
Chapter 12 Environmental Impacts

12.1 ZSPSP Environmental Impacts

12.1.1 Inundated Area of ZPSPP Reservoir

12.1.1.1 Environmental Conditions

Section 1.3.1 provides a detailed description of the environmental conditions in the Inundated Reservoir Area. As the local inhabitants are mainly engaged in agricultural production, the environment of ZPSPP Reservoir Area has been affected by the human activities such as to convert slope land into terrace land for cropping, which can increase water and soil erosion. There are no sewage treatment facilities in the villages. However, people use domestic night-soil as fertilizer after simple treatment, which cause little pollution to the Gantao River or to the Zhanghewan Reservoir.

The water surface area of the Reservoir is 3.57 km² under NSL. Farmland inundation will have an impact on the environment.

12.1.1.2 Social Environmental Conditions

As described in Section 2.3.1, there are 2,670 people in the ZPSPP Project Area who will be relocated to the northeastern part of Jingxing County and 453 people who will be moved nearby within the Reservoir Area. Therefore, the social community formed over a long period will be affected by the ZPSPP Reservoir construction, resulting in the difficulties of social adjustment to both the resettlers moved nearby and relocated outside the immediate area, with impacts on their means of production and living standards.

Although the Project is located in a remote mountainous area, through the Material Index Site Investigation, socioeconomic investigation of Reservoir Inundation Area, and a visit to the Civil Administration Department in Shijiazhuang, it has been verified that no minority people live in the inundated villages

There are also no historic and cultural relics around or within the Upper or Lower Reservoirs. Therefore there is no impact on the relics. The Natural Reserve of the Cangyan Mountain is 16 km away from the Project area and will not be affected by construction of the project.

12.1.2 ZPSPP Resettlement Sites

12.1.2.1 Natural Environmental Conditions

Beizheng Township lies in the middle of the Jingxing County basin, where the land

features with hills and river valleys which are 250-350 m in elevation. The Weizhou Town is located in a lower mountainous and hilly area, with the Ye River running through the area from south to north. The natural and environmental conditions of the five (5) resettlement sites are described in Sections 4.3.3 and 4.6.2.

12.1.2.2 Social Environmental Conditions

Section 2.4.3 describes the social and environmental conditions of the resettlement sites in detail. As the move-in of the resettlers, it will cause pressure to the original residents of the Resettlement Sites as well as the resettlers themselves in terms of the resources utilization and environment protection. With the increase of population density and income, more ground water will be extracted and more wastes will be discharged.

12.1.3 Impacts on the Environment and Mitigation Measures

12.1.3.1 Environmental Impacts and Mitigation Measures

The Reservoir will inundate 330 ha of land, of which 202.93 ha is farmland, and affect 3,123 persons. Chapter 2 describes the impacts on the land acquisition and human resettlement of the Reservoir Area. In order to mitigate the impacts, the following measures are developed:

(1) Guiding Principles and Policies of Resettlement Implementation Issued by the State

The mitigation measures for the inundation impacts on villages of the ZPSPP Reservoir will follow the resettlement policies and laws issued by the State to achieve effective resettlement planning.

Resettlement planning will be served as a base for a good implementation of the resettlement work. The ZPSPP resettlement planning is in conformity with actual conditions in the Reservoir Area and could be accepted by the affected villagers as it has been carried out on the basis of cooperation between the staff of local relevant governments, engineers from BHIDRI, village cadres and the representatives of the resettlers. A feasible Resettlement Action Plan (RAP) has been prepared in accordance with the desires and requirements of the local governments and the affected villagers, as well as the comments of resettlement experts.

The Shijiazhuang City Resettlement office (SCRO) will be in charge of the approval and supervision for the implementation of resettlement, particularly to ensure that the resettlement conforms to the ZPSPP construction schedule and fulfills the objectives of restoring the production means and living standards of the resettlers. The SCRO will cooperate with the local governments to inspect and approve the resettlement works after the project is completed.

(2) Establishment of A Supervision Mechanism

County and township staff will be responsible to fill out special report forms, which will be submitted to the HPRO and SCRO. These forms will be attached to a Construction Progress Report submitted by supervision engineers. The province, city and county resettlement offices will establish a functional agency or full-time staff under the direction and consultation of resettlement specialists to carry out supervision and evaluation of the resettlement works.

(3) Improvement of the Grievance Mechanisms for Resettlers

Resettlers enjoy the rights and obligations of citizens, as defined in the constitutions and laws of the PRC. When resettlers' rights and benefits are infringed, they have the right to appeal through the established legal procedure till their satisfaction.

ZPSPP Impacts on the Economy of Reservoir Area and Mitigation Measures

(1) Impacts on the Economy

Construction of the ZPSPP Reservoir will inundate land, property and production facilities in the Reservoir Area. Because the environmental carrying capacity of the Reservoir Area will decrease as a result of the inundation, some villagers will have to be relocated and a new system of production and economic activities will be established in the Resettlement Area. The re-adjustment and adaptation process will cause difficulties to their livelihoods and standard of living. The losses from the inundation will cause negative impacts on the local economy as well as the family income of the villagers.

On the other hand, the construction of the ZPSPP will have positive impacts on the economic development of Jingxing County and the country. The construction of the ZPSPP will bring in a large amount of funds and advanced technology into the Project area; which will generate many employment opportunities for the local people; and stimulate the development of the local construction material processing industry as well as other commercial activities. Consequently, the local economy will be developed and local prosperity will be greatly enhanced.

(2) Mitigation Measures

The major mitigation measures for the losses of the resettlement will be to use the compensation fund to invest in land development and improvement, water conservancy, agriculture, forestry, horticulture, and animal husbandry and the re-construction of public facilities to develop the production means and improve the living standards of the resettlers. After the completion of the resettlement, the Fund for Reservoir Area Construction will provide post-relocation support to the resettlers for further restoration of the production means and living standard of affected persons.

Taking into consideration of the ZPSPP Reservoir Area is largely agricultural economy, land-based resettlement will be carried out. As a result agriculture will be developed and local resources will be utilized for the development of agricultural production and the construction of water conservancy projects. Comprehensive measures of science and technology will be adopted to raise the yields of agricultural production. The primary measures for the rehabilitation of agricultural production will include the improvement of soils; construction of water conservancy facilities; converting dryland into irrigated land; optimization of the cropping structure; promoting scientific farming; and development of a diversified economy.

Many of the resettlers to be moved within the Reservoir Area will continue to farm on the land remained after inundation within their original villages. The farmland holding per capita of the resettlers relocated within their original villages will be kept at the original level or higher. Prior to inundation, most of the fields were dryland or irrigated fields with a low guarantee rate of irrigation and low yield. Therefore, it is necessary to provide more input and positive support to these resettlers with respect to the rehabilitation and development of their agricultural production so that they can recover their livelihood and standard of living as early as possible. In addition, pump stations will be built in Nanhaoting Village to ensure irrigation. Compensation for the seven (7) original pump stations and other original irrigation facilities to be inundated will be used to re-build three (3) pump stations for irrigation and domestic drinking water supply.

Resettlers relocated within their original villages will also have the potential to have fish farming in the Reservoir and to develop tourism. Based on the experience of the present fish breeding in net-cages on the Zhanghewan Reservoir, expanding fishing will not cause pollution of the Reservoir water, so the RAP may include a program to diversify fish species and increase the scale of breeding, with an eye to increasing resettlers' income.

Impacts on the Infrastructures and Facilities and Mitigation Measures

The construction of the ZPSPP will produce impacts on the infrastructures and facilities in the Reservoir Area, such as highways, broadcasting, telecommunication and power lines.

As the primary mitigation measures, the affected infrastructures and facilities will be re-constructed. A specific Re-construction Plan is described in Chapter 4. The re-construction of highways and telecommunication and broadcasting lines will avoid occupation of farmland as much as possible, and attention will be paid in their design with regard to water and soil conservation.

12.1.3.2 Impacts on the Resettlement Areas

Impacts on the Production and Employment and Mitigation Measures

The Resettlement Sites for the ZPSPP were finally determined after careful investigation and discussion with the cadres and people of the villages and townships of both the Reservoir inundation and Resettlement Areas, under the direction of the County Government.

The farmland in the Resettlement Sites is relatively abundant. As their land will be requisitioned for the resettlers, their farmland holdings will be reduced. However, with improved irrigation conditions, their farming income will not be decreased. Meanwhile, the construction of the Resettlement Sites and the investment of the resettlement funds will create new employment opportunities for host villagers, which will stimulate the development of the construction material industry and the diversification of local economy, which in turn will increase the income of host villagers.

In the early period after relocation, the resettlers will undergo a transitional period to adjust to the new area. Their income may be reduced and living standard may be decreased accordingly.

The primary mitigation measures are compensation for inundation; allocation of farmland; construction of water conservancy facilities; and the development of agricultural lands, forestry, horticulture, and animal husbandry to improve the resettlers' agricultural production and standard of living. After the resettlers have been relocated, the FRAC will be used to further support the rehabilitation of agricultural production and improve their living standards.

Impacts Due to Adaptation to the New Social Environment and Mitigation Measures

During the relocation period, both the resettlers and host villagers are likely to experience different kinds of psychological, physiological and socio-cultural pressure, such as worries about the future and the insecurities to leave a familiar living environment; the difficulties of elders or handicapped; and conflicts over limited resources with the host villagers. The greater the changes in the living and social environment, the more difficult social adjustment would be. Experience shows that many kinds of pressure can be mitigated by adopting appropriate policies and measures during the planning of resettlement at different stages, and rehabilitation of agricultural production.

During the planning and implementation of the ZPSPP resettlement process, the following measures will be adopted for the social adjustment.

- (1) The comments and opinions of governments at all levels have been integrated into the resettlement planning. In accordance with the resettlers' own wishes, the relocation will be involves in the existing villages as much as possible to maintain the social systems of the affected persons, and the resettlement strategy will be land-based by taking into consideration that 94 percent of the resettlers are farmers who prefer the familiar mode of farming for the re-establishing their production;
- (2) During the relocation, great attention and care will be paid to the relocated families to ensure that their housing, courtyards and social and physical environment will be at least the same as before. Women will participate in the relocation process, and the elders, handicapped and children will be given special attention and care;
- (3) Resettlers, with priority given to women, poor and handicapped persons, will be provided with training of agricultural technology to help them to gain practical production technology for developing a diversified economy and improving agricultural production to strengthen the human resources and general adaptability of the resettlers;
- (4) Women will directly participate in the process of resettlement planning. During implementation, resettlement offices at all levels will hire women staff and organize women resettlers and host villagers to involve in the various activities related to the rehabilitation of agricultural production and to enable women to play important role in the resettlement process at all stages;
- (5) Regular professional training on the coordination and resolution of the adaptation of the resettlers will be provided to resettlement staff to help them carry out their resettlement work efficiently.

Overall, the ZPSPP resettlement planning is a comprehensive and appropriate to the requirements of large -sized hydropower projects in China. The interests of both the resettlers and host villagers will be taken into account throughout the resettlement planning and implementation. The resettlement impacts on the social and natural environments will be mitigated through detailed and specific resettlement planning and environmental protection measures.

Impacts on the Infrastructures and Public Facilities and Mitigation Measures

The present public facilities such as cultural and educational and medical facilities in ZPSPP Resettlement Sites are adequate to serve the present population, as well as special infrastructures. After the ZPSPP resettlers are relocated to the Resettlement Area, the roads, water supply systems and schools will be under pressure due to the increased population. Soil, vegetation and water will be affected by the re-construction of the above infrastructure. In particular, the increased population

density will cause much more ground water extracted and more wastes discharged.

The ZPSPP will provide new infrastructures and facilities to the Resettlement Sites to meet the new demands and maintain or improve the present service level. The new infrastructure facilities will improve the living standard of both resettlers and host villagers in the Resettlement Area. Therefore, the ZPSPP impacts will have no impacts on the Resettlement Area.

The provisions of favorable condition for production and convenience for living will be implemented in the resettlement planning. To meet the actual demands, new primary schools, village committee offices, cultural centers and clinics will be built for all of the new resettlement villages. Other facilities and infrastructures will be improved than before.

12.1.3.3 Impacts on People's Health and Mitigation Measures

Impacts on People's Health during Construction

(1) Impacts on People's Health

During the ZPSPP construction period, a large number of workers will enter into the construction area, which will cause an increase of population density and wastes. The infrastructures in the construction site is simple and inadequate, if domestic wastes can not be treated on time, flies and mosquitoes will possibly spread the intestine diseases among the workers. It is expected that numerous service business will be established. If management of hygiene and domestic water is not strictly implemented, the infectious diseases such as hepatitis will be spread easily.

A large number of young men will moved in, which could cause the increase of the floating population. If security is not good enough, the phenomenon of prostitution and drugs may appear, thus the HIV-AIDS and VD could be introduced to the local communities.

During the construction of the Project, the increase of population may cause the damage of the existing ecological environment. Various social influences caused by the constructors labor force may have harmful influence on the local villagers. When the Reservoir impoundment commenced, rats will move to the inhabited areas. The increased rat population density will cause an increase of morbidity from the diseases which rats carried.

After the ZPSPP Reservoir construction is completed, if the reservoir bed clearance is inadequate, waterborne diseases such as dysentery could also be spread.

(2) Mitigation Measures

The resettlement staff visited the Public Health Bureau, the Sanitation and Anti-epidemic Station of Jingxing County, and the Ceyu Township Clinic to investigate the local endemic diseases situation in July 2001. The major endemic disease earlier was goiter, with a rate of 22.4% in 1970s, but the current rate is zero. It was told by the medical technicians that the endemic disease will have no harmful effect on the construction work force. The main infectious diseases in the area in 2000 include hepatitis A (0.23%) and hepatitis B (0.18%); dysentery (0.14%); pulmonary tuberculosis (0.06%); malaria (0.01%); and flu (21.3%). The resettlement staff has cooperated with the relevant departments of the Public Health Bureau to develop a plan to prevent infectious diseases.

Control of Infectious Diseases. The ZPSPP Project Office and the JCRO will entrust the Ceyu Town clinic and hospital to carry out regular physical examinations of the resettlers and the construction workers. Medicine will be provided to prevent the diseases. The patients will be quarantined when necessary to prevent the spread of infectious diseases. The ZPSPP Project Office will request the Contractor to carry out the physical examination for the construction workers when they start their employment, and those workers who cannot pass the physical examination will be refused for employment.

Before and after the ZPSPP Reservoir inundation, a regular campaign of killing rats will be launched in the Resettlement Sites for those moved close to the Reservoir, as well as for the households of other villagers surrounding the Reservoir. All villagers will receive health checkups.

Provision of Centralized Water Supply Facilities. Centralized water supply facilities will be established to protect drinking water sources. A centralized domestic water supply for workers will put into operation by diverting water from the Zhanghewan Reservoir to higher level ponds, then to the water supply system through a purifying device. To ensure the water quality is in conformity with the State's standards, the water source will be protected.

Sanitation Management Strengthening. Sanitation rules will be established for the ZPSPP Resettlement Sites, and hygienic knowledge will be promoted among the resettlers. At the construction site, the measures will be particularly concentrated on the catering service, such as dining room of workers, snack bars and small restaurants, which will be inspected by local sanitation and anti-epidemic station. To open a business, permit must be obtained.

Dustbins will be put in the living quarters of construction camps. A wastes cleaning vehicle will collect wastes, which will then be buried on a timely basis to appointed waste treatment area. Drainage ditches in the Resettlement Sites will also be cleaned regularly to prevent the mosquitoes and flies and to remove the vectors of

insect-borne diseases.

Clearing the Reservoir Bed. All houses and associated structures, bridges and culverts, and public facilities such as power, telecommunication and broadcasting lines below the NSL will be removed. Sources to cause pollution, such as hospitals, veterinary stations, toilets, rubbish dumps and tombs will be moved outside the Reservoir, buried, and/or disinfected on the spot to cut off all possible ways to spread water-borne infectious diseases via the Reservoir.

In January 1999, the resettlement planning staff visited the Public Security Bureau of Jingxing County and the Police Station of Ceyu Township to investigate the local situation regarding drugs and HIV-AIDS. Findings show that at present there appears to have no HIV-AIDS or drug problem in Jingxing County. However, the Public Security Bureau of Jingxing County will strengthen the security force of the Ceyu Police Station and increase the number of policemen. A special department with full-time personnel will be appointed by the ZPSPP Project Office and the Contractor to cooperate with the Police Station. Public information and training program about local laws will be provided to the villagers and construction workers carried out by the Police Station of Ceyu Township and the ZPSPP Project Office. The police-civilian defense will be carried out to avoid illegal activities such as drugs, etc.

The Impacts on the Resettlement Areas and Mitigation Measures

During the relocation period, resettlers will be more vulnerable to infectious diseases because of the stresses and uncertainties for adjusting themselves to a new living environment. Therefore, a series of mitigation measures will be taken to protect their health.

- (1) Before moving to the ZPSPP Resettlement Areas, the new resettlement sites will be sprayed by insecticides to kill mosquitoes. Rat poisons will be used to make the sites safe for residents. Drainage ditches in the Resettlement Sites will also be cleaned regularly to prevent the breeding of mosquitoes and flies and to remove the vectors of insect-borne diseases.
- (2) A centralized water supply system will be established to protect drinking water sources. Domestic and drinking water for the Resettlement Sites will be pumped up from deep wells to storage towers through pipes equipped with purifying devices to ensure drinking water in conform with the governmental standards. To ensure this, the water source will be protected.
- (3) ZHWPO will entrust the regional and township hospitals to prevent diseases at the ZPSPP construction sites and the Resettlement Sites. In addition, resettlers will receive regular physical examinations and provide with medicine for protection.

When necessary, patients with serious infectious disease will be quarantined to prevent the spread of infectious diseases.

- (4) Sanitation rules will be established in the ZPSPP Resettlement Sites and hygienic knowledge will be promoted among the resettlers.
- (5) Sewerage treatment facilities will be established in the Resettlement Villages. Measures will be taken such as building sewage purifiers, promoting comprehensive application of agricultural fertilizer and marsh gas, etc. to assure a sanitary environment.

12.2 Environment Impacts and Mitigation Measures for Rural Electrification Program

12.2.1 Environmental Impacts

12.2.1.1 Transmission Line

Major Environment Impact

- In order to build construction access road, tower foundation and clear passageway for laying tension lines a few of trees will be felled and crops will be damaged.
- Constructors and cars passing in and out, construction blast will cause influence on residents and wild animals.
- Construction of the project will occupy some lands permanently and temporarily.
- Construction of the project will interfere with highway communication.
- Construction of the project will cause influence on wired communication facilities.
- Construction of the project will interfere with the normal running of other power lines.

Mitigation Measures

- The design of project shall be strictly according to the relevant specifications. Through comprehensive comparison, choose a reasonable and optimum scheme that will cause minimum impact on the environment of the area where the transmission line runs through.
- With advanced construction method to reduce the amount of trees, which will be felled. Laying grounding line intensively with tension machine and hauling machine to reduce damage of crops and fell of trees. Under the condition of construction period guaranteed the construction of pole foundations and laying tension lines will be carried out after the harvest of crops so as to minimize the damage of crops.
- During construction, the building of access road shall keep away from trees, so as to reduce the amount of trees that need to be felled. The short distance transportation of material will be mainly completed by manpower, by this means the damage of natural ecological environment caused by building access road and expanding access road will be reduced. The compensation will be carried out for the felled trees and re-plantation will be stimulated.

- Most of the tower and pole foundations that will be excavated by blasting are located in the mountainous and hilly region. The tower and pole foundations are far from the residents' area and the construction activities with vibration and noise will be carried out in daytime as much as possible, therefore, no unfavorable influence will be caused to the residents.
- After the completion of the project the land occupied temporarily shall be restored.

12.2.1.2 Substation

Major Impact

- Wastewater mainly consists of living wastewater, which comes from the constructors' living areas and a small amount of water, which is used to clean the site and equipment.
- Noise: Construction noise will be produced mainly by the operation of the construction machine, such as rammer.
- Dust: During construction the moving of car transport, manpower labor, excavation will produce fly dust.
- Solid waste: mainly consists of living rubbish and construction waste.
- Vibration: mainly produced by the construction machine such as the rammer.

Mitigation Measures

- Waste water: The administration of discharge of wastewater will be strengthened during construction to prevent the wastewater from polluting environment uncontrolled.
- Noise and Vibration: The construction activities which will produce comparatively strong noise and vibration shall be carried in day time as much as possible, so as to avoid impacting the constructors and residents' rest at night.
- Dust: The road and construction site will be sprayed and sprinkled regularly.
- Solid waste: The management of solid waste during construction will be strengthened, living rubbish and construction waste will be required to classify and pile separately, and remove on time.

12.2.2 Environmental Impact Assessment during Operation of Project and Mitigation Measures

Wastewater

- The wastewater produced by the substation is mainly living wastewater, besides, there are also some small amount oil-contained water when the transformer or reactance is maintained or out of order. The substation sites have no water supply and discharge system. Usually they will get water through drilling well, at the same time, there are not many persons working at the substation, therefore the amount of living wastewater will not be large amount. The working person's daily wastewater such as clean face and brush teeth can be used to irrigate the plant within the substation, and the toilet is simple which will not flush.

- The oil-contained water will generate only when the substation is maintained and in accident, the frequency is not large. Otherwise, the amount of water separated from emergency oil pit by oil-water-separating device is not so large, and will not impact the nearby environment when it meets the discharge standard.

Noise

- The noise generated by the substation will mainly come from main transformer, reactance and circuit breaker. The major mitigate measures are as following:
 Selecting the equipment and conductor qualifying the noise source strength requirement when selecting the equipment type, conductor and order goods;
 Centralize the noise sources as much as possible when arrange the general layout;
 Selecting sound absorbent for relative wind channel walls;
 Install sound absorbing material at the inlet/outlet of the wind channel;
 Afforestation around the substations.
- According to the measurement by the environmental protecting agency to other open type 220kV substations, the noise level outside the wall can meet the Grade II requirement of “Industrial Enterprise Boundary Noise Standard” GB12348-90, i.e., lower than 50dB.

Electromagnetic Radiation

- The electromagnetic radiation produced in the substation will be mainly from the bus of the distributed device and nearby electric equipment.
 35kV will use SF6-filled insulation switch cabinet and SF6 insulating bushing;
 10kV will use insulation switch cabinet, equipped with bus-bridge;
 When the main transformer’s bushing is internal, there are little conductor exposed; when is external, there is some outgoing line.
- According to the information in the country and worldwide, 50% of the electric field strength is under 5 kV/m, nearly 95% electric field strength is under 8 kV/m and it is only 0.6% which exceeds 10 kV/m in 500kV substation. The strength of electric field dose not exceed usually 5 kV/m in 110kV substation. The strength of electric field is much lower in 35kV and 10kV substation, so beside walls it is also lower than 5 kV per m, which could satisfy the limited requirements of electrostatic induction and does not affect environment.

Analysis of Radio Interference Affecting during Operation

- All kinds of electric facilities, wire conductors, metals and insulator chains are electric corona radio interference sources in the substation. Through along wire conductor direction and through space vertical wire conductor direction the interference sources propagate high frequency interference wave from the substation.
- The information showing that, the radio interference composite value is about 40dB which is 20m beside the substation; and it is lower 30dB beside 110kV substation. These are much lower the design level, so the radio interference waves beside the 110kV substation would not affect the wire electric facilities and radio facilities.

12.3 Environmental Impacts and Mitigation Measures for the Closure of Small Thermal Power Plants

12.3.1 Major Pollutants and Environmental Impact during Units Dismantling

Waste Water

The excess water need to be discharged during equipment and pipeline dismantling. More than 90% of the discharged water will not increase any other new polluting factor except that the salt content will be slightly increased compared with the supplied water. The suspended load of a small amount of water discharged from the boiler and dust handling equipment will be relatively high. It will pollute the water body without proper treatment measures. Equipment rebuilding will remove some equipment and pipes. The influence is the same as equipment dismantling.

Dust

The explosion of the workshop and structure of the unites will produce dust; The movement of the vehicles which transport the construction waste will also produce dust without proper protection measures. The dismantling and cleaning of the dust catcher will generate dust. Generally speaking, dust will impact the living environment nearby without proper dust protection measures during dismantling. Equipment rebuilding will remove some equipment and pipes. The influence is the same as equipment dismantling.

Noise

The primary sources of noise may be categorized into the following groups: Noise generated from dismantling the workshop and structure of the units; Mechanical noise made by the dismantling equipment; Mobile noise produced by the vehicles used to transport the waste. It will impact the normal living of the residents nearby and the personnel without proper mitigation measures.

Construction Waste and Spoil Material

The explosion of the workshop and structure of the units will generate construction waste. The parts, which can not be recycled, of the dismantled equipment and pipeline, will generate spoil material. Without proper management and treatment, it will pollute environment nearby, block traffic and occupy the farmland. Equipment rebuilding will remove some equipment and pipes. The influence is the same as equipment dismantling.

12.3.2 Polluting Mitigation Measures during Unit Dismantling

According to the closure plan of the small coal-fired units, HEPC will organize the dismantling construction team conscientiously. They will draft the dismantling plan,

procedure and environmental protection measure before dismantling. Supervisory and management organization will be set up during dismantling.

According to the closure plan of the small coal-fired units, HEPC will rebuild 50MW units into high temperature, high pressure thermal units. They will organize the design and construction conscientiously. Before rebuilding, they will draft the rebuilding plan, dismantling plan and environmental protection measure. Supervisory and management organization will be set up during dismantling.

Wastewater Polluting Protection Measures

Before units dismantling, the excess water in the equipment and pipeline of the boiler water supply system and industrial water supply system which do not have any pollution will be first recycled or discharged into the previous discharge pipe and then access the sewage receiving body. The recycling water system whose salt content is slightly high, will be also be first recycled or discharged into the previous discharge pipe and then access the sewage receiving body. The excess water of the dust handling system whose suspended load is relatively high will be discharge into dust sluicing basin temporarily, and then discharged into the formerly discharge pipe after clarification. The dust will be buried at the spot. The excess oil in the oil pipe and oil equipment will be recycled and a small amount of oil slag will be moved to the spoil area.

Dust Pollution Protection Measures

When the buildings are being dismantling, the bigger particulate will only emit around the buildings and the affected area is relatively small. If dismantled by working forces, the manipulators will spring and sprinkle the road regularly to keep high humidity and they will adopt self-protection measures as well. If dismantled by explosion, the personnel should stay far from the explosive site to minimize the harm of the flying particles; Part of the region will be closed temporary to minimize the environmental impact.

Noise Pollution Protection Measures

To minimize the impact of residents by the noise, following measures shall be used. Firstly cut down the operational noise of the dismantling equipment, adapting noise elimination measures, such as, noise shield, decrease friction, selecting lower-noise dismantling equipment. Secondly, work out the dismantling scheme, avoiding various collisions as much as possible, using “moving” avoiding “throwing” to minimize colliding noise. Thirdly, explosion and dismantling activities shall be carried out in daytime to avoid impacting residents' normal life; Fourthly, waste shall not be transported at the working force's resting time.

Remedy Measures for Solid Waste Pollution

Measures to be implemented includes enhancement of construction management, dismantle the buildings and equipment firmly according to the Implementation Procedures, separation between recoverable materials and waste and timely delivery of the waste to the waste disposal yard. The waste will be covered during the transportation period and the recoverable materials will be sent to the warehouse in time.