City Cluster Development

Urban, Urbanization, and City Clusters

To better understand city cluster development (CCD), a clear distinction must be made between "urban" and "urbanization". The traditional definition of "urban" is based on the number of people living within a clearly demarcated area. Settlements with population density or size smaller than the specified cutoff number are defined as "rural" unless they have special "urban-like characteristics" or are designated urban by law. CCD goes beyond the boundary of an administrative jurisdiction, encompassing complex social, economic, and technological processes that constitute what has been called urbanization. According to Wirth, when people are concentrated in a well-defined area, significant socioeconomic changes occur. These changes include

- a shift from agricultural production to crafts, commerce, manufacturing, industry, and services;
- separation of workplace from residence;
- monetization of economic transactions;
- weakening of family and community ties; and
- a shift from sacred to secular belief systems (Wirth 1938).

The German geographer Walter Christaller theorized that there are laws that determine the number, size, distribution, and clustering or dispersal of urban settlements (Christaller 1966).

In analyzing how market functions are carried out in urban settlements, he proposed that people are willing to travel only short distances to get certain "lower order" goods and services (groceries from corner stores) while to obtain "higher order" goods (large appliances from specialty stores) they are willing to go farther. The influence of these consumer preferences on people's behavior results in a system of urban centers of various sizes. Larger settlements (big cities) offer a greater variety of higher-order goods and services. There are fewer such large settlements, and the larger they are, the greater is the tendency for them to be spread farther apart. Smaller settlements (villages and towns) are more numerous, offer mainly lower-order goods, and tend to be clustered more closely together. Other things being equal, the emergence of "central places" results in the clustering of a hierarchy of urban settlements. Of course, in actual practice, the configuration of urban settlements in a cluster depends on local factors, including topography, climate, available transport modes, technological facilities, and the personal preferences of consumers.

A number of economists and geographers have analyzed how specific types of industries tend to cluster together to achieve maximum competitiveness (Audretsch and Feldman 1996, Held 1996, Lindfield 1998, Porter 1990, Roberts 1998). Cluster analysis has shown that some industries (such as car assembly plants) form vertical and horizontal linkages with other industries that supply their inputs or market and sell their products. What has been less understood in cluster analysis, however, has been how urban infrastructure and services can be linked to industry clusters to create productive nodes in urban areas (Roberts 1997, Roberts and Lindfield 2000). In the past, enterprises tended to aggregate in development nodes that were in turn linked to other nodes to form easily identifiable clusters. In recent years, however, most industries linked to rapid urbanization are influenced by global forces that favor specialization and depend on widely dispersed networks rather than on linear processes like supply chains. One challenge in the use of city cluster development as a developmental policy tool, therefore, is to see how cluster analysis that is focused on industries can be linked to infrastructure provision to enhance the development of whole urban regions.

In urban and regional planning, the emergence of city clusters is linked to the concept of an "urban field," which is composed of the economic and social influences emanating from a particular city. As described by John Friedmann (1992).

> ….urban fields typically extend outward from the city core to a distance of more than 100 km; they include the city's airport, new industrial estates, watersheds, recreation areas, water and sewerage treatment facilities, intensive vegetable gardens, outlying new urban districts, already existing smaller cities, power plants, petroleum refineries, and so forth, all of which are essential to the city's smooth functioning. City regions on this scale can now have millions of inhabitants, some of them rivaling medium-sized countries. This space of functional/economic relations may fall entirely within a single political/administrative space…More likely, however, it will cut across and overlap with a number of…political administrative spaces of cities, counties, districts, towns, provinces, etc.

T.G. McGee (1995), noting the unique features of Asian urban agglomerations, has coined the term *desakota* development to describe their growth, combining the Bahasa terms *desa* (village) and *kota* (city) to describe their mixed rural–urban characteristics. He has observed that these urban regions tended to

> ….produce an amorphous and amoeba-like spatial form with no set boundaries or geographic extent…their radii sometimes stretching 75 to 100 km from the urban core. The entire territory—comprising the central city, the developments within the transportation corridors, the satellite towns and other projects in the peri-urban fringe—is emerging as a single, economically integrated "mega-urban region" or "extended metropolitan area."

Linking urban development to globalization, Saskia Sassen (1991) has observed that traditional studies of urban systems usually take the nation-state as the unit of analysis. However, she argues that with the emergence of very large "global cities" like London, New York, and Tokyo, a "globally networked urban system" has become a more significant economic and social reality. These very large global cities serve as major centers of capital, technological innovation, professional and management expertise, and communications. They also become centers for foreign firms operating in far-flung international markets. They provide complex producer services and perform a multiplicity of functions. Despite their global significance, however, the provision of infrastructure and services in these large cities continues to be linked to clusters of human settlements in their immediate regions.

Peter Hall has noted that present-day urban systems have been profoundly affected by globalization and the widespread use of communications technology. Production has been dispersed in space, and economic activities have shifted from manufacturing and industrial sites to centers of "advanced services." These services include

- financial and business services, like banking and insurance, and commercial services, like law, accounting, advertising, and public relations;
- command and control functions carried out by governments, transnational corporations, and international organizations;
- creative and cultural industries, like the performing arts and print and electronic media; and
- tourism activities, including hotels, restaurants, and entertainment.

Hall (2003) observes that although these advanced service functions tend to disperse, they eventually aggregate in space because they are highly synergistic with each other. Interestingly, despite their heavy reliance on impersonal information technology, residents of Silicon Valley–type urban settlements require intensive face-to-face interactions. Thus, they create people-centered city clusters focused on new service functions.

At the national level, a recent comparative study of 14 Asian megacities noted that although the inner-city populations of those cities have not been growing as rapidly as in the past, the populations have actually been expanding rapidly at the edges of the megacities and taking over cities, towns, villages, and other rural settlements to form mega-urban regions (Laquian 2005). Despite the efforts of city authorities to limit urban expansion, built-up areas have continued to spread outward. In some areas, outward growth has taken the form of a "spreading pancake" pattern. In others, urban development has created string developments along arterial highways or rapid transit lines, forming a "palm and fingers" configuration. Some mega-urban regions have taken a linear form, creating an urban corridor like the one that extends between Tokyo and Osaka. Others are dominated by megacities like the Bangkok, Delhi, Jakarta, Manila, and Seoul (Figure 1).

City clusters are forming at the subnational level, for example, the Guangzhou–Shenzhen–Macau agglomeration in the People's Republic of China (PRC). Although city clusters around develop-

ment corridors and megacities are prominent in Asia, many more city clusters in the region are actually made up of cities with populations of less than 1 million. To appreciate the development potential of city clusters, it is important to go beyond the size of cities (as measured by population) and consider the relative economic function, power and influence of a city within the context of the national urban hierarchy and provincial development. The economic, political, and social characteristics of a city are important considerations in its potential for CCD. This is especially the case in Asian countries that have small populations, including the Lao People's Democratic Republic (5.7 million), Timor-Leste (952,618), Bhutan (672,425), and Brunei Darussalam (350,898), where national capitals and their adjoining towns and other settlements play a vital role in the development of the whole country.

Figure 1: Asia's Mega-Urban Regions

Source: Laquian 2005. Karachi, Delhi, Mumbai, Calcutta, Dhaka, Manila, Shanghai, Beijing, Osaka, Tokyo, Seoul, Hongkong, Bangkok, and Jakarta.

In general, most city clusters in Asia have been the products of economic and social processes that spontaneously pushed urban development outward from an urban core. Urban planning and management approaches have traditionally been reactive, respond-

ing to problems only when they arose. More recently, however, some countries have been adopting such proactive urban strategies as CCD, which are designed to drive economic growth through urbanization. An example of this approach is the "one hour development circle" plan for Chongqing, in Sichuan province. The plan encompasses 28,700 square kilometers (km^2), roughly the area of a circle the radius of which is the distance a car can travel in 1 hour from the center of the city. Within this area is the city of Chongqing as well as 23 districts that form a cluster of urban settlements around it. While the city proper of Chongqing is projected to have a population of 7.9 million by 2010, the whole city cluster is expected to have a population of 22 million by then. The plan[1] envisions that by 2015 the whole urban region will become a *xiaokang*, or "all around well-off society," with an annual income per capita of CNY77,300 (Zhao 2007).

Views on the Role of Urbanization in Development

When ADB was established in 1966, rural development was the dominant concern of policy makers. Poverty was perceived as being most acute in villages and rural areas, so programs on how to increase crop production, extend farm credit, improve agricultural marketing, and build farm-to-market roads were pursued. Most bilateral aid agencies and multilateral financial institutions concentrated assistance on developing miracle rice and hybrid corn varieties, improved irrigation systems, postharvest technology, and farm mechanization. National governments launched development programs to improve people's lives in rural areas. The tacit assumption behind these development strategies was that if people in the villages and rural areas had a good life, they would not flock to the big cities.

The flip side to those rural development strategies was a strongly held negative view of urbanization. Urbanization in Asia was called

[1] According to the plan, the zone in the core of the circle will be devoted to manufacturing and industry (Chongqing became the center of the arms industry in the PRC when the Government moved military plants to the interior so that they would be far from the more vulnerable coastal cities). The districts in the northeastern part of the circle will be developed as an ecological zone devoted to agriculture and food processing. The southeastern zone districts will be developed for ecotourism.

"pseudo-urbanization" because the growth of cities in Asia was not accompanied by advancements in manufacturing and industry as it was in Europe and North America (McGee 1967). The outward growth of big cities in Asia was called "premature suburbanization" because it was mainly a result of the spontaneous movement or forced eviction of squatters and slum dwellers to outlying areas, in contrast to the United States, where the outward growth of suburbs was a result of the upward mobility of former city dwellers (Breese 1966). The "exploding cities" in developing countries were associated with squatters and slum dwellers; environmental pollution; crime, drug addiction, and other vices; and personal and social disorganization (Wilsher and Richter 1975). In almost all Asian countries, governments used restrictive and punitive policies and programs to stop or reverse urban growth.

For a while, it looked like the anti-urban policies were working. During the late 1980s, demographers observed that the growth rates of megacities were slowing down and that many inner-city areas were losing population. The term "urbanization reversal" was coined to describe this phenomenon, and policy makers who had expressed alarm over the growing problems of megacities welcomed the demographic shift. Closer analysis of megacity growth patterns suggest, however, that although the growth rates of populations living within the formal boundaries of cities and statistically defined metropolitan areas were declining, suburban areas were continuing to grow. In fact, urban growth was engulfing rural areas and smaller urban centers and creating sprawling city clusters.

As urban settlements continued to grow in Asia and other developing regions, a shift away from the perception of cities as sources of economic and social problems started to emerge. During the early 1990s, the anti-urban bias was gradually replaced by a more positive view of cities. This shift was reflected in the 1996 *Global Report on Human Settlements,* in which it was observed that

> Urbanization has been an essential part of most nations' development towards a stronger and more stable economy. The countries in the South that urbanized most rapidly in the last 10–20 years are generally those with the most rapid economic growth. Most of the world's largest cities are in the world's largest economies, which is further evidence of this link between economic wealth and cities. Cities and towns also have important roles in social transformation. They are centers of artistic, scientific and technological innovations,

> of culture and education. The history of cities and towns is inexorably linked to that of civilization in general (UN Centre for Human Settlements [Habitat] 1996).

Some economists have explained why cities play an important role in development. Cities provide economies of scale, agglomeration, and location; they provide efficient infrastructure and services by concentrating in one place investments in transportation, communications, and power and water supplies. They attract a pool of labor that makes specialization in knowledge, skills, and management capabilities possible. They offer a large number of goods suppliers, diversified financial and commercial services, venture capital, and access to information on foreign markets and technologies. They also provide a diversified marketplace in which competition sets the optimal prices among producers and sellers (Hamer 1994).

Economists have observed that restrictive policies and programs inhibited economic development in many Asian cities. For cities to be transformed into engines of economic growth, they need adequate and assured energy supplies for industry, manufacturing, commerce, and labors. They require delivery of a reliable supply of safe water and a sewerage and drainage system to dispose of waste and gray water. Solid waste and hazardous materials have to be collected and disposed of efficiently and safely. Mobility of individuals and goods must be assured by modes of transportation that respond to the needs of all sectors of society and do not pollute the environment (Tiwari 2002). Urban residents must be able to communicate efficiently with each other and with individuals and firms in other parts of the world. They must also have access to comfortable, affordable shelter. Urbanization is a process of creating the growth engine. If essential components of an "urban engine" are not provided or not well-equipped to run efficiently, how can it spark and drive economic development?

Beneficial Aspects of Clustered Urbanization

ADB's adoption in 2007of a long-term strategy that seeks to reduce poverty through "inclusive development and growth-promoting activities" provides an excellent opportunity to make use of city cluster development as an instrument to achieve economic, social, and environmental goals. The experiences of a number of devel-

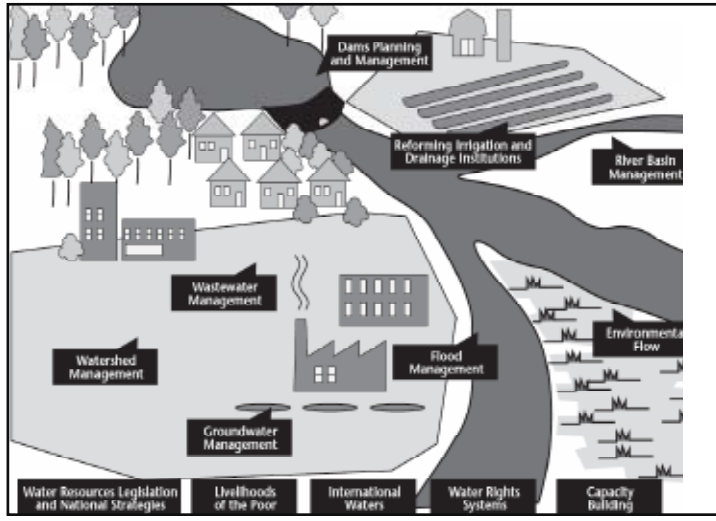
oping member countries illustrate that well-formulated and well-executed CCD can give rise to various benefits:

- urban infrastructure and services provided in an integrated manner for whole urban regions rather than for individual cities, towns, villages, and rural areas;
- availability of financial and other resources to develop whole urban regions by developing common taxation standards and operations throughout those regions, improving the credit rating of whole cities in the urban region, and setting up a more equitable tax burden among cities, towns, villages, and rural areas within the region;
- better opportunities for attracting private sector participation in area-wide development projects, especially those involving urban infrastructure and services;
- improved capacity for dealing with urban problems, such as environmental pollution that do not respect the political and administrative boundaries of individual cities, towns, villages, and rural areas; and
- inclusive development for both urban and rural areas.

Integrated approach for providing urban infrastructure and services. Basic infrastructure and services are crucial for urban development. However, there has been a tendency to set up such infrastructure and services as single-sector projects—for example, constructing a road, setting up a solid-waste disposal facility, or establishing a waterworks system for a single city. A review of experiences in a number of developing member countries has revealed that a multisectoral approach that integrates different infrastructure projects and encompasses all cities and towns in an urban cluster yields better results. This is because, by their very nature, some infrastructure and services require area-wide planning. For example, waterworks projects should take into consideration watershed management, ground water management, flood management, dam planning and management, river basin management, irrigation and drainage facilities, and environmental flow (Figure 2). Good governance of water resources requires balanced management throughout, upstream and downstream, which usually goes beyond a city's administrative boundary. Energy generation requires the construction of massive dams, which are also used for flood control and provide irrigation for agriculture. To function effectively, such projects have to be efficiently linked. Solid-waste disposal systems

can provide energy generation through the use of incinerators, or produce agricultural fertilizer through composting, if sufficient volumes can be collected from a city cluster. Such services can be provided more cost-effectively if clustered cities act together. Because urban infrastructure and services are closely linked and require heavy capital investment, providing them in an integrated manner using a CCD approach can help achieve economies of scale. Placing a number of infrastructure elements and services under one management structure can even be more efficient. A good example is the Public Utilities Board of Singapore, which develops and manages water, electricity, and gas services; it not only provides efficient services to all of Singapore but also sells 15% of its bulk water to the Malaysian state of Johor (ADB 1993).

Figure 2: An Ecosystem View of Water Management



Source: Laquian (2005).

Increasing the potentials of financial resources. In most Asian countries, local government bodies are heavily dependent on central and provincial or state governments for revenue and grants-in-aid. They have a limited tax base because they do not have complete control over developments in their jurisdictions. When local government bodies are fragmented, developers can play one against

another to gain undue advantages. In Delhi, for example, some private developers obtained tax privileges by manipulating competing local officials (Gupta 2007). When local government bodies in a city region pursue revenue-raising operations individually—each local unit having its own tax ordinances and procedures for assessment, collection, fund transmittal, and audit—they usually end up competing with each other and, as a result, get less revenue income. Small local governments with a weak tax basis tend to get lower credit ratings. Therefore, if clustered local governments set up a joint revenue-raising mechanism with common standards and operations, they will achieve higher levels of revenue by setting up a common computerized system of assessment, adopting uniform tax rates, and applying standardized collection and tax reporting systems. These approaches can also foster area-wide sharing of the tax burden and enhance equity. In North America, metropolitan governments have found that when the component local government bodies in a city cluster pool their assets and other resources, they get a much higher credit rating, which enables them to raise more capital for the construction of area-wide infrastructure. In countries where central governments are reluctant to allow local governments to borrow for infrastructure investments, either locally or in foreign markets, combining the efforts of local governments within a city cluster can give them enough political clout to be allowed to borrow with or without sovereign guarantees.

Enhancing opportunities for private sector participation. The experience in a number of developing member countries, including the PRC and Viet Nam, shows that when local government bodies in a city cluster cooperate and pursue an area-wide development strategy, they are much more successful in attracting private sector participation. For example, private sector investors consider at least a population of 200,000 in a single town before considering investing in water supply projects.[2] Both foreign and domestic investors want to be assured of the commitment and serious intent of their local counterparts, and, as shown in the cases of Shenzhen and Zhuhai in the PRC, adopting a CCD approach is an excellent assurance of official resolve. A CCD plan can also allocate specific areas for private sector participation–supported projects, as in the Sino-

[2] Bidders Survey, conducted in 2007, for the Northern Karnataka Urban Sector Investment Program Project (Loan 2312-India).

Singapore Industrial Park in Suzhou, PRC, and can guarantee the provision of area-wide infrastructure and services, as in the Singapore–Johor–Riau growth triangle. Most important, the combined financial, material, and human resources achieved by common actions of local units within a city cluster assure private sector investors that their public sector counterparts are solid.

Improving environmental protection approaches. One main problem caused by competition among local government bodies is that because they are eager to achieve development goals within their individual jurisdictions, they neglect to look after the common good. For example, they allow industries to be built along waterways without worrying about pollution in other jurisdictions downstream, as in the case of the Pasig River in Metro Manila; they build superhighways and inner-city roads with little concern for air pollution; or they allow the construction of factories and housing projects that depend on surface water and the aquifer without taking into account that such wanton use of water resources harms residents of adjoining areas, as is the case in Greater Jakarta. One major advantage of a CCD approach is that it forces local government bodies to take an area-wide look at the environmental and other impacts of specific actions. This has been reflected in the environmental programs pursued in the Dalian–Shenyang development corridor in the PRC's Liaoning province (Laquian 2006).

Fostering inclusive development. A key benefit of CCD is that it fosters inclusive development. The term "urban" often limits development focus within cities, towns, or urban areas, while ignoring adjacent surroundings (peri-urban) or rural areas. Urban and rural economies are like a symbiotic relationship, but "urban" development tends to dichotomize urban against rural areas. CCD promotes sharing development benefits with rural and peri-urban areas by including the patches of rural areas between the cities in a city cluster or an urban field. For example, most Asian cities are plagued with communities of urban poor, who are forced to live in such marginal or dangerous areas as riverbanks, steep hills, or railroad tracks. Local authorities often carry out slum eradication programs that simply raze shanties and force poor people to relocate outside the city boundaries. Even when the poor build their shanties in undesirable places, they can be arbitrarily displaced. In Metro Manila, squatter communities are periodically bulldozed and no provisions are made for their residents despite a law stating that

evicted families should be provided with housing and amenities at an alternative site. In Delhi, some entrepreneurs have displaced slum dwellers and set up plants in the areas they once occupied. This process called "degenerated peripherilization" has been criticized as detrimental to the development of the whole city, especially since the sites in question were not earmarked for industrial development in Delhi's master plan (Kundu 2007).

When properly formulated, a CCD plan can include a comprehensive program for upgrading shelters and rural communities within a whole city region. It can designate inner-city areas to be upgraded as well as sites for upgraded housing and basic infrastructure and services. It can provide jobs for the rural poor residing in between the city clusters, as well as affordable and convenient means of transportation for them. In a comprehensive review of 26 community-upgrading projects supported by ADB and the World Bank in 11 Asian countries, Basil van Horen (2007) concluded that—in addition to infrastructure provision—institutional reforms such as improvement of the regulatory framework, integration of slums into the whole urban fabric, improved access to finance and credit, more effective environmental management, and the establishment of area-wide metropolitan governance were necessary ingredients for a community-upgrading policy framework.