levels and standards, which leads to a serious waste of grass-root information resources and isolated information.

More than half of the districts and counties have no special information system to keep health archives, the core part of public health information management. Instead, grass-root health archives are mainly paper-based. Economically advantaged districts and counties have developed their own information systems, but discrepancies between their consents and national standards make it difficult to upgrade systems and share county-township-village resources. Meanwhile, as few grass-root medical institutions launch “general practitioner information work stations”, doctors are not able to retrieve and update health archives. Electronic health archives are not managed in a dynamic way. In some sense, the existing health archives are “dead ones”, seldom utilized by either organizations or residents.
6.4.5. Health education is carried out in diversified ways, but seldom accessible to rural residents.

There are following forms to be adopted by urban-rural public health institutions for health education: posters, handouts, consultancies and TV shows. In communities in urban areas, residents are informed of health knowledge through watching TV publications, sending short messages on mobile phones, attending regular lectures, reading manuals, and limiting daily intake of salt and oil. While health education is being carried out in diversified ways, there exist, however, following problems:

First, health education funds are inadequate. Considering specialized public health organizations, especially CDCs in districts and counties, will conduct many health education activities in the coming years, financial input falls widely short of demands.

Second, health education hasn’t achieved desirable results. The awareness of health knowledge among residents reached 68% in 2009, 8% up from 2007’s 60%, but below 75%, a goal set for 2012.

Third, rural residents have poor accessibility to health education. Due to unfavorable geographic environment, unsmooth telecommunications, and undesirable capability of health personnel, rural residents have lower awareness of health knowledge and poor health habits than community residents. Therefore, township and village medical institutions will have to consider not only how to increase the amount of health education, but more of how to enhance its effectiveness and acceptability by integrating local customs into activities, taking local people’s literacy into account, and borrowing experience of community health education. Practices have proved that school-based health education is an effective form since students can bring health knowledge to their homes. The practice shall be further deepened and spread.

6.4.6. Chongqing has achieved some results in maternal and child care, but is still below the average in west regions and national level.

Public health institutions suffer from weak functions, inadequately equipped and poorly qualified staff, which immediately influence the coverage, amount and quality of public health services. The following table is a comparison between Chongqing and national level, west regions, and the other three municipalities in terms of health care for pregnant and lying-in women, gynecologic check-up, health care for children, and premarital check-up. (Source: China Health Statistics Yearbook 2010)

Data show that Chongqing ranks below the average in west China and achieves lower than the national level in terms of indices of pregnant and lying-in women healthcare, child health care, and gynecologic disease examination. The WHO2010-2011 project team found from surveys that two thirds of targeted groups in sampled districts and counties have received screening for gynecologic diseases, which is a fairly good job. By contrast, only one thirds of married women of child-bearing age (35-49) have received screening for breast cancer and cervical cancer, and the rate of screening in sampled communities is far higher than in rural areas (the breast cancer screening rate in rural areas is 1.74%, and cervical cancer 1.81%). The results indicate that screening for the above-mentioned two cancers is well done in communities, while there is a long way to go in rural areas.
### Table 6  A Comparison of Indices of Maternal and Child Care in Different Regions in 2009

<table>
<thead>
<tr>
<th>Region</th>
<th>Card establishment rate (%)</th>
<th>System management rate (%)</th>
<th>Hospital delivery rate (%)</th>
<th>Prenatal check-up rate (%)</th>
<th>Postpartum visit rate (%)</th>
<th>System management rate for children below 3</th>
<th>Rate of newly-born visit</th>
<th>Rate of four vaccines immunization</th>
<th>Rate of gynecologic check-up</th>
<th>Rate of diagnosed gynecologic disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>90.9</td>
<td>80.9</td>
<td>96.3</td>
<td>92.2</td>
<td>88.7</td>
<td>77.2</td>
<td>87.1</td>
<td>85.4</td>
<td>28.6</td>
<td>34.0</td>
</tr>
<tr>
<td>West regions</td>
<td>88.04</td>
<td>79.15</td>
<td>88.43</td>
<td>90.38</td>
<td>87.23</td>
<td>74.21</td>
<td>87.77</td>
<td>73.12</td>
<td>35.2</td>
<td>34.01</td>
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<tr>
<td>Beijing</td>
<td>98.1</td>
<td>96.3</td>
<td>100</td>
<td>99</td>
<td>97.2</td>
<td>88.8</td>
<td>94.8</td>
<td>64.9</td>
<td>35.2</td>
<td>34.01</td>
</tr>
<tr>
<td>Tianjin</td>
<td>98.7</td>
<td>80.2</td>
<td>100</td>
<td>98.4</td>
<td>91.5</td>
<td>57</td>
<td>77.9</td>
<td>55.8</td>
<td>68.4</td>
<td>30.7</td>
</tr>
<tr>
<td>Shanghai</td>
<td>86</td>
<td>78.7</td>
<td>100</td>
<td>84.7</td>
<td>84.4</td>
<td>69.7</td>
<td>84.4</td>
<td>84.5</td>
<td>30.7</td>
<td>30.7</td>
</tr>
<tr>
<td>Sichuan</td>
<td>88.2(10)</td>
<td>82.3(7)</td>
<td>89.8(7)</td>
<td>89.8(9)</td>
<td>87.5(8)</td>
<td>77(5)</td>
<td>85.6(9)</td>
<td>76.6(5)</td>
<td>23.1(11)</td>
<td>39.4(3)</td>
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<tr>
<td>Guizhou</td>
<td>90.8(8)</td>
<td>76.7(9)</td>
<td>77.2(11)</td>
<td>91(8)</td>
<td>89.2(7)</td>
<td>58.7(11)</td>
<td>86.2(8)</td>
<td>100(1)</td>
<td>37.5(6)</td>
<td>37.5(6)</td>
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<tr>
<td>Yunnan</td>
<td>95.3(4)</td>
<td>84.8(5)</td>
<td>86.3(10)</td>
<td>95.3(4)</td>
<td>93.1(4)</td>
<td>74.9(7)</td>
<td>91.9(5)</td>
<td>24.7(11)</td>
<td>39.4(3)</td>
<td>39.4(3)</td>
</tr>
<tr>
<td>Tibet</td>
<td>53.7(12)</td>
<td>33.3(12)</td>
<td>51.7(12)</td>
<td>66.1(12)</td>
<td>54.7(12)</td>
<td>43.5(12)</td>
<td>94.5(2)</td>
<td>76(6)</td>
<td>16.7(12)</td>
<td>30(9)</td>
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<td>Shaanxi</td>
<td>96.1(3)</td>
<td>93.8(1)</td>
<td>98.8(2)</td>
<td>96.9(2)</td>
<td>95.6(2)</td>
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<td>94(3)</td>
<td>100(1)</td>
<td>30(9)</td>
<td>30(9)</td>
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<tr>
<td>Gansu</td>
<td>92.3(6)</td>
<td>82.5(6)</td>
<td>89.1(8)</td>
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<td>89.7(6)</td>
<td>75.6(6)</td>
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<td>84.8(4)</td>
<td>44.7(2)</td>
<td>44.7(2)</td>
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<tr>
<td>Qinghai</td>
<td>68.3(11)</td>
<td>79.4(8)</td>
<td>87(9)</td>
<td>81.3(11)</td>
<td>83.9(10)</td>
<td>81.7(4)</td>
<td>66.1(12)</td>
<td>94.3(2)</td>
<td>39.2(4)</td>
<td>39.2(4)</td>
</tr>
<tr>
<td>Ningxia</td>
<td>99.2(1)</td>
<td>92.3(2)</td>
<td>96.3(5)</td>
<td>98.9(1)</td>
<td>98(1)</td>
<td>84.6(3)</td>
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<td>75.8(7)</td>
<td>49.2(1)</td>
<td>49.2(1)</td>
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<tr>
<td>Xinjiang</td>
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<td>72.2(11)</td>
<td>96.4(4)</td>
<td>92.3(7)</td>
<td>84.5(8)</td>
<td>71.8(8)</td>
<td>82.9(10)</td>
<td>64.7(8)</td>
<td>39.2(5)</td>
<td>39.2(5)</td>
</tr>
<tr>
<td>Inner Mongolia</td>
<td>95(6)</td>
<td>89.7(3)</td>
<td>99.5(1)</td>
<td>94.5(5)</td>
<td>92.2(5)</td>
<td>89.3(2)</td>
<td>91.5(6)</td>
<td>91.5(5)</td>
<td>30.5(8)</td>
<td>30.5(8)</td>
</tr>
<tr>
<td>Guangxi</td>
<td>96.9(2)</td>
<td>87.9(4)</td>
<td>97.7(3)</td>
<td>96.5(3)</td>
<td>94.6(3)</td>
<td>71.4(10)</td>
<td>93.1(4)</td>
<td>31.9(10)</td>
<td>34.3(7)</td>
<td>34.3(7)</td>
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<tr>
<td>Chongqing 09</td>
<td>88.8(9)</td>
<td>74.9(10)</td>
<td>91.4(6)</td>
<td>88.8(10)</td>
<td>83.7(11)</td>
<td>71.5(9)</td>
<td>80.3(11)</td>
<td>97.75</td>
<td>26.4(10)</td>
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</tr>
<tr>
<td>Chongqing 07</td>
<td>84.59</td>
<td>71.15</td>
<td>84.42</td>
<td>84.46</td>
<td>79.92</td>
<td>67.53</td>
<td>79.42</td>
<td>96.46</td>
<td>34</td>
<td>24.1</td>
</tr>
</tbody>
</table>

### 6.4.7. Pre-marital examination faces great difficulties.

Since mandatory pre-marital examination was lifted, the rate of pre-marital examination has been stalling at a low point even though strong measures were taken such as canceling charges. The rate stood at only 0.8% in 2009, therefore, 1.4% in urban areas and 0.1% in rural areas. There showed no signs of rise compared with 2007. The rate ranked last in west regions in 2009, below the national level of 17.1% and 8.67% of west regions. It was also far lower than the other three municipalities (respectively 9.5% in Beijing, 1.5% in Tianjin, and 37.1% in Shanghai). According to Chongqing’s plan, the birth defect rate will drop from 13.4‰ to 10‰ by 2012. The care for children shall start when they are conceived. Only by increasing free pre-marital examination rate, can we effectively control and reduce birth defects.

### 6.4.8. Chongqing has done a fairly good job in the control of infectious diseases, but the situation of the control of infectious diseases among floating population remain grim.

The incidence of infectious diseases A and B was 272.39 per 100,000 in Chongqing in 2009, down by 61.38 per 10,000 against 2007, lower than that of western regions of 359.53 per 100,000, but higher than the national level of 263.52 per 100,000, ranking fourth in western regions. Compared with the other three municipalities, it is lower than Beijing’s 339.89 per 100,000, but higher than Tianjin’s 186.96 per 100,000 and Shanghai’s 221.26 per 100,000. The goal of 320 per 100,000 set for 2012 was achieved.
Sampling surveys of WHO2010-2011 biennial project found that Chongqing's health institutions are already equipped with internet facilities to report infectious diseases, deaths and other public health information. 71.43% of health institutions apply ADSL. One of focal points for the prevention of infectious diseases is TB at this stage. The treatment of TB is conducted in municipal- or district/county-level TB centers, while other services such as prevention, visit and medication supervision are provided by township doctors. The incidence of TB was 96.90 per 100,000 in 2009 in Chongqing, high above the level of the other three municipalities and higher than the national average. The reasons are as follows: First, as regular visits mainly take the form of telephone calls, the later stage treatment won't achieve desirable results if patients or their families are not competent to supervise themselves. Second, unsmooth communications between the municipal TB center and grass-root medical institutions lead to slack supervision over TB. Third, the management on floating groups in cities is weak. By a comparison between cities and rural areas, the TB management in the latter, benefiting from China Rural Health X projects, has turned out to be effective. By a comparison between permanent and temporary residents, the management on the latter hasn’t begun yet in the sampled towns. Given their mobility, temporary residents are more vulnerable to TB, AIDS and other infectious diseases. Therefore, the task in this regard remains arduous.

6.4.9. **Chronic diseases become major threats to people's health, but the prevention and control over general chronic diseases hasn't achieved desirable results.**

The Fourth National Health Service Survey reports that the incidence of chronic diseases in Chongqing in 2008 was 20.5%, above the national index of 15.74%. WHO2010-2011 biennial project found from surveys that the prevention of hypertension, diabetes and other chronic diseases has been somewhat given attention to by grass-root medical institutions, but with only 50% of effectiveness. Therefore, to intensify promotions of healthy living habits and the management of visits to patients remains to be the central task of the prevention of chronic diseases. There are problems emerging from the process of chronic disease prevention:

**First**, there is no clear information of incidence of local chronic diseases. Many districts and counties, dragged by the shortage of funds, staff and techniques, haven’t carried out surveys on chronic diseases for many years. Absence of definite data makes it hard to get to the point when addressing problems.

**Second**, few funds are allocated to chronic disease service packages. The services available now fall short of the demands to effectively control chronic diseases due to slim funds.

**Third**, the dynamic and electronic management of chronic diseases needs to be improved. Currently some grass-root medical institutions at district/county/town levels have no chronic disease management information systems. The existing ones, in some cases, do not integrate with the health archive system and maternal and child care information system, and as a result, data can not be shared.

**Fourth**, the management of chronic diseases is mainly realized by patients’ visits to hospitals currently, and doctors and nurses don’t offer to reach out to patients. According to WHO project, 68.1% of chronic disease patients have received doctors’ follow-up consultancy which mainly takes the form of hospital visits by patients, in which case “patients take the initiative and doctors take a passive attitude”. Around 6.4% of patients show dissatisfaction with local work for the reasons of doctors’ unwillingness to offer services, less service items and poor techniques.
6.5. Residents’ production and living quality and environmental quality have seen a remarkable improvement, but still apart from the expectations.

Chongqing is working hard on the construction of state-level hygienic city. The rate of state-level hygienic districts/counties is 17.5% in Chongqing, far behind Shanghai’s 52.6%, and Beijing’s 66.7%, and far from the goal of 30% set for Chongqing by 2012. None of the five districts in Chongqing’s downtown area reaches national standard. Chongqing rated 136 villages as ecological and hygienic in 2009, 288.6% up from 2007’s 35, but short of the expected 200 in 2012.

The centralized sewage disposal rate reached 79%, and the bio-safety disposal rate for urban refuse 89% in Chongqing in 2009, respectively 7.0% and 9.9% up from 2008. The water renovation project in Chongqing benefited 80.9% of its rural residents in 2009, lower than the other three municipalities. The hygiene monitoring coverage for drinking water in rural areas was 40% in 2009, an increase of 15% from 2007’s 25%, but below the expected 50% by 2012. 48.7% of rural households adopted hygienic toilets in 2009, 12.8% up against 2000, far lower than the other three municipalities though, and 6.3% short of the final goal of 55% set in the “Plan for the Development of Women and Children of Chongqing (2001-2010)”. 60% downtown areas of Chongqing met the standard of the density of “four pests” in 2009, 25% up from 2007’s 35%, but below the expected 85% by 2012. When it came to towns, 29% of them attained the standard in the same year, 12% up from 2007’s 17%, but below the expected 55% by 2012.

6.6. Supervision over food and drug safety is somewhat intensified, but weak links still pose threat on people’s health.

Quantitative grading management for food hygiene covered 97% of organizations in urban cattery industry in 2009, 1.0% higher than 2007’s 96%, lower than the expected 100% by 2012 though.

Quantitative grading management for food hygiene covered 75% of organizations in rural cattery industry in 2009, 25.0% higher than 2007’s 60%, lower than the expected 80% by 2012 though.

All the rural areas were covered by the town-level medicine supervision network and supply network in 2009, 4.2% higher than 2007’s 96%.

The above data show that the supervision over food and drug safety has been intensified in Chongqing, but the supervision in rural areas and the issue of food safety in schools remain to be vulnerable. The problems concerning farmers’ dietary health and food safety, the construction of standard canteens in rural schools, and the management of food safety in eateries around schools call for further solutions.
6.7. **Coverage of medicare is expanded, but the medicaid is weak, and the medical funds present risks.**

6.7.1. **Coverage of medicare has been expanded in Chongqing, but financing standards are relatively low.**

<table>
<thead>
<tr>
<th>Coverage of medical insurance of the whole municipality (%)</th>
<th>Number of people covered by basic medical insurance for town and urban workers (ten thousand)</th>
<th>Coverage of Cooperative Medical Insurance for town and urban residents</th>
<th>Number of people covered by major disease medical insurance for rural migrant workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>21961</td>
<td>94.19</td>
<td></td>
</tr>
<tr>
<td>West regions</td>
<td>3803</td>
<td>89.92</td>
<td></td>
</tr>
<tr>
<td>Chongqing 2009</td>
<td>90.02</td>
<td>326 (7)</td>
<td>90.08</td>
</tr>
<tr>
<td>Chongqing 2007</td>
<td>66.73</td>
<td>283</td>
<td>85.12</td>
</tr>
<tr>
<td>Chongqing Goal in 2012</td>
<td>400</td>
<td>90</td>
<td>2.21</td>
</tr>
</tbody>
</table>

*Table 7: The Coverage of Medical Insurance of Different Types in 2007 and 2009 in Chongqing*

Table 7 shows that a basic medicare system has been primarily established in Chongqing which covers both urban and rural areas, and principally contains basic medical insurance for town and urban workers and cooperative medical insurance for urban and rural residents, while supported by the mutual fund for large-amount medical costs, supplementary medical insurance provided by enterprises and medical treatment subsidy for government officials. The goal that “each eligible resident gets insured” has been systematically realized. Even though Chongqing has made constant effort in increasing financing standards for medical insurance and medicare level, the per capita funds raised for NCMS was only 104.42 yuan in 2009, ranking seventh in western regions, while 2.09 times 2007’s 50 yuan, but below the national standard of 113.36 yuan and west regions’ 105.14 yuan, respectively 24.02%, 60.47% and 18.44% that of Beijing, Tianjin and Shanghai. The low standard of fund raising becomes the main reason for high costs of medical treatment, and is likely to influence people’s health.

6.7.2. **Coverage of medicaid is expanded in Chongqing, but the per capita medicaid remains inadequate.**

Chongqing allocated 280.117 million yuan for medicaid in 2009, ranking seventh in western regions, 113.7% up from 2007’s 131.083 million yuan. The number of the aided was 2.83 million, ranking third in western regions, an increase of 87.6% from 2007’s 1.5 million. The per capita medicaid amounted 98.97 yuan in 2009, ranking ninth in west regions, lower than the national average of 168.11 yuan and west regions’ 138.22 yuan. By contrast, the amount hit 401.03, 655.41 and 1596.09 yuan respectively in Beijing, Tianjin and Shanghai, 4-16 times that of Chongqing. The medicaid money was just “a drop in the ocean” for poor people, which can hardly meet their demands, and therefore can not help eliminate the problem of “getting ill because of poverty, and sliding back into poverty because of illness” from the root.

6.7.3. **An applicable mechanism has not been established for the settlement between different areas, transfer and follow-up of medical insurance.**

Basic medical insurance is unified within districts or counties at moment in Chongqing. As policies, standards (such as medical insurance catalog, minimum payment, self-payment rate and maximum amount), and reimbursement process differ from one district/county to another, floating...
population may get stuck in complicated procedures of the settlement and transfer of medical insurance fund. Compensations for treatments at other places often involve a lot of red tapes, unable to be paid in time. Besides, as a municipality-wide medical information system is not yet in place, the software and hardware are not ready for the “one card” practice. This poses the greatest barrier to the link of medical insurances of different types and different places. Currently the transfer and follow-up of medical insurance can only be realized among the nine districts of the metropolitan area, and it's difficult for between other districts and counties. In some sense, the transfer and follow-up of medical insurance funds still remains infeasible in terms of policies and practices.

6.7.4. Medical insurance for migrant population has not been effectively solved, and the phenomenon of “quitting or being omitted” co-exists with “repetition”.

The coverage of cooperative medical insurance for floating population is lower than that for registered households, whether it be where they come from or where they live now. Mains reasons are as follows: First, part of floating population thinks they are young and fit, so it's unnecessary to join in the cooperative medical insurance. Second, a large part of floating population is unwilling to join and don’t join for the concern that they won’t be insured even though they join simply because they are too mobile, and it is not convenient to get compensations for treatments in places other than their original residences or current residences. Third, as the current financing pattern follows the practice of “unified time and unified organization” to collect insurance premium, some floating population would miss the time and fail to pay.

While some floating population “quits or is omitted by” medical insurance as a result of above-quoted reasons, there are cases in which some residents join in medical insurance or get compensations in both original and current residential places. The reasons include:

First, it is for the need of assessment on local governments and their policies. In order to ensure the coverage of the cooperative medical insurance, the government of floating population's original residences requires them to join in the cooperative medical insurance back in their registered residential places based on the excuse of “joining in cooperative medical insurance by households”. On the other hand, enterprises would purchase local basic medical insurance for mobile population who works for them. Or mobile population purchases the insurance for themselves as inspired by local policies, such as the comprehensive social insurance bought by Chongqing migrant farmers who work in Dongguan of Guangdong Province. As such, repeated insurance is likely to happen.

Second, no medical insurance authorities in current residences or registered residences take supervisory measures. Medical insurance authorities or operation organizations more than often take a “hesitant” or “wait-and-see” attitude towards whether repeated insurance is acceptable. The situation is made worse by the fact that the medical insurance authorities issue nonstandard “receipt for individual cooperative medical insurance”. The medical insurance authorities of other places, especially the centers for the management of cooperative medical insurance in districts or counties, are unable to exercise supervision because they can by no means confirm whether or not migrant farmers join in cooperative medical insurance at other places due to the shortage of personnel, financial resources or materials (such as complete information systems). What’s more, “repeated medical insurance” leads to the puzzlement of “repeated compensations” (There are such cases. For example, in Shizhu County, people covered by the NCMS are allowed to claim compensations one more time by presenting a certification of compensation issued by medical insurance authorities of other places as well as copies of documents for compensations issued by hospitals). Repeated claiming for compensations can maximize the insured’s interests in some sense, but actually violates the existing NCMS policies. Double subsidies and double compensations not only bring financial burden to government, but also impair the benefit of other people only because the “non-doubly
insured” people enjoy less fairness. More over, there will unavoidably emerge other new problems, such as a possible increase of excessive medical behaviors such as “in-patient treatment for minor diseases”, and greater risks for controlling basic medical insurance funds.

6.7.5. Medicare supervisory mechanism is not in place, and the management of medical insurance funds presents risks.

Taking advantage of loopholes of medical systems, some designated medical institutions peg medical revenue with economic benefits of departments and staff. As a result, some staff would take the risk of breaking regulations to swindle medical insurance funds by prescribing unreasonable examinations, medications or treatments, issuing fake prescriptions, fabricating medical charges, requiring auxiliary examinations, and assuming someone else’ name. The lack of supervision over individual designated medical institutions and especially medical institutions in different places leads to non-standard medical behaviors which poses risks for the management of medical insurance funds.

What’s more, with the ever intensified effort in basic medical insurance and medicaid, phenomena of “asking for long recuperation leave for minor illnesses” and “inflicting excessive treatment on minor illnesses” become pronounced in some districts and counties, and is more often found in the helped. Take Shizhu County as example, where the poverty-stricken people pay a small percentage of in-patient treatment costs, and people included in “five-guarantee” programs are spared any money in case the in-patient treatment costs less than 20,000 yuan. The policy itself is supposed to bring more benefit to the needed. However, some patients who only need out-patient treatment are transferred to excessive in-patient treatment because of some medical staff’s misleading persuasion. Where medical institutions purposefully delay in-patient treatment for economic return, minor illnesses would involve a prolonged stay. The practice not only increases patients’ medical costs, but also cheats the NCMS and medicaid funds. The in-patient stay of poverty-stricken people in Shizhu County averaged 9.1 days per bed from Jan. to Aug. 2010, remarkably higher than common groups’ 5.6 days, with average costs of 1748 yuan, far more than common groups’ 1453 yuan. Some county or township hospitals report an increase of patients by folds at present, which, on the one hand, reflects an enormous change in people’s idea of medical treatment, but on the other, indicates hospitals’ carelessness in taking in patients for the sake of economic benefit. The phenomena of “asking for long recuperation leave for minor illnesses” and “inflicting excessive treatment on minor illnesses” put the management of medical insurance funds in risk.

6.8. Chongqing people enjoy more health services, but the problem of “high costs” remains unanswered.

6.8.1. Health sector has seen enhanced abilities and techniques, and people’s increasing demands are basically met.

The health sector in Chongqing has seen enhanced abilities and techniques thanks to the year-on-year increase of health resources, better equipment in medical institutions, and medical staff’s improved abilities. Relevant indices exceed national and west regions’ levels. People’s increasing demands are basically met.

In 2009, medical practitioners took 6.8 patients per day, and assumed 2.5 days of in-patient treatment. The accuracy of diagnosis for admission and discharge was 98.6%. The usage of beds was 86.4%. The discharged spent on average 10.9 days in hospital. These indices were all higher than 2007’s data, and also above the national and west regions’ levels.
6.8.2. Residents’ ability to make use of health services has seen a remarkable improvement.

Residents’ demands for health services are greatly inspired thanks to the expanded coverage of medical insurance, enlarged medical insurance funds, and improved medicare, as well as the application of basic medicine catalogs lowering the prices.

Chongqing’s out-patient visits per year were 3.94 in 2009, 302.0% up from 2007’s 0.98, ranking second in west regions, higher than west regions’ level (3.66), but below the national level (4.11) and that of the other three municipalities.

A comparison between the data of the Third and the Fourth National Health Service Survey respectively conducted in 2003 and 2008 show that the in-patient rate scored a significant increase to 7.71% in 2008 from 2003’s 3.40%. The rise was even greater in rural areas, to 8.43% from 2003’s 3.04%. Chongqing’s in-patient treatment was 0.11 persons per year, 175% up from 2007’s 0.04 persons, ranking third in west regions, and equal to the national and west regions’ average. It was higher than Beijing’s 0.1 and Tianjing’s 0.08, the same as Shanghai’s. By contrast, the rate of failure to utilize medical services saw a decline. The rate of two-week out-patient visits overdue was respectively 57.5% in urban areas and 44% in rural areas in 2003, which dropped to 38.6% in 2008. The rate of two-week in-patient visits overdue was respectively 37.9% in urban areas and 52.5% in rural areas in 2003, which dropped to 30.1% in 2008.

6.8.3. Issue of “high costs” remains un-addressed.

Personal payment took up 41.19% of total health expenditures in 2009 in Chongqing, a drop of 6.15% against 2007, but still 3% higher than the national level (38.2%).

The medical costs per out-patient visit were 169.1 yuan in 2009, an increase of 29.3% against 2007, horizontally compared, ranking first among west regions, higher than the national average of 159.5 yuan and west regions’ 121.8 yuan. Thereinto, medicine costs were 84.7 yuan in 2009 in Chongqing, an increase of 29.5% from 2007’s 65.4 yuan, taking up the same percentage (50% of all the medical costs) as 2007, higher than the national average of 81.2 yuan and west regions’ 55.7 yuan.

The average medical costs for discharged patients stood at 5758.6 yuan in 2009 in Chongqing, an increase of 27.3% from 2007’s 4525.4 yuan, horizontally compared, far more than west regions’ average of 3779.6 yuan, slightly less than the national average of 5951.8 yuan.

The root cause for “high costs" lies in that per capita medical expenses overgrows per capita income. According to the Chongqing Statistics Yearbook 2010 (see Table 8), the growth rate of per capita health expenses for residents, whether in cities, towns or countryside, exceeded that of per capita income and per capita consumption expenses in both 2008 and 2009. It’s more of the case for rural residents. The per capita income saw a growth of 8.58% in 2009, per capita total expenses 7.48%, but per capita health expenses 23.35%.

Recent years saw an increase of 13% of overall satisfaction with medical institutions. But high and fast growing medical costs remain to be the major reason for dissatisfaction. Medical demands are stifled by excessively high costs. The Fourth National Health Survey shows that financial difficulty took up 28.7% of the reasons for two-week overdue out-patient visits, and 78.8% for overdue in-patient visits. High costs respectively rank second and first among reasons for dissatisfaction with out-patient and in-patient treatment.
There are many interplaying reasons for the problem of “high medical costs”, to name a few, the insufficient aggregate and irrational distribution of health and medical resources, the weak health service system at grass-root levels, imperfect medicare systems, shortage of stable financial allocations for public hospitals (Revenues of medical institutions largely come from business incomes, financial subsidies only take up 8.2% of their total revenue), the policy of “feeding treatment with medicines” (Incomes from medicines took up 47.8% of total business incomes of medical institutions in 2007), the internal incentive policy of “pegging distribution with incomes”, chaotic logistics of medicines and medical equipment, price bubbles, systematic and structural contradictions, and the inadequate management.

### 7. Important conditions for building “Health Chongqing”

The basic practice for the building of healthy cities in the world includes the government playing a leading role while coordinating effort from other parties, formulating public health policies by taking various factors into considerations, identifying and analyze key factors that influence the health of cities based on the design, implementation and management of projects, carrying out promotion activities by making use of social resources in line with local conditions, and gradually enhancing residents’ health to upgrade the overall health of cities. The conditions for the building of “Health Chongqing” are defined as follows according to the afore-mentioned basic practice and the experience that was achieved for the past two years since the project of “Health Chongqing” was launched.

#### 7.1. To establish a mechanism of steadily growing financial input is the key.

Chongqing’s financial input in people’s well-being projects amounted to 68.2 and 91.7 billion yuan respectively in 2009 and 2010, an increase of 34.5%. It is expected that 35.319 billion yuan will be invested in the building of “Health Chongqing” during a stretch of five years, and it’s 10.687 and 11.4 billion yuan in 2009 and 2010, up by ony 7%. Although the input in the past two years already takes up 62.6% of the total, it’s widely away from the quotas set in the “Decision on the Building of Health Chongqing” that “the growth rate of the input in ‘Health Chongqing’ shall be higher than that of regular financial revenue from 2009”. The local financial revenue hit 199.062 billion yuan in 2010, 70.8% up from the previous year. By this standard, the input in well-being projects and “Health Chongqing” was respectively 24.8 and 6.9 billion yuan short. Therefore, the input in people’s well-being projects, health projects in particular, shall increase.
The investment in medical and health sector has kept increasing in Chongqing over the past few years. Total funds allocated to health sector grew by 52.4%, and expenditures on medical and health grew by 48.8% in the past three years, both higher than the growth rate of financial revenue in the same period. However, the expenditures on health sector only took up 4.25% of total financial expenditures in 2009, 1.93% lower than the national level. The expenditures on health sector took up 1.18% of Chongqing’s GDP, also lower than the national level of 1.40%. It is necessary to establish a mechanism to ensure the growth of funds for basic health services with the social and economic development and the increasing demands for basic health services. Public health is a very important part of public benefit. The construction of healthy city and promotion of people’s health constitute the important contents of public administration of the government. Therefore, the funds for “Health Chongqing” and its supporting health services shall mainly come from public financing which takes users’ payment as main source and other sources as supplement.

To establish a mechanism to ensure the growth of funds for “Health Chongqing” and basic health services, the municipal and district/county government shall increase the investment in the “Health Chongqing” project and health sector year on year, and formulate systems and regulations to ensure the investment step by step strictly in line with the requirements that “the investment in ‘Health Chongqing’ shall increase faster than regular financial revenue, that the growth rate of funds allocated to health undertakings shall not be less than that of regular financial expenditures, and that the funds used for rural health projects shall take up no less than 70% of the newly added part of the funds allocated for health undertakings”. It shall be clearly stated in the plan for the construction of “Health Chongqing” in the “12th Five-year Plan” period that the funds allocated to health undertakings shall take up no less than 5% of local GDP, and strive to reach 6-7% in the “12th Five-year Plan” period, and that the financing for basic health services shall take up no less than 1.5% of local GDP, so that the financing can carry on. No less than 70-80% of the funds used for basic health services will be channeled through public financing in the “12th Five-year Plan” period, and the portion paid by users will drop to 20-30%. To increase government’s input is to make people enjoy public health services as welfares so that basic health sector will be restored its nature of public benefit which will in turn gradually transfer to the nature of welfare.

The government shall resort to legislation to ensure financial input in “Health Chongqing”. In this way, financing sources can be guaranteed, and input materialized by law enforcement. Legislation serves the following purposes: first, the obligations of government of all levels can be identified. The priority of public financial expenditures can be given to medical and public health projects which concern people the most. Second, a mechanism to ensure the steady growth of funds for “Health Chongqing” can be established and perfected. The funds needed for the building of “Health Chongqing” shall be included in financial budgets of all levels. Laws ensures that the growth rate of funds allocated for “Health Chongqing” is higher than that of financial expenditures. An assessment and accountability system shall be established to check the input by government of all levels. A long-term financial input mechanism will be then developed. Effort can also be made in exploring other channels or forms of investment, such as international aid and non-government financing. Third, priorities in “Health Chongqing” can be clearly identified. Financial sources are always limited. To solve health problems in cities entails strategic thinking, a long-term vision and looking at the whole situation. It is necessary to constantly monitor health-affecting factors and health-promoting opportunities and challenges. Problems which call for immediate solutions shall be investigated from various angles so that fields which shall be given priority can be identified.
7.2. Government taking a leading role and working in cooperation with different departments is the core.

7.2.1. Government takes a leading role.

As the harmonious development of the society is regarded as the prerequisite of people keeping healthy, “Health Chongqing” constitutes the focal part of people’s well-being projects, which supposedly can achieve practical effect more easily under the leadership of the government because they represent public benefit. Government’s leading roles can be described as follows:

First, “Health Chongqing” can be integrated into the overall plan for the economic and social development of Chongqing. Chongqing is faced with many problems in the process of building a healthy city, such as staff quotas in grass-root medical institutions, working funds for public health institutions and grass-root health personnel, and cooperation among different departments, which can be solved only through the government coordinated planning and push, by formulating public policies, and by securing financial investment.

Second, a scientific assessment system shall be developed to materialize health action plans. The construction of a healthy city contains rich contents which call for systematic indices to assess the effect. The index system developed by the WHO includes 12 categories and 338 indices. The one adopted by Hangzhou city is composed of 89 items. Chongqing has introduced an innovative, scientific and workable index system based on international standard and actual situations in Chongqing, giving stress to four combinations (ie, combination with the national drive to deepen medical and health system reform, combination with the goal of coordinated and balanced development between urban and rural areas, combination with the “12th Five-year Plan” of Chongqing, and combination with the themes of people’s well-being projects), focusing on the central content of “health”, and creating “three-link” methods by referring to quality evaluation system to conduct multi-dimensional assessment at three levels of input guarantee, process and effect. Meanwhile, the government shall quantify and divide tasks in line with the index system. The tasks shall be listed in the performance assessment system for the Party and government leaders, and be fulfilled by year and by phase so that the central work of government of all levels can shift to “healthy city” and “healthy residents”. Scientific assessment helps governments find out bottleneck problems and key factors from practical issues and weak links concerning regional health undertakings. Suitable health action plans will be formulated. Besides, governments can inform the public of the achievements, developments and assessments of “Health Chongqing” project by releasing relevant information to media with a view to creating a desirable social atmosphere through joint effort.

Third, a clear strategy of health promotion will be developed by making public policies. It is one of the key measures to address health issues. The government can develop a clear strategy in reference to the common social problems which affect health by means of public policies, making optional restrictions and guidance to public or private behaviors, values and criteria, which can expression in laws, regulations, plans, schemes, advice, minutes, decisions, replies to subordinate authorities, reports and other documents tantamount to policies.

7.2.2. Different departments work together, and social resources are to be mobilized.

The factors which affect city health fall into four categories: One is health-related factors, such as the distribution of health resources, capabilities of medical and health and public health services, health supervision mechanism. Two is social and economic situations, such as economic growth rate, employment of urban and rural residents, income, consumption power. Three is city environment, such as ecologic environment, living environment, water supply and
infrastructure. Four is living habits and living style. As all these factors interact with each other, the construction of health city involves concerted effort from different government departments and all walks of life.

The project of “Health Chongqing” calls for the strong leadership of the government which is supposed to coordinate goals and tasks, and develop a network which covers municipal and district/county government, different functional departments and neighborhood. Different departments shall integrate the goals of the project into their own responsibilities and tasks, thus an interactive, complete and effective working mechanism will be set up. For example, Chongqing can draw on the pattern of “traffic patrol” stations when planning and coordinating the provision of a certain service by integrating existing resources and by evidence-based cross-department coordination. For example, since the construction of an ecologically-friendly city and that of a healthy city share a common goal, water, hygiene and landscape departments can develop an evidence-based multi-department strategy, stressing information sharing and communications, and looking for new cooperative forms. To sum up, the construction of “Health Chongqing” shall focus on the overall goal of “building together and sharing together”, upholding holistic and common interest while eliminating local and individual interest.

The government, market, NGOs and the public shall do their own due share while cooperating with each other to address the factors which affect city health. The government shall focus on the fields in which market and NGOs fail to work, exerting its functions of public administration and service. The basic role of market mechanism shall be tapped to distribute social resources to safeguard fair and effective competition environment.

7.3. Comprehensive design of projects and overall advancement of reform is the means.

Given its rich contents, the construction of a healthy city shall draw on specific projects to turn its vision into reality. Therefore, the leading group of the construction of “Health Chongqing” shall make much effort in organizing and coordinating relevant departments to design, implement and manage projects. A survey and analysis can be done upon residents’ health status and demands before priority programs are identified in line with goals, available resources, methods, importance, feasibility and effectiveness. Then they can be implemented by coordinating resources, mobilizing all walks of life, and carrying out concrete activities. Its process can be promoted through supervision and assessment. Projects ensure the effect of the construction of a healthy city, and make people realize the core value of health as the most important thing of the campaign of healthy city.

Meanwhile, the “Health Chongqing” campaign is supplementary with the drive to deepen medical and health system reform. It’s a long-term and arduous task which requires scientific planning and holistic designing. The reform in a certain field doesn’t aim at an individual aspect but a whole thing. Take Chongqing’s capitation payment system as example. It’s designed to ease the problem of high costs, regulate medical behaviors, and control the risks of basic medical insurance funds. It’s not simply a move of payment pattern reform but more of a comprehensive and coordinated one. First, it shall based on a complete rural health service network without which services in grass-root health institutions are difficult to be regulated and enhanced, and in turn, the practice of capitation payment is baseless. Second, effort shall be made to innovate financing and construction mechanism. Government input shall go more to grass-root health services. Specifically, village clinics shall be planned and constructed, and accessible grass-root health service network developed, so that people who join in the NCMS can have their illnesses treated, which constitutes the foundation of the practice of capitation payment. Third, while advancing payment reform, effort shall be made in system development and capability build-up, such as identifying performance quotas, monitoring costs, and promoting fulfillment of defined obligations by hospitals and other suppliers. These responsibilities are to be divided among different departments (such as the Health Bureau, the Finance Bureau, the Human Resources
and Social Security Bureau and the Medical Insurance Center). A mechanism is needed to coordinate different departments in this case.

7.4. Establishment of regional health information platform by information means is the key for “Health Chongqing”.

The “Health Chongqing” campaign is synchronized with Chongqing’s medical and health system reform, mutually promotive. As Health minister Chen Zu ever said, informationalization shall not drag the advancement of new medical reform. So to speak, informationalization is the key to address difficult and important issues in the new medical reform. An information platform shall be fostered in the way that it optimizes the distribution pattern of health information and resources, follows new medical reform policies, aims at the improvement of regional health service capacities, efficiency and proficiency, takes residents’ electronic health archive and electronic medical records as core, realizes resource sharing longitudinally at “municipal – county – township - village” levels, horizontally between “medical health – public health” sectors, and dimensionally between “health institutions and residents”. Be aware of the following while developing such a platform: first, it shall abide by the standard and unified principle. Second, it shall keep the idea of “differentiation of system functions, design of modules, streamlining of processes, and division of tasks”. Third, hardware and software constructions shall be given equal attention to.

8. Policy suggestions on acceleration of “Health Chongqing”

The “Health Chongqing” campaign is a systematic project which involves politics, economics, society, planning, public health and other fields. It will never come to an end once started due to its complexity.

8.1. Development of “Health Chongqing” in the 12th FYP period shall be identified.

CPC Chongqing Committee and municipal government expect to foster Chongqing into a “developed state-level center city in hinterland of China” during the “12th Five-year Plan” period while carrying on their effort in building Chongqing into a grow pole in west regions and a center city in the upper reaches of the Yangtze River. The overall positioning for Chongqing embodies the goals for “Health Chongqing” during the “12th Five-year Plan” period: Keeping abreast with Chongqing’s leading position in west regions in terms of social and economic development, mutually promotive, highlighting the idea that “health benefits residents, and health strengthens the city”, fostering Chongqing into the medical center in the upper reaches of the Yangtze River, developing Chongqing into a leading city which provides equal and integrated basic medical services and public health services to urban and rural residents, and forging Chongqing into a pioneering city for the reform of medical reform. It’s expected that a relatively complete basic medical and health system will be established in the “12th Five-year Plan” period. Measures will be taken to promote the development of health industry. Health resources distribution will be strengthened and optimized. A healthy environment will be created. Indices concerning health resources will reach the national average. Resident's healthcare and health indices will lead west regions and exceed the national level. The accessibility to, availability and fairness of, health services for rural residents will improve to honor the nature of public benefit and effectiveness of basic medical service system.
8.2. Seize the opportunity to increase investment through various channels, and promote Chongqing’s position in the national health reform.

The Health Bureau of Chongqing signed a cooperative agreement with the Health Ministry of China on “the construction of Health Chongqing through joint effort” which further confirms Chongqing’s position in the national picture of deeper medical and health reform. This offers Chongqing more opportunities to seek more financial sources. In this regard, Chongqing shall first of all try to obtain the support from the central government. It shall plan and reserve a batch of key projects of far and wide bearing aiming at actual problems emerging from the process of “Health Chongqing”, and try to list them in the projects which enjoy favorable policies from the central government and ministries. Second, Chongqing shall tightly hold the opportunity brought by the strategy of west development to attract foreign investment and make full use of the bidding projects sponsored by WHO, WB and ADB, so that the medical reform in Chongqing can be advanced through gaining capital and technical aid. Lastly, Chongqing shall actively play the role of its peer provinces and municipalities which pair up with Chongqing and offer assistance and cooperation in personnel training and project implementation.

8.3. Identity priorities in each domain in line with the goals of “Health Chongqing”.

8.3.1. A complete medical and health system is to be established to solve the problem of “high costs and lack of medical resources”.

1) A rational regional health plan should be made, the distribution of medical resources shall be optimized, and accessibility to health services shall be improved.

A rational regional health plan shall be formulated in line with the speed of social and economic development, regional planning, the trend of population flow, and development zones or parks planning, featured by "resources integrated, functions highlighted, development differentiated", with a view to achieving a desirable distribution of health resources described as "multi levels with one core".

We suggest that the distribution of health resources be planned together with the overall plan and overall management for the city. Especially, when developing plans for new zones and communities, considerations shall be given not only to housing, transportation, commercial facilities, cultural amenities and landmark structures, but health shall be given greater attention to by synchronizing the plan for medical institutions with regional plan. Health resources shall be rationally distributed based on scientific surveys on demands for health services by local planned population. Municipal Planning Bureau and district/county Planning Bureaus shall work in cooperation with Health Bureaus at each level to ensure the reasonable distribution, scale and adjustment of health resources and exercise administration on them. The municipal health planning aims to meet health demands of local residents, reflect the features that “each party does its own share and specializes in certain services” set for the municipal - district/county - town/street - community/village service network, and strive for equality.

First, intensify the construction of key medical institutions at municipal and district/county levels. To build Chongqing as the center in west regions, Chongqing shall accelerate the extension and relocation projects for the ten municipal-level public medical institutions. The hospitals affiliated to Chongqing University of Medical Sciences and the Third Military Medical University of PLA shall focus on scientific research and innovations, speed up the construction of key laboratories, and make overall plans for equipment purchase to avoid repetition of large-scale equipment. Other municipal hospitals shall focus on specialized services. Hospitals in regional center cities located between the two ring roads (Wanzhou, Fuling, Qianjiang, ), and in
counties/districts with 800 thousand to one million population shall be included in the list of candidate hospitals to be built into first-class hospitals, so that the number of first-class hospitals will increase to 30 from current 17. The medical network of “two levels with one core” shall assume the responsibilities of combating complicated diseases, providing guidance to grass-root institutions, and reaching to surrounding areas. Meanwhile, Chongqing shall put into full play the advantages of PLA hospitals in discipline development, personnel and equipment to promote the overall development of non-PLA hospitals, and to provide stronger service.

Second, intensify the construction of medical institutions at two grass-root levels. The medical institutions at two grass-root levels refer to community health service centers and health service stations in cities, and township hospitals and village clinics in countryside. They serve as “guards” to keep people’s health, so governments of all levels shall increase financial input to lift them to national standards. For existing medical institutions, whatever is inadequate shall be provided, such as their business housing, the layout of business housing, and basic equipment. For new medical institutions, input shall be sufficiently allocated at one time to secure their attainment of national standards once finished. As response to the national strategy of health information development, “information offices” shall be set up in qualified districts and counties, and be equipped with internet, computers and other facilities quoted in the national codes on standard grass-root medical institutions. The offices are expected to streamline the utilization of grass-root medical insurance settlement information system, public health service supply and management information system, and the establishment of doctor’s work stations. There shall be an overall plan for their construction. New urban areas, industrial zones and communities shall develop plans to build new or renovate the existing township and village medical institutions based on the scale and composition of population. Where former towns merged into new ones or were relocated, community health stations and village health clinics shall be retained. Service costs are high in these places due to smaller size of population (such as in remote mountainous areas). Efficiency is comparatively low, returns less. They, however, can not be removed on the excuse of less returns, but instead, should be given greater support. The staff working there shall be paid from public finance of different levels to relieve their concerns so that they can serve local people better.

Third, intensify TCM teaching and the development of TCM hospitals. TCM is a national treasure. TCM shall be more utilized given the weak medical and health foundations in Chongqing. The fact that Chongqing has no independent TCM university at moment is adverse to the cultivation of TCM personnel and the establishment of TCM organizations. Therefore, Chongqing TCM University (or College) shall be founded by drawing on the resources of Chongqing TCM Hospital, Chongqing TCM Junior College, the TCM School of Chongqing University of Medical Sciences, the TCM discipline offered by Chongqing University of Post and Telecommunications, and other TCM teaching and research organizations, with municipal health authorities taking the leading role while working with Chongqing Education Commission. This move will help fill up the blank, narrow down the gap between Chongqing and other cities in terms of TCM practice, research, preparation and teaching. Meanwhile, new TCM hospitals shall be built in districts and counties and improvement made on existing ones. A campaign shall be launched to create famous TCM brands and key support given to TCM hospitals in some counties to help them build into first-class hospitals. It is necessary to build up a group of famous TCM doctors, establish workshops for them, kick off a TCM website, and explore the pattern of “TCM doctors practicing medicines in different places”. Measures shall be taken to tap rich TCM plant resources in Chongqing, accelerate the development of “famous TCM medicines”, and inherit and develop TCM theories and techniques.

Fourth, encourage and channel non-government capital to develop health cause. While strictly implementing the plan for health resources and access system for medical institutions, Chongqing shall encourage and channel non-government capital to develop medical and health cause so that sources and patterns of investment can be diversified. Favorable policies shall be formulated to support of involvement of non-government capital, specifically, non-public
institutions enjoy equal treatment to public institutions such as membership of medical insurance network, research projects, professional titles and further education. In the end, non-public hospital can stand more chances to compete with public hospitals, and promote each other.

2) **Introduce integrated management at township and village levels, promote coordination between them, and enhance grass-root health service capacity.**

Chongqing has introduced integrated management between township and village medical institutions in Qianjiang District, Jiulongpo District, Yongchuan District and so on, which has achieved some results. The pattern shall follow the principles of "government taking the leading role, upholding the orientation of public benefit, formulating overall plans, step-by-step implementation, longitudinal coordination, and performance assessment". More explorations shall be made in management system, personnel, finance, business and other field.

**First**, the management system shall be streamlined. It shall be further confirmed that village clinics/community health service stations are branches of township hospitals/community health service centers. Their legal representatives shall be assumed by directors of township hospitals or health centers. Staff in health stations or village clinics shall be employed by township hospitals or community health centers. The latter shall hold responsible for the assets management, financial management, medicine purchase, professional training, working criteria and performance assessment in the former.

**Second**, staff quotas management shall be improved. The position appointment system shall be earnestly observed. Staff quotas in village clinics/community health stations shall be set within the limit of overall quotas in line with actual situations there. They are to be employed when passing the unified test organized by district health bureaus. Openly recruited village doctors shall be covered by the staff quotas of undertaking institutions. Agency management is applied to those who are not. Their “personnel archive” is established and kept by personnel exchange centers. All the staff in township and village medical institutions are deployed by township hospitals/community health centers. Personnel training and cultivation in village clinics and community health stations is integrated into the overall arrangement of district/county health HR development.

**Third**, financial management shall be unified. A systematic, standard and scientific financial management mechanism shall be formulated. “Separate management of revenue and expenditures” and total cost accounting are adopted for village clinics/community health stations following the principle of “unified management, all incomes paid over to higher authorities, costs reviewed, and balancing incomes with expenditures”. Medicines, devices, materials and equipment shall be purchased, distributed and deployed in a unified way. Revenue shall be entered in book, reviewed and distributed in a unified way.

**Fourth**, grading management shall be adopted. Functions and obligations shall be further identified for township and village medical institutions. Their business scope and contents shall be reviewed. Detailed grading service rules for their basic medical services and public health services, regulations and technical codes shall be developed. The two-way referral system shall be established. A rational medicare service system which integrates township and village medical institutions shall be created.

**Fifth**, the group service pattern shall be set up. Explorations shall be actively made to integrate health resources to create a group service pattern. Specifically, all the staff in medical institutions at two grass-root levels are divided by village clinics/community health stations and thus build health service groups. Each area is taken care of by a group, and a responsibility system is adopted to manage goals of each group.

**Sixth**, the management pattern of performance assessment shall be introduced. Performance assessment is applied to medical institutions at the two levels, and their major
leaders, individuals and groups. Results are pegged with public health subsidies, performance-based salaries, prizes and punishments of institutions and individuals. An incentive mechanism shall be established to ensure that those who do better jobs are paid more.

3) Establish performance assessment mechanism, and improve health service quality and efficiency

Health authorities at all levels should establish a responsibility and performance-based, service quality and amount-centered, and people’s satisfaction-oriented assessment and incentive system with a view to gradually establishing HR management system by which competent staff are employed and the incompetent are dismissed, to improving income distribution system, and effectively enhancing medical institutions’ quality and efficiency. The health service quality assessment system and performance assessment system for township and village medical institutions which were developed by Qianjiang District and JiuLongpo District were applied to other areas of Chongqing. There should be, of course, unified assessment systems for different types of institutions at municipal level, which shall clearly provide feasible and measurable indices (including assessment for basic health services and public health services) and easy methods. Direct assessment by health authorities or assessment by a third party can be tried in different districts or counties. Health authorities shall intensify assessment for medical institutions, pegging results with financial allocations. Medical institutions are encouraged to develop detailed assessment rules for staff on different positions. Continuous internal assessments serve to optimize performance-based salaries and appointments or dismissals of management, and also identify problems and their solutions. In general, medical service quality and efficiency can be guaranteed only through assessment for basic medical services and public health services, performance-based management for grass-root medical institutions, and linking performance assessment with financial revenue, salaries and appointments or dismissals of management.

4) Solve problems emerging from medical reform, and advance trial reform in public hospitals.

The government will have to work on the establishment of four systems and trial reform in public hospitals in the drive of medical reform in the coming years. Given that 80% of medical services are currently provided by public hospitals, the reform on them is the key to the problems of “high costs and difficult accessibilities” which stand in the way of the new round of medical reform. Chongqing should start with Jiangbei District People’s Hospital (formerly Jiangbei District No. 1 People’s Hospital, Jiangbei District TCM Hospital and Chongqing Red Cross Hospital) for its reform on public hospitals, identifying problems, exploring experience, and gradually expanding to other public hospitals. The reform on public hospitals involves the following major issues:

First, ensure government’s backup for public hospitals in their reform effort

Government’s backup is of significance for trial reform on public hospitals. This can be described as the following: First, government shall identify the rational number of public hospitals and their scale according to regional planning. Their number, standard and scale shall be strictly controlled to ensure that they work for public benefit with reasonable financial allocations. The remaining ones shall be subject to cost accounting and enjoy favorable investment. Those beyond regional medical and health plans can be restructured step by step in a planned way, including relocation, merge, transformation in business and transfer in ownership. Second, government increases input in public hospitals, which shall be used for infrastructure construction, purchase of large-scale equipment, pensions for the retired, subsidies for the development of key disciplines, special subsidies for public health services undertaken by public hospitals, and compensations for the losses permitted by policies due to cancelling of drug add. Studies shall be made in contents, standards and implementation rules of pharmaceutical service fees which shall
be included in the list of reimbursement for basic medical services. Lastly, government shall explore ways to separate medicine from treatment. Public hospitals shall see to their public interest while not experiencing losses by “one cancel, one lower, one add and one increase”. Specifically, drug add shall be gradually canceled. Prices of medicines, medical expendables and charges for examinations with large-scale equipment shall be lowered. Pharmaceutical service fees shall be added to the charge list. Prices of treatment technique services shall increase by an appropriate margin.

Second, reform management system and operation mechanism of public hospitals.

Reform on public hospitals not only calls for a search for multi-channel compensation patterns with government input as major source, but more importantly involves coordination of interests of different sides. This entails energetic research into the reform of management system and operation mechanism.

Chongqing shall encourage districts and counties to actively explore effective ways to separate functions of government from those of institutions, and to separate administration from operation practices. To achieve this, we must keep the following in mind: ① Government's functions shall be further transformed. Health authorities are mainly responsible for administration over health sector such as development planning, access qualifications, codes, supervision on services. They shall be released from engagement of actual operations of public hospitals. Internal management and operation right shall be handed to directors and other management, and be free from interference of health authorities. ② A mechanism for cross-department coordination and cooperation shall be established. Through government's coordination, health-related departments such as family planning, education, social security, personnel, finance, reform and development and publication play their own roles, creating a desirable environment for public hospitals to fulfill their duties of public services and upholding people’s interest. A perfect corporate governance structure for public hospitals shall be established. Their status of independent legal entities shall be confirmed. Directors' responsibilities shall be defined. Rules shall be formulated for selection and appointment of directors. Public hospitals are authorized to take care of their own management and operations. Explorations shall be made to establish and improve corporate governance structure with councils and management committees as the core. They can follow Hongkong’s practice by establishing three independent while parallel systems including decision-making, operation and supervision. The decision-making system can be composed of members of the management committee who come from the government, non-government organizations and hospitals as representatives of different stakeholders. The committee is entitled to make major decisions independently and report to the government, such as selection of the leadership according to the nomination of health authorities. The operation system can be composed of members of the leadership, responsible for daily operation and management. The supervision system carries out supervision on the management through cooperation between inspectors in medical sector, social inspectors, representatives of patients and assessment agencies. To sum up, corporate governance structure defines the obligations and rights of owners and managers, thus creating a mechanism to balance decision-making, implementation and supervision.

The reform of internal management system and operation mechanism is to be intensified. First is to reform personnel system. Hiring system and position management system are introduced. Posts are set on needs. Staffs are hired through competitions based on qualifications for posts. The hired staff signs employment contracts with hospitals, which is taken as the major form of personnel management. A mechanism shall be established to ensure fair competition. Identity management gives way to post management. Second is to establish quality management system with clinical pathway management and evidence-based medicine basis. Effort must be made to regulate medical examinations, prescriptions and treatment to avoid big prescriptions and excessive examinations. A system shall be developed for medical institutions of a same level to mutually recognize medical check results, which should be adopted as an item for the
assessment of public hospitals and doctors. Fourth is to uphold public interests and not to eye economic returns. Public hospitals shall actively introduce the policy of clinical pathway-based limited charge for single diseases, and the reform of performance assessment-based income distribution system. The move is to depeg staff’s salaries and bonuses with hospitals’ business incomes, and to base their assessment on their competence, workload, quality and patients’ satisfaction. The mindset of “getting more from working more and selling more” is transformed into “getting more from working better”. Hospitals are steered from earning-centered competition to performance-centered competition. Fifth is to develop people-centered philosophy for management. Medical staff shall view patients as their central task and hospitals shall view medical staff on forefront line as their most precious treasure. Medical staff shall stick to their professional motto of “healing the wounded and rescuing the dying”. Meanwhile their social status shall be elevated so reflect their social value.

8.3.2. Strengthen health staff, improve their service capability

1) Attach importance to recruitment and cultivation of health staff, enhance service level and ability

Human resources serve as the foundation for health work. As Chongqing suffers from the shortage and low quality of health human resources, recruitment and cultivation of health staff demand sustainable effort and clear objectives.

Over a long period of time, municipal and district/county governments all have formulated five-year plans for the construction of health human resources as well as single year plans for health staff training. The latter has achieved some results, but dragged by phenomena of “repeated trainings, failure to meet demands, perforcutary trainings, and being omitted”, which undermine the effect and lead to a waste of money. The research team therefore suggests that HR construction and staff training plans are implemented based on scientific baseline surveys. The municipal government shall develop a set of standards of HR allocations and qualifications (including internal staff quotas for institutions, basic qualifications and skill build-up requirements for different institutions and different posts), as well as training assessment standards. Districts and counties shall have a clear idea of staff allocations, skills and training demands through surveys, sampling interviews, observations and tests. Following that, a medium and long-term plan for the construction of health human resources and a short-term training plan shall be formulated, which shall be implemented step by step in accordance with plans. Results are to be assessed so as to improve future schemes.

Health sector shall pay attention to the recruitment and cultivation of three categories of personnel:

First, by drawing on methods adopted by universities to bring in high-profile talents, health sector shall put emphasis on the recruitment of leading scientific figures and management staff. Newly built or renovated regionally central hospitals or top hospitals especially need to attract academic leaders in certain disciplinary fields to build groups which in turn would promote whole institutions. The role of talents shall be fully tapped to advance the development of key medical disciplines and generate innovative findings. Meanwhile, government shall work out policies (such as improving welfare and promoting professional titles) to encourage and steer staff as well as retired doctors to go down to grass-root institutions.

Second, by drawing on the methods adopted by universities to manage their students’ counselors, health sector shall intensify the recruitment and management of grass-root medical staff. Chongqing suffers a serious irrational doctor-nurse ratio at moment, which is more serious in grass-root institutions. With ever increasing demand for healthcare, Chongqing shall initiate the “demonstration project of high quality nursing services” in qualified hospitals, with a view to “bringing nurses to patients to deliberate families from accompanying beds”. One of the important
prerequisites to realize the goal is to increase the size of nurse team, especially those working on forefront lines. Therefore, measures shall be taken to give impetus to and stabilize nurses on forefront line, which can include enlarging new recruitment, encouraging nurses who don't work on forefront lines

Third, medical social work can be first tried in Chongqing. There are professional social work researchers and talents in universities in Chongqing. They shall be effectively engaged in medical institutions, communities and families to meet ever increasing demands for medical services (For example, family health nursing or community health nursing becomes imperative with the coming of ageing society. Phycological counseling becomes important as life and work pressure weighs on people). Therefore, effort shall be made to establish systems and operation pattern concerning the allocation and training of professional medical social work with attention from the government. It then shall be put into practice gradually.

2) **Make a scientific plan for the training of health staff, and training patterns shall be perfected**

It's necessary to work out plans for the build-up of grass-root medical force with emphasis on general practitioners to enhance their professional quality and service ability. The training shall be need-oriented. According to the decision of Chongqing municipal government, 180 million yuan will be allocated in three years to carry out large-scale trainings for all the health staff in counties and towns. There are existing patterns to draw on such as the "apprenticeship" pattern adopted by Jiulongpo District, the regular meeting plus training for village doctors in some districts and counties, on-line training, and one-to-one cooperative training. Trainings are supposed to accommodate medical staff's actual needs and to be diversified in forms. For example, with the advancement of the establishment of health archives, the training for township and village medial staff shall not only focus on basic medical skills but more on communication and inquiry skills, data processing and informationalization management. Trainings shall be a combination of theory and practice, which means that trainings are not simply held in classrooms but more in “fields”. The selection and allocation of teachers is the key. We should select highly qualified and skillful teachers to set up health human resources training center. The teachers can be used by all medical institutions and communities. The training can take the form of classroom studies and distance learning. Training centers shall develop should practical courses and textbooks for managers or medical staff to view on line or download. Training centers can make use of information network, setting up “expert exchange” platform to share their ideas. Training centers provide informationalized training assessment system, conducting evaluation on teachers, patterns and effect. Assessment criteria should be developed by municipal government or district government. Assessors can be higher authorities or a third party. Trainees shall go through strict tests. The quality of teachers shall be guaranteed. We should make an investigation into demands from health managers and staff and training effect. What's more important is that further education shall be pegged with assessment, employment, promotion, appointment and practices. Every health professional shall be made clear of the importance of further education. Based on the reform of performance-based salary in medical institutions, it is suggested that academic credits shall be pegged with salary and other welfares of medical staff.

3) **Work out grass-root staff quotas, employment mechanism and welfare guarantee mechanism**

To “set quotas, positions and responsibilities” for grass-root health staff has immediate bearing on the development of institutions and advancement of work. To ensure grass-root medical institutions work for public interests with efficiency, finance departments should fix staff quotas based on appraisal, especially quotas for professional public health staff and grass-root health staff, according to the population and area they serve. Chongqing promulgated the “Interim Provisions on the Establishment of Township Hospitals and Their Staff Quotas” in 2010, which effectively solved the problems of the shortage of staff and “feeding treatment with medicines".
Similar rules shall be worked out by drawing on this provision as soon as possible such as staff quotas for professional public health sector and community health service centers. According to estimates of relevant researches, if 2-3 disease and healthcare staff are allocated to every ten thousand permanent people, pure public health products such as community health information statistics, key infectious disease monitoring, treatment of infectious diseases and health education, as well as some quasi-public health projects such as the prevention and management of cute infectious diseases, planned immunization and management of patients with chronic diseases can be realized. Relevant institutions shall be encouraged to employ temporary staff while setting quotas for public finance-paid staff. Personnel with special expertise such as psychiatrists and psychologists shall be trained and brought in with intensified effort given that Chongqing is widely apart from Beijing, Shanghai and Guangzhou in terms of the overall development of mental health.

The recruitment of personnel shall strictly follow the access qualification mechanism whether it be official or temporary staff. The fact that different institutions adopt different access qualification requirements (assistant practitioners can independently practice in township hospitals. Those who don’t take initial tests and possess no qualifications can practice in villages when they obtain the county-granted village doctor’s certificates), and that existing tests for practitioner qualifications set different requirements on minimum academic degrees all exert influence on the assessment of health human resources. While carrying on the reform of welfares and performance-based payment for grass-root health staff, Chongqing should make some explorations in unifying qualification access standards, the move to honor the purpose of practitioner tests, and to earnestly set access requirements for practitioners and grass-root health institutions. Once the staff quotas are set, “real-name system” and “incentive mechanism” shall be taken to manage the staff and their posts. Disqualified personnel are prohibited to assume health positions. The employed staff must meet the requirements on qualifications enacted by health administration authorities. The staffs that are on health positions but have no qualifications, or are covered in the quotas but are not on positions shall be strictly removed from positions in a planned way. We, of course, should keep it in mind that to strictly follow health access assessment mechanism should be based on a stable grass-root medical and health force. Districts and counties should therefore earnestly guarantee financial salaries, endowment insurance, medical insurance and other work subsidies for township and village medical staff. For example, they enjoy 300 yuan per month as a subsidy for their extra responsibility of public health services, which shall be actually paid and pegged with the performance of government officials. Only by this, can a favorable mechanism be established to improve the quality of grass-root health staff. Health bureaus of districts and counties shall be authorized the leading role in hiring staff. The process should be simplified. Especially in the case of hiring temporary staff, institutions at higher levels and other functional departments exercise supervision.

8.3.3. Promote the equality of basic public health services

1) 

Raise public health services to the same status as medical services

To strengthen grass-root basic public health, township hospitals and community health service centers should be conferred upon one more title, ie, township public health management center or community public health management center. One institution can work with two titles. But staff quotas must be set in line with the population they cover. Public health service centers shall be equipped with housing and facilities. Regulations must be formulated. Public health management and service centers can also be established at district/county level if possible, and their staff quotas are set, enjoying the status of institutions of public undertakings and full financial investment. They are mainly responsible for the management, performance assessment and supervision of public health services provided by grass-root medical institutions. The measures are to raise public health to the same status as medical services in grass-root health service institutions, and to inform people of their duties of disease prevention, healthcare, health education, health recovery and health counseling.
2) Identify and expand contents of public health services to develop and adjust core public health projects

Chongqing has identified nine categories of basic public health services and eight categories of major public health services (referred to as core public health services) in accordance with the national basic public health service package. The project team believes that the core public health service package shouldn’t be immutable, but instead adjustments should be made to it with social and economic development, the change of population structure and residents’ health condition. “Basic” and “major” are relative. Currently non-core services will probably be regarded as core ones in the near future. Therefore, a mechanism should be put in place to keep the contents of core public health service package abreast with social and economic development, political inclinations and residents’ needs. Districts and counties can increase input based on their financial strength to expand contents of core public health service package. This is to maintain social fairness and to adapt to local conditions.

While core public health service programs are subject to cost accounting, per capita public health allocations and subsidies for some service items should be raised in line with social and economic development and increasing demands for healthcare. For example, according to current requirements on children’s health, children aged 0-36 months receive 8 medical examinations, among which No. 1, 4, 6 and 8 examinations are just for somatoscopy (10 yuan each time) and visits (8 yuan each time), and No. 2, 3, 5 and 7 examinations take an extra blood routine test (10 yuan each time). There are no other items. In the case of healthcare for the aged, Chongqing subsidizes each person 100 yuan each year. Compulsory items only include general check and GLU, while blood and urine regular test, four items for blood lipid, B ultra sonic, liver and kidney functions, EKG and funds are selective. This is apt to result in the fact that some people may not be quite interested in them even though they are free of charge for the reasons that they can’t attain purpose while are time-consuming. People’s low interest will in turn affect the motivation of service suppliers, especially the districts and counties which can’t obtain subsidy funds because they can’t collect service coupons which are issued to subsidize service recipients. Public health staff’s motivation will be affected in the long term. Therefore, we suggest that items and subsidies can increase by a proper margin where government finance permits, or extra items be included in basic health insurance by developing fixed and unified processes and rates for physical examination items of public health services. Residents who go for medical checks in the given time can be reimbursed a certain percentage of costs (20-30% paid by individuals for example. Specific standard to be set by calculation). Thus, utilization rate of public health services can be increased

3) Provide standard and incentive public health services

Public health services shall be provided in a standard way to ensure high quality output. For example, children’s immunization programming should not only cover every due group but also require timeliness. Patients of hypertension and diabetes should be identified in a timely manner, and have their blood pressure and GLU checked regularly. Treatment of patients with chronic diseases shall be monitored to achieve the goal of systematic management. Medical checks and visits for pregnant and lying-in women not only involves note-taking, but promptness so as to control birth defect. More attention is given to standardized check of early stage of pregnancy. A national code concerning standard basic public health services was formulated in 2009, which puts an eye on not only the outcomes but the process. With a sound public health information system in place, public health work can resort to computer-aided management and monitoring, and services can be provided in a quantified, systemized, prompt and standard way.

Public health work calls for incentive policies to motivate medical staff to promote accessibility for remote areas and other disadvantaged groups. Districts and counties can experiment with differentiated rates and subsidies to encourage health staff to provide door-to-door services. Institutions shall be made clear their roles and responsibilities in core public health
services. For example, while Chongqing planned to increase health archive rate to 50% in cities and 25% in countryside in 2010, how to divide jobs involved in the program between doctors in township and village medical institutions then? Are village doctors supposed to do the job independently or just to make baseline surveys or even only act as guides or enter data for township hospitals? There is no way to carry out assessment without clearly-defined responsibilities. Therefore, Chongqing should work out contents, process, job divisions and assessment criteria for each item of public health services.

4) Secure health education funds, and promote effectiveness of health education

"Knowledge—idea—behaviors" has proved to be a fairly effective pattern for health education. That means it's necessary to increase health education input so as to transform people’s idea of health, promote their understanding of health knowledge and develop their health behaviors. Chongqing suffers from inadequate health education funds and measures.

According to the “Guidelines on the Use of Public Health Service Subsidy Funds” issued by Chongqing Health Bureau, township and village health institutions are granted no more than 100,000 yuan for health education each year. Inadequate funds exert immediate influences on the diversity of health education means and comprehensiveness of health education contents. Therefore, funds come before activities. Funds are composed of two parts: costs for activities and payments for education staff.

With funds secured, more effective measures are to be taken. Double-prescription is to be adopted in all hospitals, which means that doctors provide both treatment-oriented prescription and healthcare-oriented prescription. The method is expected to promote promptness and authoritativeness of health education. “Small hand holding big hand” program is to be carried out in primary and middle schools. Health knowledge and behaviors that children develop in schools are expected to make a difference in a whole family. The desired results can be achieved through “changing a generation and promoting two generations”. Modern telecommunication equipment can be used to send short messages about health knowledge and medical check reminders. Health education can be based on and integrated into daily life, such as adapting it into stories, composing songs, the popular “open air dancing” and other entertainment. What's more, government can intensify publications through newspapers, TV ads and bus video programs which are easily accessed and accepted by the public.

5) Carry on explorations in payment modes for public health funds

Payment modes affect behaviors of supply of public health services, which strongly steer and restrict cost control, distributions of resources, service quality, efficiency and fairness. With the increase of per capita public health funds, Chongqing should carry on its explorations in effective payment modes. In case of professional public health institutions such as CDC, health supervision stations, maternal and child care centers, funds for personnel can be guaranteed by paying staff salaries, operation funds guaranteed by fixed payments, and business funds paid as per budget entry management. In case of medical institutions which are authorized with public health work, the funds can be paid through “compensations for patients and contract purchase”. In case of pure public health services such as health lectures, leaflets and infectious disease control, funds are determined in proportion to the population to be served, and paid through a combination of advances and performance assessment. In case of individual services which need to be energetically advocated such as immunization, vaccination, hospital delivery, prenatal examinations, postnatal visits and chronic disease control, funds can be paid through compensations for patients by means of service coupons or cards, and pegged with mid-year or end-year performance assessment. In case of services which easily generate unnecessary services such as TB, funds can be paid through a combination of advancing payment in proportion to total amount and performance-based payment. In case of grass-root public health staff, salary system plus position-based salary and performance-based salary can be adopted.
6) **Look for effective measures to control chronic diseases**

Many researches have proved that active investment in intervention in grass-root chronic diseases presents greater benefit against costs than simply increasing investment in already over-loaded health system. Therefore, Chongqing should actively formulate some policies to reduce risks and burden brought by ageing population and wider epidemic of chronic diseases.

**First**, the government should play greater role in the prevention and treatment of chronic diseases by putting it on agenda and listing it in performance assessment indices. Government should adjust working mechanism in this regard. CDCs, universities and research institutes are mainly responsible for project guidance and the research in strengthening intervention in the prevention and treatment of chronic diseases. They should monitor the changes of epidemic of chronic diseases, incidence rate, epidemiological investigations so that the prevention and treatment of chronic diseases at grass-root levels can be carried out with specific purposes and aim at specific problems. Township and village medical institutions serve as the main force in combat against chronic diseases. On the one hand, staff in these institutions shall be hold with specific tasks, duties and rights, and on the other, they shall be greatly motivated. Meanwhile, health authorities shall work together with grain, food, sports, publication, catery authorities and department stores on developing regulations and initiatives to create a social environment in favor of the prevention and treatment of chronic diseases.

**Second**, Chongqing should actively screen and develop reliable, safe and cheap medicines for major chronic diseases in accordance with national basic medicine policies, and incentive policies are to be formulated concerning their production and use. Medicines for out-patient treatment of major chronic diseases can reimbursed, and the reimbursement rate of in-patient treatment can be raised. It is suggested that medical check be covered by reimbursement. Measures are taken to gradually enhance people’s awareness of medical check and the prevention of diseases. Meanwhile some mature, effective, cheap, workable and acceptable technics which have been long tried are to be selected to be included in the agenda of grass-root medical institutions.

**Last**, Chongqing should pool resources to develop supporting measures and tools for the health management of patients which chronic diseases and disease control. For example, the health archive information management system should include a warning function which offers health warning indicators or health intervention reminders by screening and analyzing data collected from medical checks of different periods and family gene. What’more, effort can be made in developing intervention tools and risk evaluation techniques for chronic diseases based on behavior risk factors. Suggestions on healthy behaviors can be given to different groups of people at different stages. The application of tools for risk reminding and intervention can develop people’s health ideas and behaviors to achieve the goal of “life-long health” (the process from embryoic development to death).

7) **Focus on disadvantaged groups and fully ensure fairness of public health services**

The new medical reform makes a special emphasis on the fairness of public health services which means attention is not only given to the balanced development between urban and rural areas, but more to vulnerable groups. They include inflowing population (especially pregnant and lying-in women and children), rural children left at home, and poverty-stricken senior people in cities and countryside. They enjoy little access to basic public health services due to their poor awareness of public health services. This goes against the fair principle of public health services, and the lack of public health services for them is likely to generate risks for social stability and public health.

According to the WHO report submitted by the research team, sampled districts and counties haven’t yet started the management on infectious diseases such as TB and AIDS in inflowing population. The fact is that inflowing population poses greater risks of spreading
infectious diseases than permanent population due to their mobility. Community basic public health services shall cover more inflowing population by any means. What needs to mention is that government should not only accommodate immigrant people in basic public health services, but also encourage institutions to identify barriers that impede inflow population in accessing public health services. Government should take countermeasures to offer services. For example, inflowing pregnant and lying-in women should enjoy equal treatment to that of local women. Departments concerned shall work together to adjust some policies which would affect the use of services by them (such as prenatal check and the establishment of health card they want to avoid because of unplanned birth).

Another group which calls for attention is rural children who are left at home and migrant children in cities. Their healthcare would be influenced due to lack of immediate care from their parents. Therefore they shall be taken as key groups for children immunization programming and children healthcare. Medical institutions shall put more emphasis on them when establishing health archives, and inform them of healthcare services regularly.

According to an early survey, the situation of “getting old before getting rich” is very serious in countryside. It is an arduous and imperative task to improve healthcare level and utilization rate for rural senior people given the inadequate input in basic health sector and poor public health infrastructure in countryside.

8.3.4. Step up the development of basic medical care systems which cover all the people to fundamentally solve the problem of “high costs”.

It's necessary to establish and improve a medicare system, which is featured by whole coverage, basic guarantee, multi-level and diversified patterns, to meet people's medical demands.

1) Keep up with urbanization, and expand covery of basic medical insurance

With accelerating industrialization and urbanization, there would be bigger inflowing and new poor population. Access to basic medical insurance is affected by employment, income, health awareness and other factors. Given that the existing basic medicare system focuses on the balanced development between urban and rural development and wide covery, government should pay more attention to vulnerable groups to increase the availability of affordable services for people who have been covered by medicare system and those who are marginalized. Governments of all levels should include the retired personnel of bankrupt state-owned enterprises in medical insurance system for city and township workers, and grant appropriate amount of subsidies. Measures should be taken to encourage migrant farmers, employees of non-state-owned enterprises and other flexibly employed personnel to join in the medical insurance system for city and township workers, and grant appropriate amount of subsidies for poverty–stricken people to cover their insurance premiums. Those who are unable to join due to financial difficulty should be encouraged to join too.

Meanwhile, measures should be taken to develop commercial health insurance, encourage commercial insurers to develop health insurance products to meet the needs of different groups. Process should be simplified to make the access easier. Enterprises and individuals are encouraged to buy commercial insurances and other supplementary insurances to meet needs beyond basic medicare.

2) Raise financing standard and guarantee level

A mechanism should be established which defines a rational share respectively paid by the government, unit and individual so as to strengthen basic medical finaning. The medical subsidy paid from government finance was raised to 120 yuan per person per year from 2010, and will rise year by year. While basic medicare level is set according to the financial situations
and needs of in-come groups, we should consider raising individual shares with the increase of
per capita income. For example, individual payment can increase by 0.5% to 1% for city and
township workers. Similarly, individual payment in the two categories of cooperative medical
insurance for urban and rural residents can be raised in relation to the growth rate of GDP.

Given reinforced financing, the reimbursement rate for medical insurance for township and
city workers, the cooperative medical insurance for urban and rural residents and the NCMS shall
be raised. The reimbursement rate for in-patient treatment in the above insurances shall increase
to 70%, 55% and 50%. Out-patient treatment can be coordinated by expanding and increasing
the reimbursement rate and scope of out-patient treatment. We should try to add basic medicine
costs for hypertension, diabetes and other major chronic diseases, and screening costs for some
cancers, to the scope of reimbursement of out-patient-treatment costs covered by basic medical
insurance. The scope of special diseases shall be expanded, and the reimbursement rate for
them shall be raised. Medicare for senior people of 70 and beyond shall be guaranteed by
systems. The maximum payment from the coordinated funds of medical insurance for township
and city workers and residents' medical insurance shall be raised to 6 times average income of
local employed personnel or disposable income of local residents.

Chongqing should establish a stable fund-raising mechanism in relation to social and
economic development and the natural increase of medical costs. Measures should be taken to
expand fund-raising channels and sources (For example, funds collected from surtax on smoking
and other taxes can be used as supplement for the funds of medicare for all people, which are
first used as medical subsidies for disadvantaged people), to raise financing standard and
medicare level.

3) **Impose strict management on basic medical insurance funds to lower their
operation risks**

Medical insurance funds of different types shall follow the principle of “expenditures to be
set according to revenues, achieving balance between income and expenditure, and striving for
surplus ”. Annual surplus (within 15% in principle) and accumulative surplus (within 25% of
coordinated funds of current year) shall be kept at a rational level. At the same time, we should
calculate and rationally control operation risks of basic medical insurance funds. We should be
aware that medical costs would rise due to increasing demands for health services, rising
healthcare costs brought by ageing population, and changes of medical institutions as a result of
urbanization (possibility of transforming from township and village institutions to municipal
institutions). What’s more, basic medicare level improves. These factors would lead to the
increase of utilization rate of medical insurance funds. Judged from the settlement, medical
insurance funds in some districts and counties have presented high risk of “crash”.

It’s important to take note of the following issue to reduce operation risks of medical
insurance funds.

First, a negotiation mechanism should be established between basic medical insurers and
suppliers. We should energetically promote the reform of medical insurance payment by
perfecting a blend of payment modes such as the advance payment, limited amount, fixed
amount, payment as per the number of people and payment as per bed/day. We should
scientifically price medicines, medical services and medical materials. The basic medicine
catalogue should be introduced to all grass-root medical institutions keep medical costs at a
rational level. In order to encourage the use of basic medicines, we should first improve
compensation mechanism and assessment mechanism for medical institutions. Losses that
medical institutions and doctors suffer in a short term shall be compensated based on scientific
calculation and financial subsidy standard so as to stabilize and motivate doctors.

Second, we should regulate clinical diagnosis, treatment and medication by referring to
EBM. Prescriptions of medical institutions and doctors shall be regulated through sustainable,
regular, internal and external quality assessments. Results are pegged with financial allocations for institutions and with performance-based distributions inside institutions. Last, we should put into full play the pharmacy management committee of medical institutions to monitor the use of basic medicine. The information shall be fed back to doctors and be referred to when formulating criteria for clinical practices. Medical education and in-service training shall focus more on the rational use of medicines. Education in this regard shall be carried out among patients too to enhance their understanding of the significance and value.

Third, the basic medical insurance information system shall be established. The settlement endpoints for basic medical insurance funds can be set up in the designated medical institutions at municipal, district/county, township and village levels. With complete information systems in place, we should introduce “E-card” for medical treatment in designated institutions so that direct settlement between medical insurers and designated medical institutions can be realized.

4) Improve basic medical insurance and seamless medicaid integration system

Desired healthcare system consists of three levels: insurance (medical insurance for city and township workers, NCMS and cooperative medical insurance for urban and rural residents), aid (medicaid system for extremely poor people), and services (medical welfares provided by public medical institutions). That is to say, medicaid is an essential part of healthcare. Medicare costs mainly come from financial allocations, supplemented by funds collected from other sources.

There are three issues which should be kept in mind while improving urban-rural medicaid. First, medicaid shall cover more people. Recipients of subsistence allowances in urban and rural areas, “five guarantees” households in countryside, and poor patients with special and serious diseases should all be considered as recipients of medicaid. Floating population and other groups who would get into difficult situations due to unexpected injuries or diseases should also receive medicaid. Second, different medicaid means should be adopted. Medicaid can go to serious disease or in-patient treatment, common disease treatment and chronic disease treatment. It’s wise to design some emergency mechanisms and funds in response to special requests. Third, medicaid should be intensified. For those who cannot join in the basic medical insurance due to financial difficulty, government should offer to pay premiums. Medicaid should go to out-patient treatment, especially that of chronic diseases, to prevents minor or chronic diseases from turning serious as a result of delayed treatment. The seriously disabled or ill who need off-hospital maintenance treatment and the aged who are 80 years old and beyond receive medicaid of fixed amount for out-patient treatment. Other recipients first have their out-patient treatment costs reimbursed from basic medical insurance, and then the portion paid by themselves can be reimbursed by medicaid by certain percent. We should gradually intensify medicaid for in-patient treatment by solving standard of reimbursement of basic medical insurance, raising the rate of medicaid for self-paid portion after compensations are claimed against basic medical insurance, and reducing actual payment undertaken by patients. Of course, to offer medicaid is not to waive all the costs. Patients should pay a certain percent to avoid over-treatment. For other financially disadvantaged people other than recipients of subsistence allowances, proper aid should be offered in the form of temporary medicaid.

Medicaid is under the jurisdiction of civilian affairs authorities, but currently basic medical insurance is in the charge of social security authorities and health authorities. Therefore, it is extremely important to integrate medicaid with medical insurance.

8.3.5. Promote urban eco-environment quality, step up health safety project construction, and develop healthy lifestyle

Healthy city calls for coordinated and sustainable development among social health, environmental health and human health. Therefore, “Health Chongqing” should follow the overall
plan of “Five Chongqings”, closely linking health with environment. As the municipality and economic and cultural center in western regions, Chongqing will certainly suffer from environmental pollution due to highly concentration of population, industry and economy in the course of urbanization. What’s more, Chongqing sees weak infrastructure and eco-environment. People’s awareness of environment and health needs to be promoted. So, to improve urban eco-environment quality, strengthen health safety project construction, enhance people’s understanding of health and develop people’s healthy behaviors should all be the goals of “Health Chongqing”.

First, we should make sustainable effort in building Chongqing into national hygienic city. The goal has been written in the government work report. To achieve this goal, districts and counties shall increase the coverage of vegetation, eliminate dirty, chaotic and poor phenomena (especially the undesirable sanitation ad order in junctures between urban and rural areas, villages in cities and back streets ), erect structures, set up stands, and park vehicles in violation of regulations. So the city management will be more standard and clean.

Second, Chongqing should put emphasis on the implementation of healthy food project and drinking water safety project. Following measures should be taken to ensure people have access to clean drinking water, clean air and reliable food: A mechanism should be established to supervise and manage the whole production process for food. The construction of food safety credit system should be accelerated. Market access should be strictly implemented. The system of regularly releasing information of food safety shall be carried out. Forceful measures should be taken to expand the production bases of pollution-free, green and organic agro-products, and to control agriculture-related pollution and pesticide residues on agro-products. Supervision and enforcement of food safety shall be intensified by perfecting the quantified and grading management system, implementing precaution measures against food poison, and establishing and improving emergency mechanism for food safety accidents. Regulation on food hygiene and safety in schools shall be intensified. Food safety monitoring frequency and coverage shall be promoted. Behaviors against laws and regulations shall be investigated and punished in a strict manner. The management on the production of tap water and bottled water and quality supervision shall be carried out energetically so that the water quality can fully reach criteria. The system of cleaning and disinfection shall be strictly executed. Measures are to be taken to ensure secondary water supply safety in high rises in cities.

Third, Chongqing should promote healthy lifestyle to engage people in the joint effort of building “healthy homeland”. By referring to TV, newspapers, internet and other mass media, Chongqing should actively inform people of health knowledge, health culture and health awareness. The habits of overdose of medicines, smoking, drinking and poor diet shall be banned. Publications and behavior interference with regard to the preventions of major diseases shall be carried out in important places and key groups. Emphasis shall be put on mental health of key groups. School shall actively provide mental counseling for students. Mental clinics or mental inquiry centers should be established in communities. Toll-free mental assistance hot line shall be opened. Thus mental perplexity and problems can be solved in time. Middle and primary school shall energetically develop health education activities such as “small hands holding big hands” to create a healthy and intelligence-favorable environment. The program can help bring health to communities, villages and families, and help people develop healthy behaviors. Communities and large-scale factories shall be equipped with fitness facilities to bring people access to physical exercises. Chongqing’s advantageous conditions as a mountainous and water city shall be fully tapped to lead people to suitable fitness activities such as open-air dancing, square dancing, mountain climbing. Guidance should be provided for people to take part in physical exercises in a scientific way.
8.3.6. Develop health-related industry to meet demands for diversified and multi-level health services

Health industry falls into two major categories, medical and non-medical health services, if divided by health consumption demands and service supply patterns. It is composed of four basic industry clusters, ie, medical industry with medical institutions as main part, medicine industry with medicine, medical equipment and other medical consumables as main part, traditional healthcare product industry with healthcare food and its production and sales as main part, and health management and service industry with customized health check and assessment, consultancy, health recovery and health promotion as main part. The future development of health industry should be integrated into the strategy of cultivating new growth points, aiming to “promote health of all people”, and geared to healthy, sub-healthy and sick people. Emphasis should be placed on two industries as follows:

First is the disease prevention industry. Given the current economic development and people’s understanding, medical treatment is given attention to while prevention belittled. Many people go to see doctors when developing diseases while tending to neglect prevention. With the implementation of health promotion activities, people are informed more of health knowledge, and realize the importance of “prevention going before health”. For example, when more people know about calcium deficiency or osteoporosis which can be prevented at young ages, disease prevention industry such as health products will develop very fast. Prevention industry consists of health products and health service programs such as SPA and foot massage. Therefore, with the improvement of material and spiritual life, demands for health services expand, which will bring a lot of business opportunities to prevention industry.

Second is the health nursing industry for the aged. With the increasing ageing population, health nursing has become a grim social problem. Currently, grass-root medical institutions suffer lack of nursing staff. The “421” family structure can not afford health nursing for the aged either. The family nursing industry is born in this context, which combines the leading role of the government and market mechanism. The industry should be given support as a new industry. For example, the government can set up family nursing service centers in communities and village committees, or make use of community health service centers/township hospitals to provide family nursing services. Their services include health household management, accompanying hospital visits (accompanying senior people to see doctors, taking care of the whole process such as registration, treatment, taking medicines, injection and in-patient nursing) and palliative care. While addressing health nursing problem for the aged, the industry creates jobs for professionals, and helps eases family pressure. It achieves a few outcomes at a time. The health nursing industry for the aged shall be supported by favorable policies and investment from the government in order to gain smooth start and sustainable development. For example, relevant measures shall be taken to regulate the access qualifications, operation criteria, industry norms, and supervisions. Communities shall provide facilities, and cooperate with medical institutions in providing standard training. Family health nursing shall be included in medical insurance, etc.
SECTOR REPORT OF HEALTH CHONGQING
(SPORTS)

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SUMMARY

With significant opportunities in its development, Chongqing has come to a new start in history. As one of the central cities in China, “Inland Hong Kong”, “the Wall Street in Western China”, Chongqing is well known with different images. Sporting Chongqing should be further connected with the development of the city, as sports have double attributes of administration and industry. First, the national fitness should become part of people's life as well as the foundation of the medical reform. Meanwhile, combined with leisure touring, the national fitness can help develop tourism in the city. Second, competitive sports not only stir up people's enthusiasm, but become the basic cause of cultural transformation. Third, the construction and management of gyms and stadiums should be highly valued when considering the spatial change and economic growth in the city.

The construction of Sporting Chongqing can greatly promote the scientific development in the city. Chongqing has already possessed the condition of better developing the healthy sporting. Economic development being at the middle stage of industrialization, social development being in the period of demographic dividend, inland areas' construction being accelerating, all these features predict faster economic promotion in Chongqing. With economic development, citizens of Chongqing will have more and more demands in sports and other non-substance consumption. Higher-level and larger-scale consumption in sports has come into being, with representatives of sporting excursions, vacation and exploration. With suitable guidance, healthy and sporting Chongqing will undoubtedly have more development. At present, sporting consumption of Chongqing is at the turning point from weak to strong. Major sporting events will definitely stimulate sporting consumption. The overall development and benefits should be taken into consideration, by combining the 2014 National Sports Meeting with the strategic targets of the city.

The case studies on Melbourne of Australia, London of Britain, Singapore, and Ottawa of Canada show that more and more municipal governments have regarded the promotion of sports as a part of the development of the city. Specific practice may vary from place to place. In some places, government takes the lead; while in other places, service organizations do. No matter with which method, government plays an important role in guaranteeing fair acquirement of sports. This, in turn, will lead to a healthy community. As proved by cases in foreign countries, the policy of sports should coordinate with other plans and gain the support from the government.

Since the city of Chongqing has a large population and big regional difference, the development of national fitness cannot completely depend on the government. Otherwise, the burden of the government will rise, and meanwhile the national fitness can not develop quickly and healthily. The national fitness program cannot just rely on the financial support, but on the sustainable enhancement of the ability of self-development and the course of socialization, mercerization, and industrialization. Therefore, the self-development capabilities of local sports should be promoted with diversified business management and the national fitness should be improved by developing the sports industry. And the construction and management of gyms and stadiums should be included into focal points in the near future.

In summary, the city which wants to appear attractive and unique should conclude its own value and bring fresh feeling to people. If a city can becoming charming without any effort, its brand must be designed carefully. Sports can change the appearance of both the people and the city, and promote the municipal development as well. Sporting Chongqing can be expected to become another classical case in urban management.
SECTOR REPORT OF HEALTH CHONGQING

(SPORTS)

1. Introduction

Against the background of rapid urbanization, Healthy Chongqing is a long-term project which introduces health and its connotation into the agenda of the city’s decision-making. Based on the principle and goal of the strategy of "Health for All", we will combine the complex concept of health with sustainable development dynamically and thus to improve citizens’ physiological, spiritual, social and environmental level. In July, 2008, under the strategic decision of building the “Five Chongqings”, Health Chongqing is seen as the most direct and concrete practice of applying Scientific Outlook on Development and human-oriented ideas. From August 2008, in order to boost the construction of Healthy Chongqing, Chongqing Municipal Sports Bureau took the lead and more than 30 departments were gathered to do investigations and surveys which lasted for three months and gave an overall argument for the sports work of building Healthy Chongqing, including the goal, mission, policy, measure, and fund. On that basis, Chongqing Municipal Party Committee and municipal government together printed and distributed *A Decision on Building Healthy Chongqing*. The municipal government launched *Plan of the Movement of Healthy Chongqing* and held a mobilization meeting on building Chongqing, pulling open the curtain of the construction of Healthy Chongqing. Since forging Healthy Chongqing, taking 2009 as an example, the annual mission was more than fully achieved: The qualification rate of citizen physique samples reached 87.3% and 21 national youth clubs were set up; 1100 sports fitness projects were built, 20% higher than that in 2008; 100 district sports bodybuilding projects were built and 23 citizen body-building mountaineering trails were named, 30% higher than in 2008; 26 rural sports fitness squares were built and 25 "a field-a museum-a pool" projects were under construction and completed the investment of 740 million yuan. 2009 saw the largest scale and greatest investment of Chongqing's sports facilities construction in history. In 2009, Chongqing held more than 1600 sports activities of all kinds and the number of citizens who participated in was a sharp increase compared to that of 2008. The 3rd Chongqing Sports Meeting, which was held in September, 2010, demonstrated the achievement of the extensive fitness program and drew a national attention. The completion of the swimming pool in June, 2010, which was located in the recreational and sports center of Qianjiang District, filled the gap that southeastern area of Chongqing didn’t have a comprehensive large swimming pool.

In 2010, after competing with Guangdong, Guangxi and Jilin Provinces, Chongqing won the right to hold the National Sports Meeting, the highest level of Olympic project omnibus sports. The success of this bid was not only the first time that Chongqing held national omnibus sports since its municipality under the Central Government, but also would further stimulated the development of Healthy Chongqing and greatly improved the image of Chongqing City. The totally reformed Da Tianwan Stadium has been the biggest nationwide fitness center in West China; The Chongqing competing training center, which is located in the university town and covers 530 acreages, is being built and will be a modern training base; In 2011, Olympic sports center gymnasium, small arena and sports park will be built and they will be Western China’s competing place which hold domestic and international large single events, and so on. In the near future, sports will not only change Chongqing people’s look, but also build the city and stimulate the development of the city. Sports Chongqing will be a new card of Chongqing.
2. Present Situations and Problems of Healthy Chongqing

2.1. Civilian physique

Before 2008, the qualified rate of Chongqing’s civilian physique was always unsatisfactory, and even couldn’t reach the national average level. So, the promotion plan of Healthy Chongqing clearly proposed the goal that by 2012, the qualified rate of civilian physique samples must reach 88%. Besides, the data of Chongqing citizens’ life expectancy and population mortality showed that healthy sports activities were an arduous task.

As to life expectancy, though higher than other mid-west provinces, Chongqing still has a big gap compared to eastern provinces like Shanghai (Chart 1). Besides, in 2009, Chongqing’s mortality was 6.2‰ and was 1.64‰, 0.5‰ and 0.26‰ higher than Beijing, Tianjin and Shanghai respectively, but 0.23‰ and 0.49‰ lower than Sichuan and Guizhou Provinces respectively.

The mortality of 2009 shows that though there was a quite big gap between Chongqing and mid-east provinces, Chongqing was still in the hierarchical position among western provinces.
Moreover, in the process of programming the health index system of Chongqing citizens, the municipal government surveyed 20,000 residents. The result showed that Chongqing citizens’ health conditions were not optimistic in the aspects of diabetes mellitus and impaired fasting glucose, viral hepatitis type B and hematological diseases.

2.2. Sports resources

The shortage of sports resources not only includes the shortage of stadiums and fitness facilities, but also includes the weakness of sports events, organizations and competitive sports, which can stimulate the development of sports.

2.2.1. Sports venues and facilities

Sports cannot develop without venues and facilities. Chongqing's sports venues and facilities have made great progresses since 1990s, especially from its municipality under the Central Government. Chongqing's per capita sports fitness site area was 0.51 \( \text{㎡} \) in 2008, less than a half of that of the national average. By the end of 2009, Chongqing's reached 0.8 \( \text{㎡} \), and then by the end of 2010, that was 0.9 \( \text{㎡} \), which was striking near to the national average level of 1.1 \( \text{㎡} \). Healthy Chongqing program formally started from December 2008. After only two-year's development, Chongqing's sports venues made amazing progress. However, there is still a big gap compared to domestic developed cities. In 2010, Shanghai's per capita sports venues had reached 2.5 \( \text{㎡} \). Even compared with other areas of western China, Chongqing is not in the leading place.

<table>
<thead>
<tr>
<th></th>
<th>Chongqing</th>
<th>Sichuan</th>
<th>Yunnan</th>
<th>Inner Mongolia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitness Building Project in Rural Areas</td>
<td>2400 24%</td>
<td>3378 6.30%</td>
<td>910 7%</td>
<td>967 8.60%</td>
</tr>
<tr>
<td>National Fitness Program</td>
<td>554 28%</td>
<td>2000 28%</td>
<td>376 38%</td>
<td>600 23%</td>
</tr>
</tbody>
</table>

Table 1. Comparison of Fitness Facilities of Chongqing with that of Other Western Provinces

Besides the shortage of sports venues and facilities, there is also a problem of undistributed sports resources, though Chongqing has built a basketball court, a basketball hoop and two ping-pong tables at present, which let broad farmers enjoy the fruit of the sports reform and development. In the Seven Ones engineering construction, which was implemented in 2009, the projects that were relevant to rural areas include 10,000 farmers’ sports fitness projects, 100 citizens body-building mountaineering trails projects, 100 rural fitness projects and 50 rural sports fitness squares. However, as Chongqing is a huge country which is driven by a huge city, the phenomenon of binary structure is very obvious. The sports resources are mainly distributed in the home city, while southeastern area of Chongqing, ethnic minority areas and rural areas are very insufficient. Take Bishan County as an example. Bishan now has 65 stadiums but only 4 are qualified and there are 62 which belong to educational system. Basketball courts are also in the same situation. The county has 258 basketball courts but 186 belong to educational system and only 17, which all stand outside, are qualified. Rural sports resources are not only small scale, but also very simple, and what's worse, most of them are belong to educational system, thus the use ratio is not high.

2.2.2. Sports organizations

Chongqing's sports organizations are not only have a certain distance when compared with eastern developed areas, but also not in the leading place with other western provinces.
Gaps also exist between rural and urban areas, but the net of mass sports organizations has been preliminarily built.

By December of 2008, 92% of Chongqing's counties and 30% of administrative villages had established sports organizations and built 56 national youth sports clubs, 1 national youth outdoor sports camp, 6 national fitness centers, 4 national community sports clubs and 42 municipal mass sports associations, and also founded the municipal national constitution monitoring center. Social sports instructors increase year by year. By 2010, the number of social instructors is 17,774.

| Comparison of Mass Sports Organizations in Chongqing and those in Other Provinces |
|--------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Chongqing                      | Sichuan        | Yunnan         | Inner Mongolia | Tianjin        | Shanghai       |
| Single-event Associations      | 42             | 19             | 18             | 23             | 63             | 70             |
| Sports Clubs of Teenagers      | 56             | 145            | 72             | 50             | 107            | 103            |
| Sports Clubs of Communities    | 4              | 10             | 5              | 4              | 32             | 80             |

Chart 4. Comparison of Mass Sports Organizations in Chongqing and those in Other Provinces
Source: Report on the Survey of China Mass Sports Present Situation, Department of Groups, the State General Administration of Sport

2.2.3. Mass sports activities, sports events and competitive sports

In order to stimulate the further development of mass sports activities, Chongqing municipal sports department started from traditional sports, ethnic sports, farmer's sports, teenagers' sports and handicapped sports and had been conducted a series of mass sports activities. In 2009, it organized many activities, like million people run on New Year's Day and Nabin Road's sub marathon activities, winter-swimming across Changjiang River on New Year's Day, Healthy Chongqing's million people mountaineering activities and national fitness games of building Healthy Chongqing. In 2010, Chongqing in all held more than 1600 different kinds of mass sports activities and the hiking trail, which has a characteristic of mountainous city, can attract over 2 million hikers.

In recent years, Chongqing has also successively undertaken and held many large sports events, including the 8th Boxing World Cup, Asian Bodybuilding Championships, World Grand Prix, AFC Asian Cup and East Asian Soccer Championship and so on, and also forged a series of famous brand competition, like Wulong international mountain off-road challenge, Yuyang international terengganu ladder, Dianjiang national motocross, South Duandao rally car servers and Fengjie low-level skydiving, improving the level of mass sports. Recently, Chongqing obtained the right to hold National Sports Meeting in 2014. However, Chongqing's competitive sports are, on the whole, not satisfactory, though since the reform and open policy for 30 years, especially Chongqing's municipality under the Central Government, Chongqing's competitive sports have had a considerable development from the vertical view. The number of Chongqing's superb campaign teams' projects increase from 10 in 1978 to 17 at present, and the number of athletes increases from 150 to 524. In the international arena, Chongqing's athletes in all won 51 world champions and 81 Asian champions since the reform and open policy for 30 years. But
from the crosswise view, Chongqing's competitive sports are not changed essentially. Take National Games as an example. In the 9th National Games which was held in Guangzhou in 2001, Chongqing won its first gold medal in National Games since its municipality under the Central Government, and achieved the grade of 1.5 gold medals, 2.5 silver medals and 3 bronze medals. In the 10th National Games which was held in Najing in 2005, Chongqing achieved the grade of 2 gold medals, 5 silver medals and 2.5 bronze medals. In the National Games in Jinan in 2000, Chongqing won 2 gold medals and 5 bronze medals. In the 11th National Games, Chongqing still got 2 gold medals, which had a certain distance compared with other cities. See chart 5.

2.3. Citizens' participation in sports exercises

Constitution health is the basis, and what's more important is that constitution health is from active sports exercises. According to research data, lack of sports exercise is the main reason that Chongqing citizens are body empty. Chongqing is a young municipality directly under the Central Government and an old industrial base. Sports industry is affected by the general state of social economy and thus is comparatively lagging. Data shows that the percentage of Chongqing's sports population still has some rising space. By the end of 2009, Chongqing's sports population reached 12.3 million, accounting for 38.5% of Chongqing's total population.
From the structure of population, the Chongqing citizens’ participation in sports exercises shows a dumbbell, namely teenagers and elders participate more but most young adults neglect exercises. The people who participate in sports exercises only account for 39% of Chongqing’s population, which is below developed cities’ 50%. There are many aspects that cause this problem. Wang Jin, Lin Qi and other scholars' survey and research indicated that people in home city have a higher recognition of sports but are restrained by sports resources in practice. The survey, *Whether the place you live is convenient in participating culture and sports activities or not*, supported their opinion. The survey showed that 39.0% citizens chose convenient, 23.1% chose neutral, 31.6% chose inconvenient and 6.3% said they didn’t have time to participate in activities. Compared with that in 2009, the data is not changed very much in that the citizens who clearly chose inconvenient still account for more than 30%.

For floating population, scholars like Liu Nianwei, Li Guotai, Zhang Rui and Chen Yonghong’s authentic proof of investigation shows that their consciousness of sports exercises is lower and high-intensive work makes them have few chances to exercise. More over, some related data indicates that the understanding of sports exercises in minority areas is not high, but sports resources there are rich, and deserve to explore. Chongqing has rich sports resources of minorities and minorities had their own glory in competitive sports. Chongqing now has 49 minorities. Among them, the population of Tujia minority is the most, Miao minority is the second, and they mainly scatter in Qianjiang development zone's five nationality autonomous counties and Peiling area. Both Tujia and Miao minorities remain their traditional customs. Banxie project won 3 gold medals in the 8th National Games. Dragon Boat, martial art and shuttlecock have good foundation. Peg-top, ballgame and yenu project are also the symbols of the glory of Chongqing minority sports. But the most frequent motivation of participating in minority sports is having interest, and then is entertainment, ethnic habits, joining the fun and exercising. In future works, we should on one hand emphasize the interestingness, entertainment and national characters in traditional ethnic sports, on the other hand improve people's understanding of the function of exercise.

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2 The survey which took stock of livelihood in 2010 showed that Chongqing citizens’ satisfaction to life and government's work reached a new record.
2.4. A Brief Summary: Healthy Chongqing yields impressive results, but should connect more with the development of the city.

Studying and discussing stadiums in Chongqing cannot avoid Datianwan Stadium, which was built in charge of He Long marshal in 1951 and was new China's first great stadium. And the reformed Datianwan Stadium must be located in the most popular and the core area of Chongqing and can't remain in memory and history. It is not only the base of mass fitness, but
also is the open platform of the industry of sports and its derivatives, and also is the card of Chongqing in the west and even in the whole country. This cannot only be the idea of Datianwan Stadium, and also is the way of future development of Chongqing’s sports. Chongqing is now in a new historical starting point. Facing the great world-level development opportunity, the images of national central city, inland Hong Kong and western Wall Street are gradually distinct. Sporting Chongqing should connects more closely with city and reveal the dual properties of sports, namely the property of enterprise and the property of industry. Mass fitness should not only become people’s lifestyle, but also the basis of new medical reform, and should combine with modern leisure tourism activities and thus stimulates the tourism of spatial city of Chongqing. Competitive sports not only lights people’s enthusiasm, but also becomes the gene of city’s cultural reform. The construction and management of sports venues are important tools of leading the transformation of city’s spatial arrangement and they should become the power to drive regional development. Sports industry must become a new economic growth point of Chongqing’s economy.

3. Advantages in Developing Sporting Chongqing

3.1. Sustainable economic growth lays a sound foundation for promoting Sporting Chongqing

First of all, the sustainable economic growth can provide a secure financial guarantee for constructing a healthy and sporting city of Chongqing. Meanwhile, as shown in other countries, household consumption would explode with much more need in entertainment, when per capita GDP is near or surplus $5,000. And this would also be the turning point for the sporting industry to accelerate. According to this theory, healthy sports could be promoted by means of developing sporting industry and marketing mechanism.

Especially there was remarkable improvement in financial revenue, as shown in Chart 9.

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP (billion Yuan)</th>
<th>Urbanization Level</th>
<th>Fixed Assets Investment (Yuan)</th>
<th>Utilization of Foreign Investment (Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>303.458</td>
<td>43.50%</td>
<td>162,192,030,000</td>
<td>682,140,000</td>
</tr>
<tr>
<td>2005</td>
<td>346.772</td>
<td>45.20%</td>
<td>200,631,800,000</td>
<td>704,230,000</td>
</tr>
<tr>
<td>2006</td>
<td>390.723</td>
<td>46.70%</td>
<td>245,183,510,000</td>
<td>876,670,000</td>
</tr>
<tr>
<td>2007</td>
<td>467.613</td>
<td>48.30%</td>
<td>316,151,470,000</td>
<td>1,220,110,000</td>
</tr>
<tr>
<td>2008</td>
<td>579.366</td>
<td>50.00%</td>
<td>404,525,090,000</td>
<td>2,856,880,000</td>
</tr>
<tr>
<td>2009</td>
<td>653.01</td>
<td>51.60%</td>
<td>531,791,850,000</td>
<td>4,191,780,000</td>
</tr>
</tbody>
</table>

Table 2 Economic Indexes in Chongqing from 2004 to 2009
Source: Chongqing Statistical Yearbook of 2009
3.2. Civilian’s requirement in sports is the driving force of building Sporting Chongqing.

With the economic development in Chongqing, civilian’s consumption is also improving both in quality and in structure. This trend is obvious when studying the Engel's coefficient of urban residents in Chongqing.

Accompanying the improvement in consumption, the awareness of sports and exercises will inevitably be aroused. In recent years, with the presence of advanced consumption structure and increased consumption awareness in sports, the need for non-material consumption is strengthened. More advanced sports activities came into being, with sports excursions, sports holidays and sports explorations as their representatives.
3.3. Further reform provides the sports development with the political and organizational basis.

Since becoming a municipality directly under the central government, Chongqing has regarded as the major task the transition of government functions, through which resources can be fully used and the market can fully develop. Furthermore, with a service government, social capitals can be led into the public welfare, and preferential policies in social services can help realize social benefits in the end. Financial expenditure can be chosen as a typical example.

![Financial Expenditure of Chongqing](chart11)

**Chart 11 Financial Expenditure of Chongqing**
Source: Chongqing Statistical Yearbook

Financial expenditure in sports is shown in Chart 12.

![Financial Expenditure of Chongqing in Sports and Others](chart12)

**Chart 12 Financial Expenditure of Chongqing in Sports and Others**

Since the Healthy Chongqing program started, Chongqing Municipal Bureau of Sport has been required to introduce the experience in dozens of national conferences that are held by State Sport Bureau. In 2010, Chongqing Municipal Bureau of Sport was awarded as the advanced unit in carrying out *National Fit-keeping Regulation* and in providing public sports services. In March 2011 on the video-conference of the State Department about *National Body-building Plan (2011-2015)*, Wu Gang, the vice mayor of Chongqing, introduced relative work in Chongqing and put forward a five-year plan. In Chongqing, body-building is considered as
important as medical care. Other advantages include the emphasis on basic work and systematic work.

3.4. The 2014 National Sports Meeting will provide catalyst for Sporting Chongqing.

In the transitional period, the demand of sports consumption is turning from weak to strong. The sports events will drive sports consumption, and take up an important part of the construction of the state-level central city. Chongqing government can combine the 2014 National Sports Meeting with urban strategic objectives and propel urban construction and profitable economic returns, and further drive the promotion of the overall image and function of the city and maintain the overall development of the city and pursue the comprehensive benefits. The high correlation caused by the events of sports, will provide more employment opportunities for the society and propel the increase of the gross of urban products and promote the development of tertiary industry immensely, especially the development of tourism.

In addition, sports events can interpret the diversified lifestyle of a city in all aspects and sports can mien in different cultural backgrounds, and then make Chongqing the birthplace of sports fashions, and the original land of the mode and quality of modern city. It is an opportunity for the host city to hold major sports events. The long preparation, the concentration of financial and material resources, the active participation of the government, enterprises and citizens, all theses make the hardwire and software of the host city achieve a qualitative leap. Also, the overall introduction to the host city via television, newspapers and other media, attracts the attention of millions, which gives the city a stage to show its characteristic and charm. Meanwhile the match strengthens citizens’ understanding on sports; the enthusiasm of mass fitness upsurge; and the corporeity is strengthened consequently, and makes the quality of people’s life enhance unceasingly. The public morale will be gathered, the image of the city will be changed, the economic power will be improved, and the city will henceforth enter a new stage. The slogan of “faster, higher, stronger” can not only buoy public spirit, gather public morale, increase the collective sense of honor, but also cultivate the strenuous enterprising and positive spirit of the citizens. Previous practices repeatedly proved that a successful sports event need not only the overall preparation, but the active participation and publicity of the entire community, and fully explore and promote regional cultural characteristics. Such sports events are helpful in enriching the connotation of urban culture.

In a word, the 2014 National Sports Meeting will be an opportunity for the development of Chongqing, instead of an objective. We should emphasize the relationship between sports events and the city, and emphasize that all the construction and planning is not just for sports events, but for the development of the city.
4. International Experiences and References

4.1. Sports in Cities: Promoting the Health of Communities

Cities worldwide are becoming more aware of the social and economic benefits associated with a healthy, active citizenry, including higher productivity, better social cohesion and higher quality of life. Over the past decade, however, growing urban health concerns such as increasing rates in obesity have brought into focus the need for timely and strategic urban health planning. (In 2005, the World Health Organization (WHO) estimated that by 2015, more than 700 million adults will be obese.

Municipal governments have come to understand that the promotion of sport and physical activity is an effective means to tackle obesity and related health conditions such as high blood pressure, high blood cholesterol, diabetes, heart disease and stroke (obesity is a risk factor for each). Other benefits include improvements in child development (see Box 1) and greater social cohesion through the strengthening of community ties. Increasingly, City governments are
therefore implementing strategies to promote sport and physical activity as part of their overall plans for urban development and renewal.

The mode for delivery of sports programs varies across countries and cities. Some countries have governing bodies that promote sport, while others depend mainly on associations and the voluntary sector for the delivery of services. Countries such as Australia promote themselves as sporting nations, where sports and culture are synonymous, whereas in Canada, participation in sports is often associated with community engagement and capacity building. Regardless of the mode of delivery, cities play an important role in facilitating and ensuring equitable access to sport, and in turn, foster the conditions for healthy, productive communities. This Note examines the way in which sports programs are delivered at the city level in Melbourne, London, Singapore, and Ottawa.

4.1.1. Melbourne, Australia

Australians pride themselves on their reputation as a sporting nation. A key objective of the Australian government is to build healthy, active communities. Approximately 6.5 million Australians are registered as sports participants with more than 120 national sporting organizations and thousands of local, regional and state sports bodies. An example of one such investment is a nationwide community-based initiative called the Active After-school Communities (AASC) program, a free after-school program initiated in 2005 that encourages physical activity and participation in sports through community capacity-building in the areas of program delivery, access to facilities, partnership development and problem-solving.

Through its Active Melbourne program, the City of Melbourne developed the Active Melbourne Strategy, a strategic framework to identify key actions for delivery by the municipal government to ensure that a range of sport, recreation and leisure goals can be achieved. Physical activity is entrenched in a number of policy documents including the City Plan 2010, Council Plan 2004-2008, and the City Health 2005-2009 Municipal Public Health Plan. The Active Melbourne Strategy focuses on physical activity, recreation and competitive sport at the community level.

The Active Melbourne program encourages participation in sports by offering a wide range of sport and recreational facilities, world-class parks and gardens, reciprocal swimming rights for members across the Council’s swimming pools, sports and recreation grants for clubs and individuals, development of a youth health and fitness membership option at the Melbourne City Baths and by encouraging participation in public events. Active Melbourne offers grants of up to $2,000 to support training and competition expenses for individuals and up to $5,000 for sporting and recreation clubs and organizations. The City of Melbourne also offers sponsorship support for events through its Event Partnership Program to ensure Melbourne is recognized as Australia’s events capital.

The Active Melbourne City Sports program encourages workers in the central business districts to stay healthy and active by offering a range of sports during lunchtime or after work, at venues near the City centre. Activities include the Corporate Cup Running/Walking Series, Corporate Challenge Sports Series (basketball, lawn bowls, netball, tennis and volleyball) and the Super Sunset Series. The Active Melbourne program ensures physical activity is part of everyday life for residents of Melbourne.

4.1.2. London, United Kingdom

The Olympic Games in London in 2012 has focused the City’s attention on the need to reassess its current sports and fitness facilities. London won the bid for the Olympic Games after pledging commitments to revitalizing public support for sports as well as providing the necessary infrastructure to host the Games. Currently, adult participation in sport and active recreation is at
20.2 percent. London hopes to use the Games as catalyst to drive up participation in sports and physical activity, while simultaneously tackling issues of obesity, general ill-health, crime, academic underachievement and lack of community cohesion.

In 2009, the Mayor committed over £30 million of investment over three years toward programs associated with the strategic initiative known as A Sporting Future for London, in which the Mayor identified four “legacy” goals for increasing participation in sport and physical activity: get more people active; transform the sporting infrastructure; build capacity and skills; and maximize the benefits of sport to society. The new London Community Sports Board was established in 2009 to improve co-ordination of ongoing activity, drive delivery and monitor progress towards meeting the Mayor’s legacy goals. It is chaired by the Mayor’s Commissioner for Sport, with representation from local authorities, Sport England and other key stakeholders.

The Greater London Authority, although not a front-line provider of sport services, is committed to adding value to ongoing work, coordinating activities, helping to fill gaps in provision, and taking a strategic lead on issues affecting sport and physical activity.

Local districts in London are responsible for most of the funding and delivery of sports for the people of London and collectively have increased their spending on sport and recreation from £83 million (RMB 850,683,000) in 2006/07 to £93 million (RMB 953,175,000) in 2008/09, including huge sums on renovation and development of facilities.

London’s network of voluntary sports clubs is also responsible for a significant amount of grass-roots sports delivery, through the London Federation of Sport and Recreation and organizations such as London Community Sports Network and London Active Communities. These voluntary and charitable sectors deliver a large portion of sporting opportunities at little or no cost to the public purse.

4.1.3. Singapore

To many Singaporeans, sports are an important source of national identity and pride. Singapore has a high rate of sports participation as well as impressive performance results at international and regional games. Singapore was recently named the world’s best sport city, being the Gold winner for the Sport City Award from International Sports Event Management.

The Singapore Sports Council (SSC) is the governing body responsible for sports programming and delivery in Singapore. Its purpose is to unite communities beyond race, culture, gender or socio-economic status. The SSC reaches out to Singaporeans to increase sport participation through targeted lifestyle marketing, sports-friendly infrastructure and collaborative partnerships with other government agencies and private-sector service providers. There has been a significant increase in sport participation from 38 percent in 2002 to 50 percent in 2005.
The SSC encourages participation in sports at an early age, offering a variety of Learn-To-Play schemes for all ages at the SSC’s Sports and Recreation Centres. The SSC delivers affordable, accessible sports and fitness classes to a wide range of interest groups through the Learn-To-Play program, which is designed to provide students with the basic skills to enjoy sports as an integral part of their lives.

The SSC encourages a sporting lifestyle by providing greater access to sports facilities including 24 swimming complexes, 17 stadiums with track and field, 2 stadiums with field only, 16 sports halls for badminton, basketball and netball, 9 tennis centres, 4 squash centres, 2 netball centres, 5 fields for soccer and other sports, 75 school fields and 15 gyms. With more than 11 million users at its Sports and Recreational Centres, the SSC has invested more than S$60 million (RMB 309,000,000) over the past 10 years on renovations and upgrading of facilities. Along with lifestyle marketing, the Council believes well-designed and efficiently run sports facilities are the key to greater access and participation in sporting and recreational activities for all Singaporeans.

4.1.4. Ottawa, Canada

In Canada, municipal and community administrations and school authorities support community-based sports participation through programming; building, maintenance and upgrading of sport and recreation facilities; and hosting of sport events. In Ottawa, the nation’s capital, community participation, collaboration and coordination are key factors in defining the City’s model for service delivery. Ottawa’s population is expected to increase by 30 percent over the next 20 years, including an increase in the number of older adults and in the immigrant population. It is important to the City that services reflect these demographic shifts and that services remain consistent with residents’ expectations.

Ottawa envisions a community “where all residents can engage in activities that strengthen the health and well-being of individuals and families regardless of their age, ability or circumstances.” The City is committed to developing “a healthy and active city” by developing and delivering recreation programs in arenas, pools, recreation, community, and senior centres.

The City of Ottawa has three approaches to sport service delivery: services offered by full-time City staff, services offered by volunteers and services offered through contract agreements with community and sports associations. Large multi-use centres are managed by City staff, whereas local community centres are managed and programmed through community associations. With regards to sports groups, the City provides the facility, whereas the sports organization is responsible for the management and implementation of program activities. The differences in service delivery are considered one of the strengths of Ottawa’s recreation system and demonstrate how a variety of providers such as organizations, groups and individuals play an important and complementary role in shaping sports and recreation.

The City of Ottawa offers multi-use facilities, community-based facilities, special events facilities, and outdoor facilities including parks, sports fields, arenas, pools and community meeting space. Typically, the City’s role is to provide the space and/or facilities, whereas associations deliver the sports programs and activities. The City’s Department of Parks, Recreation and Cultural Services, along with school boards, community and cultural associations, and private operations such as fitness centres and sport or cultural associations, provide a wide range of activities for residents. The City currently has approximately 25 different types of funded service agreements with community associations and groups to provide sports/recreation programs and services. A range of partnerships and agreements ensure that residents have optimal access to recreational activities. For example, the city has an agreement with the school boards for mutual use of each other’s space and facility. Public-private partnerships with the business community have been used to meet demands in recreation.
The City’s sports and recreation programming is targeted to age groups from early years to seniors, and covers a wide variety of activities, including swimming, skating, sports, arts, camps, dance, drama, and fitness. The 119 community centres in Ottawa manage facility bookings, provide public access to computers, and develop programs for youth and persons with special needs. The 36 arenas in Ottawa offer public skating; provide skating lessons; and provide ice-time rental for community organizations. There are 16 indoors pools, 10 outdoor pools, 59 wading pools, and 74 splash spray pads that: provide swimming lessons, offer public swim sessions, and educate Ottawa residents on the importance of water safety. Ottawa has 223 outdoor rink locations with 331 separate ice surfaces, 311 baseball diamonds and more than 305 sports fields. Ottawa offers more than 22,000 recreation and leisure courses across the City for people of all ages.

4.2. Possible Lessons for Chongqing

Possible lessons for policy-makers in Chongqing are:

- Policies on physical activity at all levels need to be coordinated and codified in an overall Physical Activity Strategy for Chongqing. A good example is the Active Melbourne Strategy, a strategic framework that identifies key actions for delivery by the municipal government to ensure that a range of sport, recreation and leisure goals can be achieved for all age groups, ranging from children to the elderly.

- Institutional arrangements for implementation of the strategy need to be centralized so that standards across Chongqing are consistent, and so that progress can be effectively monitored and reported. The Singapore Sports Council is a model that Chongqing might wish to consider.

- Implementation should not only be a responsibility of the government. CMG should explore the formation of effective partnerships with voluntary agencies, sports clubs, and the private sector to deliver consistent programs of sport and recreation across the entire municipality. Service delivery in Ottawa is a model that Chongqing might wish to consider.

5. Policy Suggestions

Reviewing the development of Healthy Chongqing, though having made great achievements, we still have a long way to go to build a Healthy Chongqing. The mass sports activities should attract more ordinary citizens. The contradiction exists between the supply and demand of sports facilities. The number of the people who regularly participate in physical exercise is far from enough. Especially the initiative consciousness of mass sports and fitness is not good enough. All theses will limit the further implementation of Healthy Chongqing. From the regional perspective, the unbalanced development between urban and rural areas still exists and investments to rural areas should increase.

Since the city of Chongqing has a large population and big regional difference, the development of national fitness cannot completely depend on the government. Otherwise, the burden of the government will rise, and meanwhile the national fitness can not develop quickly and healthily. The national fitness program cannot just rely on the financial support, but on the sustainable enhancement of the ability of self-development and the course of socialization, mercerization, and industrialization. Therefore, Chongqing government should seize the opportunity of the rapid economic development and overcome various unfavorable factors, so as to strengthen the self-developing capabilities of local sports and excavate the potential of local
sports. The traditional thought of “waiting, relying on others and demanding everything” should be got rid of. Instead, new thought about applying the market and socializing the sports should be encouraged. The self-development capabilities of local sports can be promoted with diversified business management and the national fitness can be improved by developing the sports industry.

The concrete suggestions of the research group are listed as follows.

5.1. Government’s basic responsibilities should be clarified, policy planning and public service function should be strengthened

Under the macro-control of the government, we need actively cultivate social sports organizations and maximize their enthusiasm and function. Also we should establish a sports management system which fits the socialist market economy, realize the separation of the government functions from institutions’, of the government functions from the enterprise management and of the government regulation from the management, and at last establish an efficient and coordinated sports administration system. The part who invests will benefit in the end. Different parts’ benefits should be respected and protected. The market should be increasingly important in the sports resources allocation.

5.2. Adhere to balanced and coordinated development, combining popularization with enhancement

The relationship should be carefully dealt with among the mass sports, competition sports, sports industry and the other aspects of the sports work. What’s more, we also need coordinate the development of sports among urban, rural areas and other regions, and give more supports to the sports in rural areas.

5.3. Cultivate the mass sports organization actively, arouse the public sense of participation in sports and foster their habits of fitness.

We need set up sports clubs or centers in urban communities and rural towns. In addition, we should support the development of grassroots sports organizations, improve their working conditions and encourage to set up types of mass sports club. Also we should strengthen school sports and provide special attentions and security for teenagers and children. On the basis of Healthy Chongqing, the public awareness of sports should be raised and the public habit of bodybuilding should be cultivated. With the citizen-centered rule, more people can benefit from the achievements in sports development.

5.4. Breakthrough is focused on sports revues.

5.4.1. Sports Industry

The development planning of sports industry should be drafted, according to the development of the city and its sports. To be exact: at the macro level, the guiding ideology and fundamental goals of the development of sports industry should be established, so as to guide the layout of sports industry. The status and function of sports industry in the national economy and social development should be made clear. At the middle level, the structure of sports industry should be optimized and improved, and its proportion of all service industry should be raised. At the micro level, the market-oriented management of organizations in sports industry should be encouraged.
5.4.2. Sports revues

Gymnasiums and stadiums are an important carrier and the “battleground” of the development of sports industry, as well as the frailties of Sports Chongqing at present. It not only restricts the development of mass sports, but also influences the development of competitive sports. In July 2010, Ma Junren, the famous Chinese middle-long-distance coach, and his team visited Chongqing University Town at the invitation of Bo Xilai, the secretary of municipal party committee, to assess Chongqing Sports College, which was still under construction and would cover more than 500 Mu in area and involve more than 20 sporting events. Ma Junren concluded that the construction was not satisfactory—“The total coverage is not enough, the quality and style of architectures are backward, and players’ living area is not quiet or comfortable”. On this result, Bo Xilai commented that “Ma is a world-class coach, whose criticism is helpful and needs examination, to further promote Healthy Chongqing”. Bo hit the mark with the single comment. The success of Sporting Chongqing is determined by the management of gymnasiums and stadiums.

1) Construction of sports revues

For the 2014 National Sports Meeting, besides existing 60,000 stadiums and 2,000 natatoria, 12,000 comprehensive gymnasiums will be built in Chongqing Olympic Sports Center. The comprehensive indoor sports facilities, stadiums, gymnasiums and natatoria in Datianwan Sports Center will be repaired well. Meanwhile, other facilities of roller skating squares, squash courts, rock climbing are soon to be provided. All these put cause a lot of troubles in fund-raising. Besides actively trying to get the financial support of state governments, we can adopt BOT Model to introduce the funds from all quarters of society to support the construction of sports facilities to satisfy the demand of the citizen systematically. In the process of layout design, we should combine it with Chongqing University Town and Chongqing Regional Central City Construction. Not only should the waste of resources be avoided, but the special characteristics of population and industry should be taken into consideration. The construction of sports facilities covers all aspects, such as the urban infrastructure construction, the layout of urban commercial network, the real estate development, the industrial structure, environmental improvement, economic development, citizens’ quality and so on. The construction of sports facilities, therefore, not only repay the city profitable economic returns and make the overall quality of the city rises to a higher level, but also maintain the sustainable economic development of the city.

Shanwei City, Guangdong Province, with the help of the construction of nautical training base for the Ninth National Games in 2001, promotes the construction of urbanization of Shanwei City and the expansion of urban space of ShanWei City, and speeds up the development of the sports industry, and drives the development of local tourism, catering and leisure entertainment industry. The next 10 years will witness the rapid development of the urbanization in Chongqing. In the urban planning and development, with the sports facilities as the carrier, promoting and driving the development of urbanization should be the important policy of the Chongqing government. And we should seize the opportunity of National Sports Meeting to transform the layout of urban space through the construction and management of the sports facilities and strengthen urban economic strength and improve the image of the city.

2) Management of sports revues

We should center on the market-oriented management of stadiums and vigorously develop service industry surrounding the sporting facilities and form a comprehensive management pattern. And according to the change of the market, we should constantly adjust the management. Especially aiming at different demands on the form of fitness of different people in different seasons, we need correspondingly set body-building projects and develop other services, and rationally configure the resources of sports facilities to achieve the goal of the regional market management and holistic development management. Diversified economic development of
gymnasiums and stadiums will be prompted to achieve the best market benefit, and ensure maintain and increase the state-owned assets.

The concept of sports estate should be proposed. And we should regard the sports as the media of urban operation and make sports the power engine of the development of the city. In a sense, the symbol of a modern and livable city, is no longer tall buildings, convenient transportation and gathered fortune, but how huge the business circle of the stadium in the city and whether there is the spirit providing a platform for the communication and integration among different cultures. CSD (Central Sports District)—Central Sports District is the product of modern urban sports circle, and the result of the development of urbanization also a symbol of modernization of sports development. CSD is mainly consisted of three functional parts: sports, business and residence, which is based on the compound development of the tertiary industry, to improve the urban pattern, adjust and optimize the industrial structure, and form the center of sports, business and residence. Large-scale dwell groups will be assembled, covering soft and hard resources of sports industry, and the commercial center which matches for it. Sports center, business center and residence center constitute the business circle of a modern city.

3) **Arrangement of sports revues**

In terms of the current situation of Chongqing, on one hand, we should continue to increase the investment and strengthen the construction of sports facilities as soon as possible, and layout the incremental resources of stadiums reasonably; on the other hand, we should apply market mechanisms and guide the non-state-owned invests to construct the multifunctional, small and applicable fitness and entertainment centers, which makes it convenient to urban residents to participate in sports activities, and enlarge sports facilities. In addition, we must change our traditional management from “vulgar” pattern to “intensive” pattern, and integrate the present sports facilities by the means of marketization. Also we should establish the mechanism of integrated resources centering on gymnasiums and stadiums, and strengthen the management of various sports facilities. And through executing services with multiple levels, different periods of time, various preferential, the utilization rate of facilities can be improved. As for the services of sports facilities, we also need settle the standard and expand the operation, so as to form enable the recourse sharing and satisfy Chongqing citizens’ demands in sports consumption.

**5.5. The basic statistics of Sporting Chongqing and the application of Information Technology in its construction**

It is a good beginning for Chongqing Municipal Sports Bureau to carry out sports memorabilia recently. And the work should continue. In order to further promote healthy sports, we should improve the informatization construction of sports statistics and establish a comprehensive, objective, scientific, standard, well-coordinated, and responsive sports statistics system and information release system which adapt to the social and economic development, and coordinate with national economic and social developmental statistics. Also we need establish a system of sports standards which adapts to sports development, is closely related to the work of sports and services our society. And accordingly the standardized management system and operating mechanism should be set up.