



Environmental Monitoring Report

Project Number: 40634-013
July 2017

PRC: Inner Mongolia Autonomous Region Environment Improvement Project

Prepared by Inner Mongolia Project Management Office and Energy and Environment
Development Research Center

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Asian Development Bank



Environmental Monitoring Report

Project Number: Loan_No.2658-PRC
July 2017

PRC: Inner Mongolia Autonomous Region Environmental Improvement Project (Phase II)

Submit by: Inner Mongolia Autonomous Region PMO
Prepared by: Energy and Environmental Development Research Center

The Project Leading Group Office of the ADB Loan Inner Mongolia Autonomous Region Government submitted the report to the ADB, and issued in accordance with the ADB's Environmental Safeguard Policies (2009). This report may not reflect the views of ADB. Note that the "Terms of Use" section of this chapter.

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I. INTRODUCTION

A. Report Purpose and Rationale

EMP is very important, as an unnecessary part of Environmental Impact Assessment (EIA) report, proposes the necessary and appropriate mitigation measures, institution arrangements and environmental monitoring requirements for each phase of the project. It aims to monitor and ensure: (i) the requirements in accordance with environmental regulations; (ii) reduce potential adverse environmental impacts; (iii) implementation of environmental protection promise. To ensure the continuous implementation and improvement of EMP during project construction and operation, the project executing agency (EA) is required to compile the semi-annual environmental progress report, to describe the EMP implementation, environmental compliance and the improved measures. The reporting period of this report is from January to July 2017.

B. Project Components and Implementation Progress

The project components include 7 components: Hohhot, Baotou, Chifeng City, Harqin Banner, Xingan Meng Zhalaiteqi and Keyouqianqi central heating projects and Xingan Meng Keyouqianqi gas projects. The overall structure of this project has been changed when some subprojects quitted and local municipalities applied adjustments. In July 2013, Asian Development Bank (ADB) agreed the adjustments after the assessment of an ADB Review Mission. The two heating projects of original Harqin Banner and Keyouqianqi and gas project of Keyouqianqi applied to quit the project, increased three new heating components of Xingan Meng Arxan City, Tuquan County, and Chifeng City Wngniuteqi.

The project intends to change in July 2016: the cancellation Wengniuteqi component, new second heat source plant expansion project in Xingan Meng Zhalaiteqi and Hohhot heating network and boiler room expansion project.

The objective of this project is to improve the living environment of Hohhot, Baotou, Chifeng and Xingan Meng (Zhalaiteqi Inder Town, Tuquan County, Arxan Yi'ershi Town) and improve the institutional management capacity. The long-term and overall objectives of this project do not change in spite of somewhat adjustment.

The project total investment is about \$3.6831 billion, of which using the ADB loan of \$150 million, the remaining funds (about \$2.1831 billion) are from the municipal government budget and domestic commercial loans. The ADB loan will be used for construction, equipment, consulting services, training, construction period interest and finance charges, the government will provide the cost of land acquisition and resettlement, taxes and contingencies. The project implementation period is five years, from 2010 to 2014. According to the actual situation of the project, the loan closing date has been adjusted to Dec. 31 2017. The proposed project consists of four prefecture-level cities (Meng) in seven cities and towns of seven sub-projects, including Chifeng Wengniuteqi decided to quit. See the component description and implementation progress (by the end of July 2017) in the below table (**Table 1**).

Table 1: Subprojects Implementation Progress

| Subprojects | Description of Outputs | Implementation Progress |
|--|--|--|
| Hohhot | | |
| Hohhot heating network and boiler room expansion project | <ul style="list-style-type: none"> (i) Extension of 4 boiler rooms (rely on the bridge area G zone, Zhaojun village area F zone, Tuanjie community E zone, Nama Temple M zone), capacity expansion of boiler room (one unit of 3 × 58MW, 2 units of 3 × 29MW and one unit of 1 4 × 29MW) and ancillary facilities; (ii) New Class I pipeline of 41.13km, 303 km of pipe network transformation; (iii) 94 thermal stations; (iv) Close 144 small boilers. | Completed coal-to-gas: one unit of 1×29MW+2×46MW; and two units of 1×29MW , completed the laying of 1 st 、2 nd pipe network about 16800 meters (pipe groove length of about 8400 meters);Completed renovation and transformation of 95 sets of heat exchanger units and ancillary equipment; Completed two sets of dedusting desulfurization facilities in heat source factory of Tuanjie district; Completed one unit dry coal shed in heat source factory of Tuanjie district. |
| Baotou | | |
| Baotou central heating expansion Project | <ul style="list-style-type: none"> (i) New heating pipes of 4. (ii) Transformation of 7 heating pipelines. (iii) New 54 thermal stations. (iv) The transformation of the old thermal stations 251, and expansion of existing schedule and monitoring system. (v) Transformation of 2 plants heat circulation pump, increase frequency control devices. (vi) Close 164 small boilers. | Project includes four packages (international bidding), all have been purchased and implemented. Project was put into operation in 2013. |
| Chifeng | | |
| Chifeng central heating network expansion project | <ul style="list-style-type: none"> (i) Construction scale is the new heating area of 24.20 million m²; (ii) New heating pipe network of 91.3km; (iii) 118 thermal stations, transformation of 76 thermal stations; (iv) The new heating network control center; (v) Close 37 small boilers. | Completed the Class I heating pipe network is 32.875km, completed the program of 36%. |

| Subprojects | Description of Outputs | Implementation Progress |
|--|---|--|
| Chifeng Wengniuteqi Wudan central heating project | (i) 2 New boilers, capacity 92x4=368 (MW). (ii) 15 thermal stations. (iii) 7.4 km of Heating pipeline. | Project Exit. |
| Xingan Meng | | |
| Xingan Meng Zhalaiteqi Inder Town Central Heating Project | <p>Xingan Meng Zhalaiteqi Inder Town Central Heating Project (hereinafter referred to as First Heat)</p> <p>(i) new 4x29MW chain grate stoker boiler, (ii) new Class I hot water pipe network of 9.252km (tube length), (iii) 20 thermal stations (27 units), (iv) Close 31 small boilers.</p> <p>New Second Heat Source Plant Expansion Project in Xingan Meng Zhalaiteqi (hereinafter referred to as Second Heat)</p> <p>(v) Heat source plant: build a new 3 x 58 + 1 x 29 MW chain discharge hot water boiler room. (vi) Pipe network: build new Class I hot water pipe network of 14.6km (tube length). (vii) new 22 thermal sub-stations (32 units). (viii) Close 27 small boilers.</p> | <p>First Heat</p> <p>(i) The project contains five packages, three international packages (two goods, a civil engineering) and two domestic packages (goods, a civil engineering), purchase has been completed. 1 boiler room and four heat transfer stations and pipelines have been built and put into operation.</p> <p>Second Heat</p> <p>(ii) The project has completed the construction design and construction figure review, using its own funds to complete the heat source plant construction, complete 1 unit of 29MW and one unit of 58MW chain grate hot water boiler and ancillary equipment procurement and installation, there are 2 unit of 58MW chain grate hot water boiler and ancillary equipment, 22 thermal stations, boiler room power distribution systems, heat plant computer control system needs to use the ADB loan purchase for construction.</p> |
| Xingan Meng Tuquan Heating Expansion Project | <p>(i) new 2x52.5 MW hot water boiler; (ii) one unit of 4 x 20MW absorption heat pump station; (iii) 24.7km of heating pipeline, 11.07km of integrated management ditch; (iv) 13 thermal stations; (v) the corresponding ancillary works; (vi) Close 33 small boilers.</p> | The main plant building is completed, the equipment order is completed, and installation in succession, planning to complete the installment before heating, and put into operation, laying heating pipe network has been basically completed. |

| Subprojects | Description of Outputs | Implementation Progress |
|--|--|--|
| Xingan Meng Arxan Yi'ershi "coal-to-wood"Central Heating Project Phase I | (i) Construction scale is the new heating area of 0.615 million m ² , (ii) new 3×14MW boiler room, (iii) 13.998km of heating pipe network, 6.994km of integrated management ditch; (iv) 13 thermal stations; (v) the corresponding ancillary works; (vi) Close 39 small boilers. | The main plant building is completed, the equipment order is completed, and installation in succession, planning to complete the installment before heating, and put into operation, laying heating pipe network has been basically completed. |

II. RESPONSIBILITIES OF ENVIRONMENTAL MANAGEMENT INSTITUTIONS AND IMPLEMENTATION STATUS

A. Environmental Management Institutions and the Responsibilities

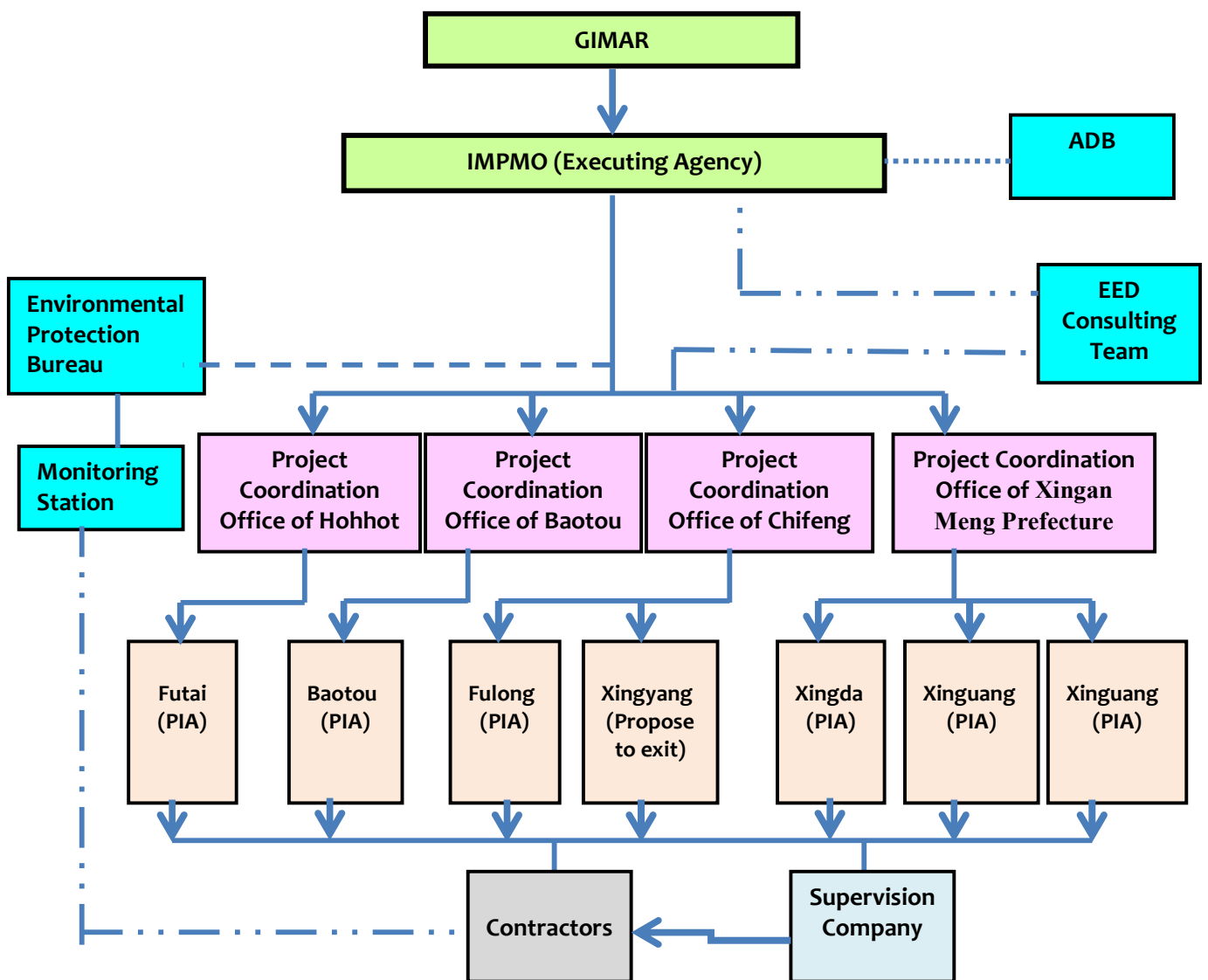
GIMAR is the EA of this project. And GIMAR has set up a project leading group, responsible for providing policy guidance and overall coordination in the implementation period of the project. Also, it has established a project management office (hereinafter called PMO) on behalf of the government, which is responsible for coordinating the implementation of project activities. PMO is responsible for the overall implementation of EMP. A qualified environmental official has been appointed in order to effectively manage all the activities in the EMP.

Each of the IAs has set up an environmental management team, including a leadership and the appropriate number of personnel, to coordinate the environmental problems with contractors, construction supervision companies and IMPMO. The environmental management group will get technical support of environmental expert, and accept the supervision of the local environmental protection bureau. The environmental engineers of construction supervision companies entrusted by each IA are responsible for the daily inspection, construction site supervision and assessment of mitigation measures.

Contractors are responsible for the implementation of the mitigation measures and monitoring under the support of construction supervision companies in accordance with the principle of EMP; and IAs is responsible for the implementation of mitigation measures and monitoring in the operation period.

The local Environmental Protection Bureau and the environmental monitoring station of each subproject will supervise the implementation and effectiveness of environmental protection measures by random monitoring, on-site inspection, to make construction projects comply with environmental standards and regulations in China. On behalf of the local environmental protection bureau, Environmental monitoring station will monitor and inspect the environmental situation, in accordance with the Chinese regulation. The local environmental protection bureau and environmental monitoring station will provide opinions and suggestions from time to time. ADB is responsible for overall environmental performance supervision project. ADB will also publish the project monitoring report on its website. ADB will review the semi-annual environmental progress report submitted by IMPMO and due diligence of the project during the inspection of environmental problems. If the EA and IA could not satisfy the requirements of environmental initial examination and safety policy, ADB will require corrective measures and inform the EA (IMPMO) to take follow-up action. According to the above arrangements, the environmental management responsibilities of each agency are formulated, to ensure implementation of the requirements of EMP. Institutional arrangements and responsibilities formulation positively respond to requirement of the Project Agreement and regulations of the EMP, in full compliance with the EIA report described during the preparation of the project.

The chart of environmental management institution of the project is shown in **Figure 1**. And responsibilities of each environmental management institution are shown in **Table 2**.



legend: supervision → coordination - - cooperation consultation and feedback — . .

Figure1: Environmental Management Institutions of IMAR

Table 2: Responsibilities of Environmental Management Institutions of IMAR

| Name of Institutions | Main Responsibilities |
|--|---|
| Project Leading Group | To provide guidance and policy guidance during the implementation of the project in the project; to review progress in the implementation of the project and to take additional measures if necessary. |
| ADB | To supervise the overall project environmental performance, review semi-annual environmental progress report, announce project monitoring report on the ADB website, due diligence of environmental problems during the inspection items. |
| IMPMO | To entirely implement the EMP with the support of the consulting experts and IAs, to coordinate with the Inner Mongolia Department of Finance, IAs, contractors, tendering company, consulting experts and other governmental authorities. |
| PIAs | To establish environmental management group, provide supervision to the construction supervision company, to submit monthly report to IMPMO, to cooperate with design institute and the Tendering Company, to prepare tender documents, ensure the inclusion of environmental protection clause. |
| Local Environmental Protection Bureau and Monitoring Station | According to environmental management and monitoring plan, to start the regular and random monitoring and on-site inspection in construction period and operation period, supervising implementation and effectiveness of the environmental regulation measures, make construction projects comply with environmental standards and regulations in China, and discharge standards, regularly or irregularly provide opinions and suggestions. |
| Supervision Company | Responsible for daily inspection, each construction site supervision and assessment of mitigation measures. |
| Environmental Specialists | For the implementation of EMP, to provide technical guidance for IMPMO and the PIAs; to provide training for the PMO, IAs and construction supervision company. To help the PMO prepare the environment semi-annual progress. |

B. Arrangement on Environmental Requirements in Project Contract

GIMAR is the EA of this project. And GIMAR has set up a project leading group, responsible for providing policy guidance and overall coordination in the implementation period of the project. Also, it has established a project management office (hereinafter called PMO) on behalf of the government, which is responsible for coordinating the implementation of project activities. PMO is responsible for the overall implementation of EMP. A qualified environmental official has been appointed in order to effectively manage all the activities in the EMP.

According to the Project Agreement, safeguard policy and monitoring actions in EMP are required in the tender documents as the terms the contractor must pledge to implement and would be incorporated into the civil contract for each program.

Table 3: Each Component Environmental Requirements in the Contractual Arrangements

| Component | Biidding Documents | Contract |
|--|---|---|
| Hohhot Heating Network and Boiler Room Expansion Project | Incorporate into the safeguard policy and monitoring actions in EMP | Incorporate into the safeguard policy and monitoring actions in EMP |
| Baotou City Central Heating Expansion Project | Incorporate into the safeguard policy and monitoring actions in EMP | Incorporate into the safeguard policy and monitoring actions in EMP |
| Chifeng Urban Central Heating Pipe Network Expansion Project | Incorporate into the safeguard policy and monitoring actions in EMP | Incorporate into the safeguard policy and monitoring actions in EMP |
| Xingan Meng Zhalaiteqi Inder Town Central Heating Project | Incorporate into the safeguard policy and monitoring actions in EMP | Incorporate into the safeguard policy and monitoring actions in EMP |
| Xingan Meng Tuquan Heating Expansion Project | Incorporate into the safeguard policy and monitoring actions in EMP | Incorporate into the safeguard policy and monitoring actions in EMP |
| Xingan Meng Arxan Yi'ershi "coal-to-wood"Central Heating Project Phase I | Incorporate into the safeguard policy and monitoring actions in EMP | Incorporate into the safeguard policy and monitoring actions in EMP |

III. COMPLIANCE OF PROJECT ENVIRONMENTAL COVENANTS

The environmental covenants of the project in EMP have been or are about to perform. The implementation performance is shown in **Table 4**.

Table 4: Implementation of the Project Environmental Covenants

| Covenants of the project correlated to EMP | Reference | Implementation Performance |
|--|---|--|
| Safeguard Policy | | |
| GIMAR should ensure that the owners (i) according to the national and local environmental laws, regulations, procedures, and guidelines; and (ii) according to Environmental Policy Safeguard Policy (2009) and the Environmental Assessment Guidelines (2003) to design, construct and operate the project. | The 10 th paragraph of Execution of Project. | about to perform |
| The constructed boilers in the project should achieve the prescribed standards for pollutants discharge of World Bank Pollution Prevention and Abatement Handbook (1998, Washington, DC). | The 10 th paragraph of Execution of Project. | about to perform |
| During the construction period of the project, submit two environmental progress reports annually and submit one report every two years in the operation period. | The 10 th paragraph of Execution of Project. | Lagging behind, submitted a revised version of the Environmental Progress Report on July 3, 2016, so far, has not been approved by the ADB, the present report is the second environmental progress report. |
| The EMP in IEE (including mitigation measures, monitoring plan and institutional arrangements) should be updated in the project planning stage, in accordance with the tender documents and construction contract. | The 10 th paragraph of Execution of Project. | According to the due diligence report of Zhalaiteqi new subprojects and Hohhot coal-to-gas project, revised "Environmental Management Plan", due to the due diligence report and this report submitted with at the same time, so far the update time has not yet been confirmed. |
| GIMAR should ensure owners close 383 small coal-fired boilers in the subprojects region, and further confirm these small coal-fired boilers would not be reused in other places. | The 4 th paragraph of Execution of Project. | about to perform |
| Each of the subproject owners need to establish a security department, to coordinate environmental and management issues of immigration during construction and operation periods. | Item 44 of VIII Chapter B in EMP | about to perform |

IV. IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES AND COMPENSATION MEASURES

As shown in **Table 1**, "Subproject Implementation Progress," until the submit time of the report, each subproject of the civil works have been started, Xingan Meng Zhalaiteqi Inder Town Central Heating Project- First Heat and Baotou Central Heating Expansion Project has been completed and operated well, the remaining subprojects are under construction.

Table 5: Each Subproject Civil Engineering Progress and Implementation of Environmental Mitigation Measures and Compensation Measures (up to June 2017)

| Subproject | Civil Engineering Progress | Implementation of Environmental Mitigation Measures and Compensation Measures |
|---|--|---|
| Hohhot Heating Network and Boiler Room Expansion Project | (i) Complete the coal-to-gas boiler room: one unit of 1×29MW+2×46MW, two units of 1×29MW (ii) Tuanjie desulfurization tower and dust is under construction. | Committed |
| Baotou City Central Heating Expansion Project | Basically completed | Committed |
| Chifeng Urban Central Heating Pipe Network Expansion Project | Completed the Class I heating pipe network is 32.875km, completed the program of 36%. | Committed |
| Xingan Meng Zhalaiteqi Inder Town Central Heating Project | First Heat: one boiler room and 4 thermal stations was built and put into operation. Second Heat: The main plant was basically completed, and the boiler being installed. | Committed |
| Xingan Meng Tuquan Heating Expansion Project | The main plant building is completed, the equipment order is completed, and installation in succession, planning to complete the installment before heating, and put into operation, laying heating pipe network has been basically completed. | Committed |
| Xingan Meng Arxan Yi'ershi "coal-to-wood" Central Heating Project Phase I | The main plant building is completed, the equipment order is completed, and installation in succession, planning to complete the installment before heating, and put into operation, laying heating pipe network has been basically completed. | Committed |

EMP of this project provides clear content and requirements of environmental management, environmental mitigation measures and compensation measures (see **Table 6**). According to

monitoring information monitored by external monitoring station and site visits of environmental consulting experts, the basic execution of each subproject mitigation measures in **Table 6**.

Table 6: Summary of Project Potential Impacts, Mitigation Measures and the Implementation of the Present Status (up to June 2017)

| Types | Potential Impacts | Mitigation Measures and Safeguard Policy | Responsible Party | | Cost Estimate (CNY, 1000) | Sources | Implementation Status |
|--|---|--|--------------------------|---|---------------------------|---------------------------------|-----------------------|
| | | | Implementation Party | Supervision Party | | | |
| A. Before Construction | | | | | | | |
| Design of mitigation measures and facilities | Subproject location and route selection | Confirm the location of the heat supply plant and heating pipeline route selection, to avoid or minimize the adverse impact on the surrounding environment and community. According to research during the preliminary selection, the proposed change the location of the station will be confirmed and designed again, as far as possible away from environmentally sensitive points, such as schools, hospitals, residential buildings. | Design Institute and IAs | IMPMO | | Included in the design contract | ➔Complied with |
| | The mitigation measures and monitoring plans included in engineering design | To all the subprojects, environmental mitigation measures of IEE and domestic EIA reports will be incorporated into the engineering design documents and tender documents. It will also be included in the civil construction and equipment installation contract documents. All contractors must strictly abide by EMP. The environmental monitoring plan will be incorporated into the project design, to ensure the environmental impacts and supervise construction and operation activities in accordance with the approval of the EIA reports. | Design Institute | IMPMO, IAs, Local Environmental Protection Bureau | | Included in the design contract | ➔Complied with |
| | Waste and spoil disposal site | Consider the suitable spoil disposal site in engineering design. | Design Institute and IAs | Local Environmental Protection Bureau, | | Included in the design contract | ➔Complied with |

| | | | | | | | |
|---------------------------------------|--|--|--|---|-----|--|--|
| | | | | IMPMO | | | |
| Bidding and contract signing | Preparation of the tender documents and contract documents | Put the mitigation measures of EMP and EIA into the tender and construction contract documents of all the subprojects. | Design Institute and IAs | IMPMO, Local Environmental Protection Bureau | | Included in the design contract | → Complied with |
| Complaint settlement mechanism | Establish operational complaint settlement mechanism | In the IA office, it needs to establish project public complaints department, provide training for department personnel and the public and open the department telephone, fax and the email address. | IAs | IMPMO, Local Environmental Protection Bureau | | Included in the business budget of IAs | → Complied with |
| B. Construction Phase | | | | | | | |
| Soil | Soil erosion caused by construction activities | In the mining ditch and some infrastructure projects, as far as possible to reduce the use of active excavation, construction of suitable compaction technology. In the rainy and windy day, limit construction and material handling activities. To restore all the surface damage as soon as possible, after completion of construction site earthwork, not more than 14 days. Plant grass and trees in the heat source plant, to reduce soil erosion as far as possible. Suitable slope or vegetation restoration, such as trench after compaction. Build appropriate temporary construction camp and storage space, as far as possible to reduce the effects of soil erosion and land occupation. | Contractor, Construction Supervision Company | IAs, Local Environmental Protection Bureau, IMPMO | 680 | Included in the construction contract | → Complied with |
| | Soil pollution | After the security and the coverage of the site of impervious ground, proper storage of petroleum products, chemicals, and hazardous waste, prevent soil pollution. By adopting the best management practices, to prevent oil and chemical spills, | Contractor, Construction Supervision Company | IAs, Local Environmental Protection Bureau, IMPMO | 340 | Included in the construction contract | Oil and other hazardous chemicals storage site is not impermeable → Complied with |

| | | | | | | | |
|--------|---|--|--|---|------|---------------------------------------|---|
| | | <p>avoid direct contact with the soil. Safely clean away all construction waste from the construction site, only in the waste disposal sites approved.</p> <p>In the construction site, provide spill cleanup measures and equipment, and require the contractor to leak emergency response procedures and training.</p> | | | | | |
| Sewage | Surface water and groundwater polluted by construction waste water and sewage | <p>To build sewage interception ditch, prevent the rainwater runoff into the construction site, construction site drainage runoff from the drainage system in the existing.</p> <p>In all construction equipment cleaning area, construct the sewage collection tank and sedimentation tank.</p> <p>Build sewage treatment and disposal system in the construction site, and provide appropriate maintenance and training.</p> <p>According to the monitoring plan, during the construction period, in each sub project city, monitoring of river water quality parameters is needed by local environmental monitoring station (SS, COD, Oil).</p> | Contractor, Construction Supervision Company | IAS, Local Environmental Protection Bureau, IMPMO | 1000 | Included in the construction contract | <p>Construction period of pipe trench excavation is short, and most of them are in the urban areas, the construction site is not set interception ditch, but sandbags for flood control also played a sewage interception effect.</p> <p>Inner Mongolia, the rainy season is short, less rainfall, and all the construction period avoid the rainy season, the heat source plant earthwork construction site has not been set interception ditch. the river is far away from the construction site,</p> |

| | | | | | | | |
|-------|---|---|--|---|------|---------------------------------------|---|
| | | | | | | | during the construction the river water quality is not monitored. |
| Noise | Noise from the construction machinery operation and transportation activities | <p>Ensure the noise level from the equipment and machinery in accordance with the applicable national standards, and maintain the machines, as far as possible to reduce noise.</p> <p>Use the noise abatement device or method in piling equipment operation in the 500 meters away from the field with sensitive points (such as schools, hospitals and residential areas). No rock crushing, concrete mixing and similar activities within 1km radius of sensitive areas.</p> <p>In order to reduce the noise at night, to limit the high noise of mechanical operation.</p> <p>In the construction activities of the notice, take the inclusion of noise into considerations. Public complaints resolution information processing program.</p> <p>When necessary, during the construction, the noise source could be installed around the temporary sound barrier.</p> <p>Regularly monitor noise sensitive areas. If the noise exceeds the standard, check the construction equipment and construction conditions and take mitigation measures to improve.</p> | Contractor, Construction Supervision Company | IAS, IMPMO, Local Environmental Protection Bureau | 1000 | Included in the construction contract | →Complied with |

| | | | | | | | |
|-----------|--|--|---|---|------|--|----------------|
| | | Quarterly visit the construction site nearby residents, to determine whether there is a community complaint about noise, for the community residents to reduce noise intrusion suggestions. | | | | | |
| Noise | Noise from heat source plant (Coal, fan, air compressor and water pump) | Installation of equipment, sound insulation barrier or sound insulation cover, to reduce noise. Plant green belt around the heat source plant, further reducing noise. Install sound insulation cover and double window. Install sound insulation cover for boiler and fan and sound insulation cover for the motor, to reduce noise. | Equipment supply and installation contractor, IAs | Local Environmental Protection Bureau, IMPMO, Environmental Monitoring Station Consulting company | 1400 | Included in the equipment supply and installation contract | →Complied with |
| | Noise from HES | Install sound insulation cover and double window. Maintain the pump and other equipment from time to time, as far as possible to reduce noise. | Equipment supply and installation contractor, IAs | Local Environmental Protection Bureau IMPMO | 1500 | Included in the equipment supply and installation contract | →Complied with |
| Vibration | Vibration of compaction and rolling production | No vibration operation at night (such as compaction, trench piling and road rolling operation etc.) | Contractor, Construction Supervision Company | IAs, IMPMO, Local Environmental Protection Bureau | | Included in the construction contract | →Complied with |
| Gas | Dust from the construction activities | If there is dust on the construction site, use handling route sprinkler. Pay special attention to sensitive points near the dust, such as hospitals or schools, residential area. Cover the transport vehicle, especially fine particulate material in order to avoid falling or generate dust. The storage of oil or other hazardous | Contractor, Construction Supervision Company | IAs, IMPMO, Local Environmental Protection Bureau | 850 | Included in the construction contract | →Complied with |

| | | | | | | | |
|-------------|--|--|--|---|-----|---------------------------------------|-----------------|
| | | substances in suitable locations and coverage, as far as possible to reduce dust. | | | | | |
| | Atmospheric emissions from vehicles and construction equipment | Ensure that the equipment complies with the relevant national standards for emissions. On vehicles and construction machinery for high standards to ensure efficient operation and maintenance, fuel combustion, and in accordance with Chinese emission standards. | Contractor, Construction Supervision Company | IAS, Local Environmental Protection Bureau, IMPMO | 800 | Included in the construction contract | → Complied with |
| Solid waste | Solid waste by construction activities | Waste water from temporary storage or other environmentally sensitive areas, regularly transported to landfill or approved by the designated dumping site. Provide appropriate waste in the construction site storage container. Hire a qualified contractor, in accordance with the appropriate internal procedures, and transport all waste to the construction site from the approved disposal site. At the end of the construction, the contractor will be responsible for the construction site of the residue materials, waste and contaminated soil removal and disposal right. After these substances were removed, start pavement or planting as soon as possible, to protect and stabilize the soil. Prohibit the burning of waste in the construction site nearby. | Contractor, Construction Supervision Company | IAS, Local Environmental Protection Bureau, IMPMO | 900 | Included in the construction contract | → Complied with |
| | Hazardous substances and pollutants by construction activities | Formulate and implement hazardous substances and pollution treatment and disposal plan of building materials, including leakage prevention and emergency plan. Storage facilities, fuel oil and other hazardous substances should be located in | Contractor, Construction Supervision Company | IAS, Local Environmental Protection Bureau, IMPMO | 420 | Included in the construction contract | → Complied with |

| | | | | | | | |
|--|---------------------|--|--|--|-----|--|-----------------|
| | | <p>a safe area of impervious surface, and is equipped with a cofferdam and cleaning device.</p> <p>Vehicles and equipment should be placed in the designated area, to prevent soil and surface water pollution.</p> <p>The proper maintenance and fuel for vehicles, machinery and equipment, so that the material will not spill into the soil.</p> <p>Fuel supply contractors must have appropriate qualifications. They must comply with the fuel transport protocol and dangerous or hazardous goods transport and handling Regulations (JT 3145F1).</p> | | | | | |
| | Small boilers sites | <p>Before the demolition of small boilers, under the supervision of the local environmental protection bureau, the IAs and local environmental monitoring station should investigate the small boilers.</p> <p>The evaluation includes soil, groundwater, and surface water structures (if nearby pollution).</p> <p>If the environment is polluted, the bank must refer to the construction and demolition of the environment, health and safety guidelines, formulate the site recovery plan, and supervision in the local environmental protection bureau by the implementing agencies to follow up.</p> <p>After the approval of the Municipal Environmental Protection Bureau, the municipal landfill or special construction and demolition landfill disposal of demolition waste.</p> | | | 300 | | → Complied with |

| | | | | | | | |
|----------------------------------|--|--|--|---|-----|---------------------------------------|----------------|
| | | Strictly prohibit the wastes in the river or other water disposal. | | | | | |
| Animals and plants | Vegetation protection, the destruction of the vegetation restoration area; planting and compensatory planting and grass. | <p>Protect the existing vegetation in the area without construction and take temporary measures to protect the vegetation in the area under construction activities in future. Conduct trench backfill and compaction and proper re planting, after thermal pipeline laying.</p> <p>Protect the existing trees and grass during construction. If you have to remove trees or destroy the grass, restore the vegetation at the end of the construction.</p> <p>In accordance with the regulations for Chinese forestry, affected trees and vegetation, is the same or greater compensatory planting area.</p> | Contractor, Construction Supervision Company | IAS, Local Environmental Protection Bureau, IMPMO | 220 | Included in the construction contract | →Complied with |
| Community intrusion and security | Traffic congestion and accidents, impacting public facilities. | <p>In the construction project, the contractor should consider the impact on traffic. Formulate the traffic control and operation plan, and get agreement by the local traffic management departments, before commencement of construction.</p> <p>Plan for the construction activities, as far as possible to reduce the service of public facilities infestation.</p> <p>Open the information of the project and let the affected people understand the construction activities and services of public facilities caused by infestation. Make a plan before the construction of temporary land use, as far as possible to reduce the impact of. After construction, restore to the original state area.</p> <p>Take safety measures in the construction site, to protect the public, including warning</p> | Contractor, Construction Supervision Company | IAS, Local Traffic Bureau, IMPMO | 660 | Included in the construction contract | →Complied with |

| | | | | | | | |
|--------------------------------|---|--|--|---|-----|---|-----------------|
| | | signs, warning the public security risk, potential barrier, organization of public access to the construction site. | | | | | |
| Occupational health and safety | Health damage and accidents caused by construction activities | <p>Identify and minimize potential risk factors caused by the workers.</p> <p>Provide preventive and protective measures, including dangerous conditions improvement, replacement or elimination.</p> <p>Provide personal protective equipment suitable for workers, as far as possible to reduce the risk, including the earmuffs, safety helmet and safety boots.</p> <p>Provide adequate safety protection equipment, including fire control system.</p> <p>Provide adequate identification in hazardous areas.</p> <p>According to construction site noise standard of China (GB125232011) and international guidelines, provide exposure limit in high noise or high temperature working environment program.</p> <p>Provide training for workers, develop appropriate incentive measures to comply with health and safety procedures, the use of personal protective equipment. Provide training for workers on storage, handling and disposal of hazardous wastes.</p> <p>For the occupation accidents and diseases, provide recording and reporting procedures.</p> <p>Provide emergency response arrangements.</p> <p>Held a security meeting before the appointment of each class.</p> | Contractor, Construction Supervision Company | IAS, Local Environmental Protection Bureau, IMPMO | 600 | Included in the construction contract | → Complied with |
| Cultural heritage resources | | In accordance with the China regulations, strictly prohibit site destruction, concealment or hinder. | Contractor, Construction Supervision | IAS, IMPMO | 90 | If the cultural relics were found, direct | → Complied with |

| | | | | | | | |
|--------------------------|---|--|----------------------------------|--|--------------|--|---|
| | | If new sites are discovered, you must immediately stop the construction, immediately notify the implementation mechanism and the local cultural relics bureau.Only after the thorough investigation and obtaining license of the relevant institutions, resume construction. | Company | | | compensation to the contractor comes from special funds for the protection of cultural heritage. | |
| | | Subtotal | | | 11060 | | |
| C Operation Phase | | | | | | | |
| Air quality | Need to monitor emissions and ensure compliance | To start emission test and acceptance of environmental protection and correct continuous emission monitoring system. | Environmental Monitoring Station | Local Environment al Protection Bureau | 150 | Included in the operation budget of IAs | Currently, only Zhalaiteqi subproject of the heat source plant completes the construction, but due to the current technical innovation, it cannot be confirmed. |
| | Need to control the air pollution from the heat source plants | Proper operation and maintenance of emission control facilities (desulfurization, denitrification and dust removal equipments). Properly operate and maintain continuous emission monitoring system. | IAs | Local Environment al Protection Bureau | 3000 | | Currently, only Zhalaiteqi subproject of the heat source plant completes the construction, but due to the current technical innovation, it cannot be confirmed. |
| | From coal dust and ash treatment | Use coal unloading sprinkler during transport and road dust suppression. Spray water in the coal heap, especially a windy day. In accordance with the requirements of coal heap compaction, as | IAs | Local Environment al Protection Bureau | 2200 | Included in the operation budget of IAs | ➔Complied with |

| | | | | | | | |
|-------------|---|--|-----|---------------------------------------|-----|---|----------------|
| | | far as possible to reduce the possibility of spontaneous combustion air into, and the loss of volatile substances. The ash transported from the heat source to the building materials factory users when using closed trucks or on the ash covered. | | | | | |
| Noise | Noise from coal, fan, air compressor and water pump, impacting listening | The heat source plant and heat exchange station will have appropriate building insulation, to avoid noise pollution. The implementation of restricted access, provide personal protective equipment for the high noise areas of workers, such as earmuffs and earplugs. | IAs | Local Environmental Protection Bureau | 10 | Included in the operation budget of IAs | →Complied with |
| Solid Waste | Flying ash and slag without appropriate management may affect soil and water quality. Removal of the boilers without proper management , may affect the soil, air and water. | Fly ash and slag all will be at the scene of the temporary storage, and then transported to the local building materials factory, as building material or road materials. Do not allow for permanent disposal of fly ash in the field. All the dismantling of waste will have appropriate qualifications waste management company for regular collection and reuse (such as equipment, steel and other metals; recycled wood and building materials, etc.) or in the allowable waste facilities for final disposal (such as non recyclable materials). In consultation with local authorities, conduct the waste management. The landfill and waste incineration in the demolition site are not allowed. In consultation with the local environmental protection bureau, on-site pollution investigation, if necessary, will make specific plans to solve on-site pollution. Soil contamination will be transported to the | IAs | Local Environmental Protection Bureau | 300 | Included in the operation budget of IAs | →Complied with |

| | | | | | | | |
|--------|--|---|-----|---|------|--|----------------|
| | | approved sites, providing clean filling. According to the suitability of the future, restore the scene. The local environmental protection bureau will approve a recovery plan, and if necessary for recovery. The stove owners would get waste management services if they selected to remove the household coal stove. | | | | | |
| Sewage | Water pollution and reuse from heat source plant | The heat source plant sewage treatment and reuse will be in heat source plant. All heat plant living facilities sewage will be discharged into the municipal sewage pipe network to meet the relevant standards of the China. The runoff from the heat source plant will be discharged into the sedimentation tank, where possible, sewage will be back to dust. According to the requirements, the sediment in the sedimentation pond will be cleaned and transported to the landfill. For the regional emissions of oily wastewater, it is needed to install oil-water separator before discharging into the sedimentation tank. Collect the site leachate and drainage, and discharged them into the storage tank for water coal storage site. Oily sludge scraping from the treatment process will be collected, and in accordance with the China standard handed over to recovery. | IAs | Local Environment al Protection Bureau | 1330 | Included in the operation budget of IAs | →Complied with |
| | From HES | Regularly clean sedimentation tank in municipal landfill for disposal of sludge and sediment. | IAs | Local Environment al Protection Bureau, Environment al Monitoring | 690 | Included in the equipment supply and installation contract | →Complied with |

| | | | | | | | |
|---|--|--|---|---|-------------|--|---|
| | | | | Station | | | |
| | Backwash water from HES | In each heat exchange station, build regulation tank and sedimentation tank. Before the backwash water discharging into the municipal sewage pipe network, conduct pH adjustment and precipitation ($SS \leq 400$ mg/L). | Equipment supply and installation contractor, IAs | Local Environmental Protection Bureau IMPMO | 670 | Included in the equipment supply and installation contract | Backwash water appears as clean water in domestic EIA, and therefore most of backwash water of thermal station directly discharged into the municipal pipe network after precipitation. |
| Occupational health and safety | Occupation and community health and safety | Carry out regular inspection of the regional heating network, and the defects were repaired immediately. During the heat exchange station and heating network, as much as possible to reduce the intrusion of the community. Comply with applicable safety regulations for workers. | IAs | Local Environmental Protection Bureau, local Labor Bureau | 120 | Included in the operation budget of IAs | → Complied with |
| Removal of small boilers | Economic exchange | Implement labor allocation plan, to comply with applicable laws and regulations China. | IAs | IMPMO | 990 | Included in the operation budget of IAs | → Complied with |
| | | C Part of Subtotal (annually) | | | 9460 | | |
| D. Emissions Mitigation Measures | | | | | | | |
| Atmosphere | Emissions from heat source plant | Set up high chimney emissions and reduce emissions of a direct impact on the adjacent areas. Install and operate electrostatic precipitator, bag filter or other special control equipment, control of particulate emissions. Use desulfurization technology in fluidized bed boiler. For the large circulating fluidized bed boiler, use wet scrubber, further reduce sulfur dioxide emissions. | Equipment supply and installation contractor, IAs | Local and provincial Environmental Protection Bureau | 22476.8 | Included in the equipment supply and installation contract | → Complied with |

| | | | | | | | |
|--|--|---|--|--|-----------------|--|--|
| | | Install continuous emission monitoring equipment in heat source plant chimney, monitoring emissions of sulfur dioxide and soot. Continuous emission monitoring data will be sent directly to the local and provincial environmental protection bureau. | | | | | |
| | | D、 Part of the subtotal | | | 22476.8 | | |
| | | B、 C、 D Part of the total | | | 42,996.8 | | |

After the implementation of the above measures, the project has not caused any significant environmental impacts. By the end of the reporting period, the implementation of subprojects environmental management plan is considered to be effective and satisfactory.

Consulting environmental experts examined all the subprojects, site management quite well, the photograph of each subproject environmental mitigation measures for the implementation are as follows:

(i) Hohhot Heating Network and Boiler Room Expansion Project



Demolition of Original Small Boilers in Kaoqiao Area



Boiler Room Equipment Maintenance System and Maintainer Job Responsibilities



Fire Extinguisher in the Gas Boiler Room



Warning Signs in Gas Boiler Room



Gas Boiler in the Kaoqiao Area
(Indoor Cleaning)



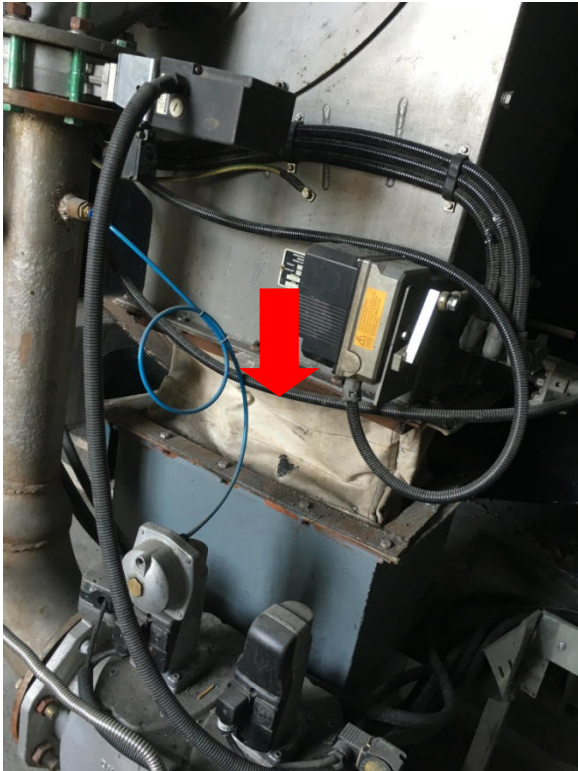
Disabled but not Removed Coal- Fired
Boilers in the Kaoqiao Area (Pollution)



Gas Boiler Room in Motor Region



Vibration Damping Measures of Wind Casing



Flexible Connection of Fan



Gas Leak Detector



Boiler Room Emergency Exit Sign



Warning Signs in the Boiler Room



Tuanjie Community Construction Site Ground Moist



Construction Site Set Retaining Wall



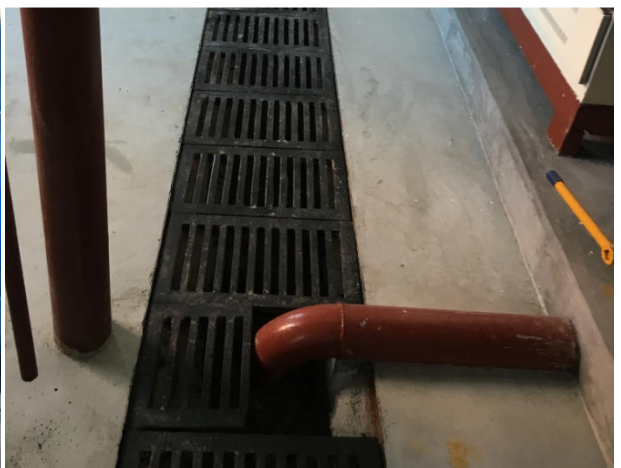
Construction Site Security and Identification System Signs



Secure Channel, Security Signs and Warning Signs



Thermal Stations Vibration Reduction



The Secondary Washwater Diversion

(ii) Baotou City Central Heating Expansion Project



Excavation of the Site Set Hard Channel (Completed)



Urban Construction Site Set up a Temporary Channel (Completed)



Wastewater Discharge Guide System in Thermal Station



Soundproof Window in Thermal Station

(iii) Chifeng Urban Central Heating Pipe Network Expansion Project



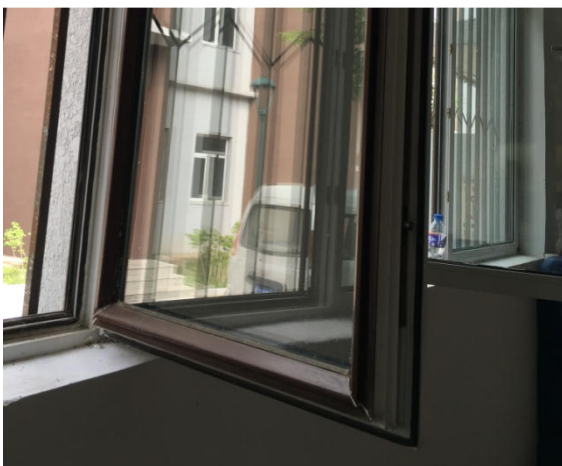
Pipe Laying Set up Warning Signs in Construction Site



Construction Workers Wearing Helmets



Ground Timely Recovery



Set up Soundproof Window in Thermal Stations



Warning Signs in Thermal Stations

(iv) Xingan Meng Zhalaiteqi Inder Town Central Heating Project



First Heat of Hear Source Plant



Greening within the First Heat of Hear Source Plant



Warning Signs and Fire Hydrant in First Heat of Hear Source Plant



Desulfurizer in First Heat of Hear Source Plant
Source Plant



Bag Filter Modification in First Heat of Hear



Coal Storage Yard in First Heat of Hear Source Plant



Desulfurization Two Heat New Source of
Plant Location



New Heat Source Plant East Side
Side



New Heat Source Plant South

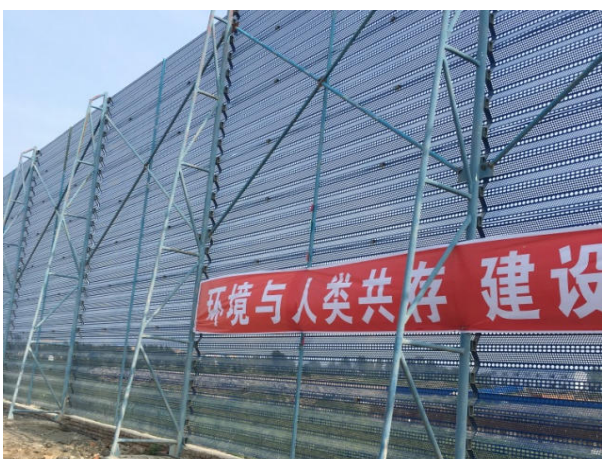


New Heat Source Plant West Side



New Heat Source Plant North Side

(v) Xingan Meng Tuquan Heating Expansion Project



Heat Source Air Filter Factory



Heat Plant Environmental Billboards



Heat Source Plant Uses the Same Plant Ash and Fly Ash Cement



Road Transport Keep Moist



Construction Site Sprinkler



Heat Source Plant Sewage Collection Tank



Construction Site Fire Plug



Bag Filter under Construction



Thermal Station Location



Thermal Stations Damping Measures



Pipeline Construction Site



Removed Small Boiler Room for Temporary Residence

(vi) Xingan Meng Arxan Yi'ershi "coal-to-wood" Central Heating Project Phase I



Heat Source Plant Supplies Spaced Enclosure Alone



Transportation Road Hardening



Heat Source Plant Construction Site
Environmental Protection Slogan



Network Excavation Set up Dust Screen



Construction Staffing with Security Equipment



Disable Small Boilers

But each subproject has some common problems, garbage collection and processing, oil and other hazardous chemicals and other staging areas for improvement.



Oil and other hazardous chemicals staging wrong way, should be set up between compliance staging ground well seepage.



Placing of building materials is disorder, it should be pile up by classified; construction waste accumulation, it should be timely removal.



Hot weather, some workers do not wear helmets and other security measures, should strengthen publicity and education, to ensure that workers wear security measures.



Team of consultants and Chifeng Owners



Consulting Team of Experts to Inspect the Thermal Stations

V. ENVIRONMENTAL MONITORING RESULT CONCLUSIONS

A. Monitoring plan and responsibilities

As part of environmental management plan (see table 7), environmental monitoring plan include elements such as monitoring parameter, location, frequency, implementer, supervisor, cost and source of funding. Implementation agencies of sub-items are required to earnestly implement all contents of environmental monitoring plan, to facilitate evaluation of: i. the scope of extent of environmental influence; ii. the compliance with relevant laws and regulations; iii. the overall efficiency of environmental monitoring plan. Proper measures would be adopted according to monitoring results.

Table 7: Environmental monitoring plan

| Project | Parameter | Location | Frequency | Implementer | Supervisor | Estimated cost (RMB 1000) | Source of funding |
|---------------------|--|---|--|--|-------------------------------------|---------------------------|--|
| During construction | | | | | | | |
| Waste water | Wastewater mitigation measures review (sewage collecting tank and sedimentation basin, etc) | All construction field | Sewage disposal site, per month | Contractor Construction supervisor | Implementation agency PMO | 90 | Included in contracts with construction supervisor |
| | PH、SS、Oil | All construction field | Take sample once a month or once a day | Local environmental monitoring station | PMO Local EPA | 30 | Included in construction contract |
| Air | Dust mitigation measures review (water spraying, coverage of transport vehicles, etc.) maintenance of vehicles and construction facilities | All construction field and nearby areas | Per month | contractor Construction supervisor | Implementation agency Local EPA PMO | 90 | Included in contracts with construction supervisor |
| | SO2、NO2 | Chimney | Environm | Environme | Local EPA | 60 | Included in |

| | | | | | | | |
|-----------------------------|-------------|--|--|--|--------------------------|------|---|
| | 和PM | of heat source plant | ental monitoring during business operation | ntal monitoring station; implementation agency | | | the facility installation contract |
| | PM、PM10 | All construction sites and sensitive points | Per month | Local environmental monitoring station | Local EPA PMO | 90 | Included in the construction contract |
| | SO2、NO2、PM | Emission monitoring from heat source plant chimney | online | Implementation agency | Local and provincial EPA | 450 | Included in the operation budget of implementation agency |
| Noise | Leq dB (A) | All sensitive points near construction sites | Per month: one day per month; two samples, one taken in daytime and one taken in nighttime | Local environmental monitoring station | Local EPA PMO | 45 | Included in the construction contract |
| Solid construction waste | Solid waste | Waste disposal sites | Once per year; after solid waste disposal | Local EPA | PMO | 120 | Included in the construction contract |
| Dismantles of small boilers | Garbage | Small boiler house | When small boiler house dismantles | Local EPA | PMO | 100 | Implementation agency |
| Total | | | | | | 1075 | |
| B. During operation | | | | | | | |
| Heat | SO2, NO2, | Sample | Once per | Local | Local EPA | 45 | Included in |

| | | | | | | | |
|--|---|---|--|--------------------------|--------------------------------------|-----|---|
| source plant emission | PM | monitoring by heat source plant chimney | month during heating period | monitoring station | | | the operation budget of implementation agency |
| Dust from Coal and slag storage | PM | One meter away from heat source plant | Once per month during heating period | Local monitoring station | Local EPA | 30 | Included in the operation budget of implementation agency |
| Safety and reliability of heating pipeline | Examine regional heating pipeline regularly and repair the defect immediately | Heating pipeline | Once before heating period and once after heating period | Implementation agency | PMO | 60 | Included in the operation budget of implementation agency |
| Noise from heat source plant | Leq dB (A) | One meter away from heat source plant | Twice per month during heating period | Local monitoring station | Local EPA PMO | 60 | Included in the operation budget of implementation agency |
| Noise from thermal station | Leq dB (A) | One meter away from thermal station | Twice per month during heating period | Local monitoring station | Local EPA Implementation agency; PMO | 90 | Included in the operation budget of implementation agency |
| Wastewater from thermal station | SS、BOD | Emission point | Once per month during heating period | Implementation agency | Local EPA; PMO | 80 | Included in the operation budget of implementation agency |
| Wastewater and mud from thermal station | Generation and discharge volume | Thermal station | Once per month during heating period | Implementation agency | Local EPA; PMO | 20 | Included in the operation budget of implementation agency |
| Total | | | | | | 385 | |

| | | | |
|-------------|--|------|--|
| (annually) | | | |
| Grand total | | 1460 | |

B. Monitoring result conclusion

Leading group of ADB project in Inner Mongolia autonomous region government and experts in consulting cooperation reaffirmed the importance of monitoring report and made effective progress. So far, 5 out of 6 sub-items have been carried out. The remaining one is the sub-item of the reform and expansion of heating pipeline and boiler house in Hohhot municipality. The owner is seeking cooperation with qualified environmental monitoring station to carry out environmental monitoring work.

(1) Hohhot city heating network and boiler house reform and expansion project

On January 10, 2017, the owner of this sub-item commissioned Inner Mongolia Lvjie Environmental Monitoring company to monitor the air quality of this sub-item. The monitoring results conform to the "Boiler Air Pollutant Emission Standard" (GB13271-2014). The results of monitoring are shown in the following table (Table 8).

Table 8: Atmospheric monitoring results

| Monitoring Point | Date | Item | Monitoring result | Standard limit |
|--------------------------|-----------|--------------------|-----------------------|----------------|
| 1#&2# Boiler Drain | 2017.1.10 | SO2 concentration | 263mg/m ³ | 400 |
| | | SO2 emissions | 65.99kg/h | / |
| | | NO2 concentration | 380mg/m ³ | 400 |
| | | NO2 emissions | 11.0kg/h | / |
| | | Dust concentration | 27.1mg/m ³ | 80 |
| | | Dust emissions | 6.87kg/h | / |

(2) Baotou city central heating renovation and expansion project

The owner of this project entrusted Baotou municipal environmental monitoring station to monitor noise of the construction site in Aug, 2014. The result is appropriate to the standard. No further environmental monitoring has been carried out since then. Further environmental monitoring are suggested to be carried out to thermal station.

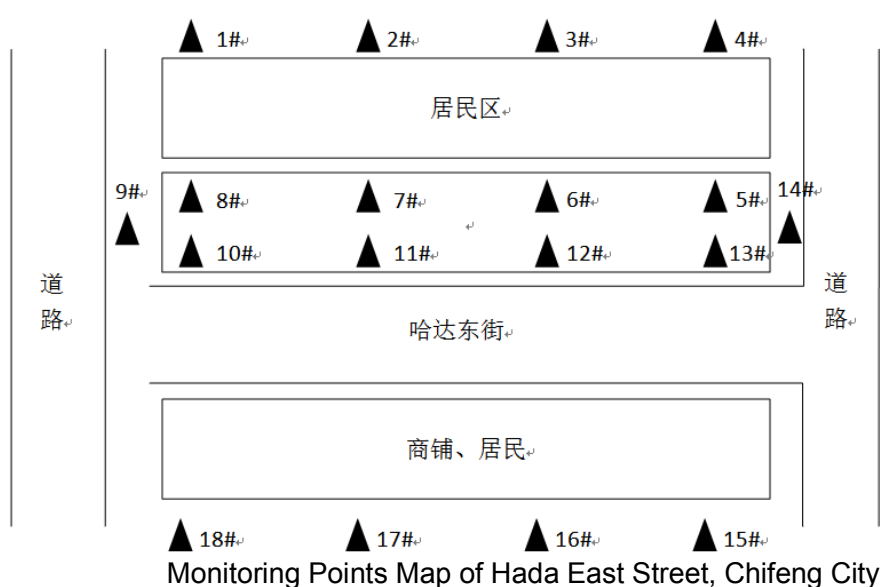
(3) Chifeng downtown central heating network renovation and expansion project

The owner of this project entrusted Beijing Aviation Peak Zhongtian detection Technology Services Co., Ltd. to monitor the noise on the construction site of Chifeng Harbin da Dong Street from August 3, 2016 to August 4, 2016. The result see follows (Table 9).

Table 9: Noise monitoring Results

| Item | Monitoring Site | Monitoring Date | Monitoring Result [dB (A)] | | Standard Limits |
|------------------|--------------------------------|-----------------|----------------------------|-----------|-----------------|
| | | | Daytime | Nighttime | |
| Hada East Street | North of residential area 1# | 2016/8/3 | 50.4 | - | Daytime70dB |
| | | 2016/8/4 | 51.3 | - | |
| | North of residential area 2# | 2016/8/3 | 52.1 | - | |
| | | 2016/8/4 | 50.6 | - | |
| | North of residential area 3# | 2016/8/3 | 49.7 | - | |
| | | 2016/8/4 | 49.3 | - | |
| | North of residential area 4# | 2016/8/3 | 51.3 | - | |
| | | 2016/8/4 | 52.1 | - | |
| | North of Construction site 5# | 2016/8/3 | 62.4 | - | |
| | | 2016/8/4 | 63.5 | - | |
| | North of Construction site 6# | 2016/8/3 | 64.5 | - | |
| | | 2016/8/4 | 64.5 | - | |
| | North of Construction site 7# | 2016/8/3 | 59.8 | - | |
| | | 2016/8/4 | 61.3 | - | |
| | North of Construction site 8# | 2016/8/3 | 63.7 | - | |
| | | 2016/8/4 | 62.9 | - | |
| | West of Construction site 8# | 2016/8/3 | 60.7 | - | |
| | | 2016/8/4 | 61.3 | - | |
| | South of Construction site 10# | 2016/8/3 | 67.4 | - | |
| | | 2016/8/4 | 68.1 | - | |
| | South of Construction site 11# | 2016/8/3 | 70.0 | - | |
| | | 2016/8/4 | 68.9 | - | |
| | South of Construction site 12# | 2016/8/3 | 67.4 | - | |
| | | 2016/8/4 | 67.3 | - | |
| | South of Construction site 13# | 2016/8/3 | 68.1 | - | |
| | | 2016/8/4 | 69.2 | - | |
| | East of Construction site 14# | 2016/8/3 | 64.9 | - | |
| | | 2016/8/4 | 65.4 | - | |
| | South of | 2016/8/3 | 65.1 | - | |

| | | | |
|-----------------------------|----------|------|---|
| Comercial area 15# | 2016/8/4 | 64.8 | - |
| South of Comercial area 16# | 2016/8/3 | 60.2 | - |
| | 2016/8/4 | 59.4 | - |
| South of Comercial area 17# | 2016/8/3 | 59.1 | - |
| | 2016/8/4 | 62.1 | - |
| South of Comercial area 18# | 2016/8/3 | 61.5 | - |
| | 2016/8/4 | 62.5 | - |



monitoring location: ▲ represents noise monitoring point, ○ represents air monitoring point and ★ is sewage monitoring point

(4) Zhalaite District Heating Subproject

a) First heating source plant project

Table 10: Noise monitoring result

| Monitoring Date | Monitoring Site | Monitoring result [dB (A)] | | Standard Limits |
|-----------------|-----------------------------|--------------------------------|-----------|--|
| | | Daytime | Nighttime | Daytime 60dB ; Nighttime 50dB |
| 2017./3./3 | East of the factory border | 51.3 | 43.7 | |
| | South of the factory border | 50.1 | 42.3 | |

| | | | |
|------------|-----------------------------|------|------|
| 2017./3./4 | West of the factory border | 53.2 | 44.6 |
| | North of the factory border | 51.4 | 42.9 |
| | East of the factory border | 53.1 | 44.6 |
| | South of the factory border | 52.3 | 42.7 |
| | West of the factory border | 54.7 | 45.0 |
| | North of the factory border | 52.9 | 43.7 |
| | | | |
| | | | |

Table 11: Air monitoring result

| Monitoring Date | Monitoring Site | Monitoring Time | PM (mg/m ³) | SO ₂ (mg/m ³) | NO ₂ (mg/m ³) |
|-----------------|-----------------|-----------------|-------------------------|--------------------------------------|--------------------------------------|
| 2017/3/3 | Up Wind | 04:30-05:30 | 0.117 | 0.011 | 0.061 |
| | | 10:30-11:30 | 0.150 | 0.014 | 0.039 |
| | | 16:30-17:30 | 0.134 | 0.016 | 0.046 |
| | | 22:30-23:30 | 0.177 | 0.019 | 0.071 |
| | Down Wind 1# | 04:30-05:30 | 0.149 | 0.041 | 0.049 |
| | | 10:30-11:30 | 0.181 | 0.025 | 0.046 |
| | | 16:30-17:30 | 0.165 | 0.034 | 0.056 |
| | | 22:30-23:30 | 0.165 | 0.030 | 0.053 |
| | Down Wind 2# | 04:30-05:30 | 0.166 | 0.036 | 0.035 |
| | | 10:30-11:30 | 0.199 | 0.027 | 0.049 |
| | | 16:30-17:30 | 0.199 | 0.037 | 0.041 |
| | | 22:30-23:30 | 0.166 | 0.044 | 0.057 |
| | Down Wind 3# | 04:30-05:30 | 0.177 | 0.044 | 0.057 |
| | | 10:30-11:30 | 0.165 | 0.027 | 0.047 |
| | | 16:30-17:30 | 0.155 | 0.033 | 0.056 |
| | | 22:30-23:30 | 0.181 | 0.037 | 0.056 |
| 2017/3/4 | Up Wind | 04:30-05:30 | 0.116 | 0.028 | 0.045 |

| | | | | | |
|--|-----------------|-------------|-------|-------|-------|
| | | 10:30-11:30 | 0.133 | 0.024 | 0.044 |
| | | 16:30-17:30 | 0.133 | 0.019 | 0.057 |
| | | 22:30-23:30 | 0.116 | 0.027 | 0.049 |
| | Down Wind 1# | 04:30-05:30 | 0.165 | 0.034 | 0.038 |
| | | 10:30-11:30 | 0.213 | 0.041 | 0.047 |
| | | 16:30-17:30 | 0.197 | 0.037 | 0.052 |
| | | 22:30-23:30 | 0.164 | 0.042 | 0.060 |
| | Down Wind 2# | 04:30-05:30 | 0.150 | 0.029 | 0.049 |
| | | 10:30-11:30 | 0.199 | 0.038 | 0.038 |
| | | 16:30-17:30 | 0.199 | 0.042 | 0.041 |
| | | 22:30-23:30 | 0.166 | 0.038 | 0.046 |
| | Down Wind 3# | 04:30-05:30 | 0.118 | 0.039 | 0.060 |
| | | 10:30-11:30 | 0.166 | 0.042 | 0.053 |
| | | 16:30-17:30 | 0.186 | 0.038 | 0.061 |
| | | 22:30-23:30 | 0.199 | 0.030 | 0.046 |
| | Standard Limits | | 1.0 | 0.4 | 0.12 |

Table 12: Air monitoring result

| Monitoring Site | Monitoring Date | Monitoring Parameter | Monitoring Results | Standard Limits |
|--|-----------------|----------------------|-------------------------|-----------------|
| Fixed monitoring port for desulfurization and dedusting facilities | 2017/3/10 | SO2 Concentration | 2mg/m3 | 400 |
| | | SO2 Emission | 0.54kg/h | / |
| | | NO2 Concentration | 336mg/m ³ | 400 |
| | | NO2 Emission | 91kg/h | / |
| | | Soot Concentration | 23.819mg/m ³ | 80 |
| | | Soot Emission | 6.46kg/h | / |
| | 2017/3/11 | SO2 Concentration | 3mg/m3 | 400 |
| | | SO2 Emission | 0.4kg/h | / |
| | | NO2 | 420mg/m ³ | 400 |

| | | | | |
|--|--|--------------------|-------------------------|----|
| | | Concentration | | |
| | | NO2 Emission | 59.47kg/h | / |
| | | Soot Concentration | 44.130mg/m ³ | 80 |
| | | Soot Emission | 6.25kg/h | / |

b) Second heat source plant project

Table 13: Noise monitoring result

| Monitoring Site | Monitoring Date | Monitoring Results[dB (A)] | | Standard Limits |
|----------------------|-----------------|-----------------------------|-----------|--|
| | | Daytime | Nighttime | |
| Eastern of Boundary | 2017/3/27 | 49.5 | 35.6 | Daytime 60dB ; Nighttime 50dB |
| Southern of Boundary | 2017/3/27 | 52.0 | 49.8 | |
| Western of Boundary | 2017/3/27 | 43.3 | 36.7 | |
| Northern of Boundary | 2017/3/27 | 39.6 | 38.5 | |

Table 14: Air monitoring result

| Monitoring Date | Monitoring Site | Monitoring Time | TSP (mg/m³) | SO2 (mg/m³) | NO2 (mg/m³) |
|-----------------|-----------------|-----------------|-------------|-------------|-------------|
| 2017/3/24 | Up Wind | 02:56-03:56 | 0.067 | 0.012 | 0.023 |
| | | 08:56-09:56 | 0.296 | 0.007 | 0.016 |
| | | 14:56-15:56 | 0.052 | 0.008 | 0.016 |
| | | 20:56-21:56 | 0.068 | 0.008 | 0.016 |
| | Down Wind 1# | 02:56-03:56 | 0.437 | 0.018 | 0.029 |
| | | 08:56-09:56 | 0.385 | 0.016 | 0.026 |
| | | 14:56-15:56 | 0.156 | 0.010 | 0.018 |
| | | 20:56-21:56 | 0.102 | 0.014 | 0.025 |
| | Down Wind 2# | 02:56-03:56 | 0.084 | 0.021 | 0.018 |
| | | 08:56-09:56 | 0.454 | 0.018 | 0.025 |
| | | 14:56-15:56 | 0.175 | 0.017 | 0.023 |
| | | 20:56-21:56 | 0.153 | 0.019 | 0.026 |
| Standard Limits | | | 1.0 | 0.4 | 0.12 |

(6) Heating system renovation and expansion in Tuquan county, Hinggan League

Sub-project owners commissioned Chifeng Lv Kang Environmental Monitoring Company to monitor the noise and air quality of heat source plant, thermal station construction plant and surrounding residential area on May 12, 2017. The construction site has set up sedimentation tank, which is used for water spraying and dust removal after sedimentation treatment of construction wastewater, no waste water is discharged, so the construction wastewater is not tested. The monitoring results are shown in Table 15 & 16.

Table 15: Noise monitoring result

| Monitoring Site | | Monitoring Date | Monitoring Result [dB (A)] | | Standard Limits |
|---------------------------------------|----------------------|-----------------|----------------------------|-----------|-------------------------------|
| | | | Daytime | Nighttime | |
| Construction site of Heat source plan | Eastern of Boundary | 2017/5/12 | 59.2 | 49.6 | Daytime70dB; Nighttime55dB |
| | Southern of Boundary | 2017/5/12 | 58.0 | 47.6 | |
| | Western of Boundary | 2017/5/12 | 60.0 | 50.6 | |
| | Northern of Boundary | 2017/5/12 | 52.1 | 45.5 | |
| | Residential Area | 2017/5/12 | 57.1 | 46.5 | |
| Thermal station construction plant | Eastern of Boundary | 2017/5/12 | 51.1 | 44.6 | |
| | Southern of Boundary | 2017/5/12 | 51.7 | 45.9 | |
| | Western of Boundary | 2017/5/12 | 48.9 | 43.6 | |
| | Northern of Boundary | 2017/5/12 | 56.3 | 46.3 | |
| | Residential Area | 2017/5/12 | 52.0 | 43.0 | |
| | | | | | |

Table 16: Air monitoring result

| Monitoring Site | | Monitoring Date | TSP (mg/m ³) | Standard Limits (mg/m ³) |
|------------------------------------|------------------|-----------------|--------------------------|--------------------------------------|
| heat source plant | Upwind | 2017/5/12 | 0.586 | 1.0mg/m |
| | Downwind No.1 | 2017/5/12 | 0.966 | |
| | Downwind No.2 | 2017/5/12 | 0.972 | |
| | Downwind No.3 | 2017/5/12 | 0.976 | |
| | Residential Area | 2017/5/12 | 0.995 | |
| thermal station construction plant | Upwind | 2017/5/12 | 0.297 | |
| | Downwind No.1 | 2017/5/12 | 0.583 | |
| | Downwind No.2 | 2017/5/12 | 0.567 | |
| | Downwind No.3 | 2017/5/12 | 0.586 | |
| | Residential Area | 2017/5/12 | 0.606 | |

The construction noise monitoring results conform to the requirements of the environmental noise emission standard of the Building construction field (GB12523-2011), the results of the monitoring of TSP in the construction field conform to the requirements of the comprehensive emission standard of air pollutants (GB16297-1996), so the impact of construction on the environment is acceptable.

(6) Central heating project I replacing wood to coal in Irsch, Arxan City, Hinggan League. The owners of sub-project commissioned Chifeng Lv Kang Environmental Monitoring Company to monitor the noise and air quality of the construction plant on July 11, 2017. Construction site surrounding demolition work has been completed, surrounded by residential areas and other sensitive points. The construction site has set up sedimentation tank, which is used for water spraying and dust removal after sedimentation treatment of construction wastewater, no waste water is discharged, so the construction wastewater is not tested. The monitoring results are shown in Tables 17 and 18.

Table 17: Noise monitoring result

| Monitoring Site | | Monitoring Date | Monitoring Result [dB (A)] | | Standard Limits |
|--|---------------------|-----------------|----------------------------|-----------|---------------------------------|
| | | | Daytime | Nighttime | |
| Construction site of Heat source plant | Eastern of Boundary | 2017/7/11 | 49.5 | 40.4 | Daytime 70dB; Nighttime 55dB |
| | Southern of | 2017/7/11 | 49.5 | 40.9 | |

| | | | | | |
|--|----------------------|-----------|------|------|--|
| | Boundary | | | | |
| | Western of Boundary | 2017/7/11 | 54.6 | 41.2 | |
| | Northern of Boundary | 2017/7/11 | 58.7 | 43.4 | |

Table 18: Air monitoring result

| Monitoring Site | | Monitoring Date | TSP (mg/m ³) | Standard Limits (mg/m ³) |
|--|---------------|-----------------|--------------------------|--------------------------------------|
| Construction site of Heat source plant | Upwind | 2017/7/11 | 0.486 | 1.0mg/m |
| | Downwind No.1 | 2017/7/11 | 0.864 | |
| | Downwind No.2 | 2017/7/11 | 0.867 | |
| | Downwind No.3 | 2017/7/11 | 0.876 | |

The construction noise monitoring results conforms to the requirements of the environmental noise emission standard of the Building construction field (GB12523-2011), the results of the testing of the particulate matter in the construction field meet the requirements of the comprehensive emission standard of air pollutants (GB16297-1996), so the impact of construction on the environment is acceptable.

VI. CURRENT SITUATION OF SMALL BOILERS

A. Hohhot Heating Network and Boiler Room Expansion Project

Hohhot Heating Network and Boiler Room Expansion Project plans to shut down 144, C and D zone were covered by the other heat sources units, so the closing information of small boiler is unknown, the closing information of F, G, K zone small boiler is still under survey, now 8 units of 12 small boilers closed, in which 4 units of 5 transformed into thermal stations, 4 units of 7 demolished; 6 units of 6 small boilers are still running, 3 units of 3 small boilers are the coal-to-gas, and the rest is unknown. Subproject owners still investigated actively.

Table19: Small Boiler Closed Information of Hohhot Heating Network and Boiler Room Expansion Project (By the end of July 2016)

| No. | Boiler Units | Amount (Unit) | Closed Conditions | Recovery after Closing |
|-----|---|---------------|-------------------|------------------------|
| | C Zone | | | |
| 1 | Second Construction | 2 | | |
| 2 | Ethnic Articles | 1 | | |
| 3 | Nanchafang | 2 | | |
| 4 | Kuntai | 2 | | |
| 5 | Hohhot Huanyu Environmental Protection Company | 2 | | |
| 6 | Spring | 1 | | |
| 7 | Hairi Woolen Mill | 1 | | |
| 8 | Inner Health Cadre Training School | 1 | | |
| 9 | Brewery | 2 | | |
| 10 | Nanchafang Village Committee | 1 | | |
| 11 | Social Welfare Clothing Factory | 1 | | |
| 12 | Youyi Villi Plant | 1 | | |
| 13 | City Morgue | 1 | | |
| 14 | City Second Hospital | 2 | | |
| 15 | Inner Mongolia Institute of Geology and Mineral Resources | 1 | | |
| | D Zone | | | |
| 1 | Shiqi Group | 2 | | |
| 2 | Taji Cashmere | 2 | | |
| 3 | Jinyu Group | 1 | | |
| 4 | Hohhot Cigarette Factory | 1 | | |
| 5 | Fruit Market | 1 | | |
| 6 | Dongyuan | 2 | Disable | Demolish |

| | | | | |
|----|---|---|-----------|-----------------|
| | Community | | | |
| 7 | Shuangshu Village Primary School | 1 | | |
| 8 | Shuangshu Village Community | 2 | | |
| 9 | Hongfeng Food Factory | 1 | | |
| 10 | National Mall Warehouse | 2 | | |
| 11 | Shiqi Sixth Mill | 1 | | |
| 12 | Nailun Property | 1 | | |
| 13 | Barrel Factory | 1 | | |
| 14 | Zhonghe Cashmere | 1 | | |
| 15 | Electronic Components | 1 | | |
| 16 | Shuangshu Cashmere Factory | 2 | | |
| 17 | Mingde Primary School | 1 | | |
| 18 | 888 Paper Mill | 1 | | |
| 19 | Transmission and Distribution Engineering Company in Inner Mongolia | 1 | | |
| | F Zone | | | |
| 1 | Inner Mongolia Second Housing Management Office | 1 | Operation | |
| 2 | Boiler Factory | 1 | Operation | Coal-to-gas |
| 3 | The City 14 Middle School | 1 | Disable | Thermal Station |
| 4 | Art School | 1 | Disable | Thermal Station |
| 5 | Cable Factory in Inner Mongolia | 1 | Disable | Demolish |
| 6 | Motor Factory | 1 | Operation | Coal-to-gas |
| | G Zone | | | |
| 1 | Railway Admitting Office | 1 | Operation | |
| 2 | Railway Central Hospital | 1 | Operation | |
| 3 | Film Studio | 1 | Disable | Thermal Station |
| 4 | Inner Mongolia Bureau of Surveying and Mapping | 1 | | |
| 5 | Nailun Wangxing Yuan | 2 | | |
| 6 | Building Materials | 2 | Disable | Thermal Station |

| | | | | |
|----|--|---|----------|------------|
| | College | | | |
| 7 | Taoyuan Community | 2 | Disable | Demolish |
| 8 | Construction Survey and Design Institute of Inner Mongolia | 2 | | |
| 9 | Inner Mongolia City Diaodui | 2 | | |
| 10 | Inner Mongolia Institute of Metallurgy | 1 | | |
| | K Zone | | | |
| 1 | Inner Mongolia Branch of Xinhua News Agency | 2 | Disabled | Demolished |
| 2 | Yongtai Commercial Buildings | 1 | | |
| 3 | Baifang Group | 2 | | |
| 4 | Erqing Hotel | 2 | | |
| 5 | Muslim West Temple | 2 | | |
| 6 | Yi Xing Cashmere Products Factory | 1 | | |
| 7 | West Longwang Temple Community | 1 | | |
| 8 | West Longwang Temple Village Committee | 1 | | |
| 9 | City Bus Company | 2 | | |
| 10 | Machine Tool Plant Four Plants | 1 | | |
| 11 | Plastic Factory Dormitory | 1 | | |
| 12 | Municipal Environmental Monitoring Station | 1 | | |
| 13 | Children's Welfare | 1 | | |
| 14 | Inner Mongolia Sanlian Chemical | 2 | | |
| 15 | Jinwei Si and Chemical Fiber Company | 1 | | |
| | M Zone | | | |
| 1 | Beiyuan Street Heating | 1 | | |
| 2 | Housing Construction Company in Inner Mongolia | 2 | | |
| 3 | The New City Heating | 2 | | |
| 4 | Suhu Street Primary School | 2 | | |

| | | | | |
|----|--|---|-----------|-------------|
| 5 | Inner Mongolia Education Press | 1 | | |
| 6 | Hohhot CCB | 1 | | |
| 7 | Inner Mongolia Cultural Cadre | 1 | | |
| 8 | Inner Mongolia High Court Guest House | 1 | | |
| 9 | Electronic Detection | 1 | | |
| 10 | City Commercial Bank | 1 | | |
| 11 | Wujin Store | 1 | | |
| 12 | The New City Heating | 2 | | |
| 13 | Inner Organs Centre | 2 | | |
| 14 | Nailun | 1 | | |
| 15 | Xincheng Hotel | 2 | | |
| 16 | Venture Real Estate | 1 | | |
| 17 | Inner Mongolia Procuratorate Hostel | 1 | | |
| 18 | Teaching Equipment Supply Station | 1 | | |
| 19 | Inner Mongolia Military | 2 | | |
| 20 | Inner Mongolia Hotel | 2 | | |
| 21 | Inner Mongolia Party School | 2 | | |
| 22 | Inner Mongolia Institute of Education | 2 | | |
| 23 | National Troupe of Inner Mongolia | 1 | | |
| 24 | Experimental High School | 2 | | |
| 25 | Inner Mongolia Animal Husbandry Department | 1 | | |
| 26 | Inner Mongolia Tobacco Training Centre | 1 | Operation | Coal-to-gas |
| 27 | Inner Mongolia Coal Geology | 1 | | |
| 28 | Hexi Property | 2 | | |
| 29 | Hohhot Special Education College | 1 | | |
| 30 | Wulan Hotel | 1 | | |
| 31 | Inner Mongolia Mental Hospitals | 2 | | |
| 32 | Inner Planning Commission Family Wings | 2 | | |

| | | | | |
|-----|--|-----|--|--|
| 33 | Inner Mongolia China Construction Bank | 2 | | |
| 34 | Inner Mongolia Statistical Bureau | 2 | | |
| 35 | City Retired Cadres | 1 | | |
| 36 | Security Department in Inner Mongolia | 2 | | |
| 37 | City Cable Factory | 2 | | |
| 38 | Transformer Plant in Inner Mongolia | 1 | | |
| 103 | Total | 144 | | |

B. Baotou City Central Heating Expansion Project

Baotou City Central Heating Expansion Project plans to close 164 small boilers, for present it has been fully closed, and all transformed into thermal station.

Table 20: Small Boiler Closed Information of Baotou City Central Heating Expansion Project

| No. | Names | Amounts(Unit) | Property Units | Location | Closing Progress | Recovery after Closed |
|-----|-----------------------------|---------------|---|--------------------|------------------|-----------------------|
| 1 | Standard Factory | 3 | Baotou Standard Factory | Qing10# | Disable | Thermal Station |
| 2 | Song and Dance Troupe | 1 | Baotou Song and Dance Troupe | Qing 10# | Disable | Thermal Station |
| 3 | Steel Institute West Branch | 3 | Inner Mongolia University of Science and Technology | Qing 14# | Disable | Thermal Station |
| 4 | Movie Palace | 1 | Baotou City Film Company | Qing 15# | Disable | Thermal Station |
| 5 | Qiate Cinema | 1 | Qiate Cinema | Qing 17# | Disable | Thermal Station |
| 6 | Tuan 11 | 3 | Baogang Property Office | Tuan 11 North Area | Disable | Thermal Station |
| 7 | Tuan 12 | 2 | Kunqu Property Management Office | Tuan 12# | Disable | Thermal Station |
| 8 | Qing 17 | 1 | Baotou Current Construction Co. | Qing 17# | Disable | Thermal Station |
| 9 | Zilidao North | 3 | Ronghua Property | Zilidao North | Disable | Thermal Station |
| 10 | Tuan 13 | 2 | Kun Government | Tuan 13 East | Disable | Thermal Station |
| 11 | Tuan 13 | 2 | Baogang Property Office | Tuan 13 West | Disable | Thermal Station |
| 12 | Tuan 15 Nan | 2 | Baotou City | Tuan 15 | Disable | Thermal |

| | | | | | | |
|----|--|---|--|---|---------|-----------------|
| | | | Guangyuan Real Estate Development Company | South | | Station |
| 13 | Sanitation Department | 1 | Kunqu Sanitation Department | Tuan Jia16 | Disable | Thermal Station |
| 14 | Post Office | 1 | Baotou City Post Office | Tuan Jia 16 | Disable | Thermal Station |
| 15 | Tuan Jia16 | 1 | Baotou City Post Office | Tuan Jia 16 | Disable | Thermal Station |
| 16 | Tuan 18 | 2 | Baotou City Cement Plant | Tuan 18# | Disable | Thermal Station |
| 17 | Baogang High School 25 | 1 | Baogang High School 25 | Tuan 18# | Disable | Thermal Station |
| 18 | Combined Boiler Room | 3 | Baotou Diju Real Estate Development Company | Tuan 12# | Disable | Thermal Station |
| 19 | Xinhua Bookstore Family Wings | 1 | Xinhua Bookstore | Tuan South 15 | Disable | Thermal Station |
| 20 | Building Research Institute | 3 | Baotou City Building Research Institute | Tuanjie Street | Disable | Thermal Station |
| 21 | Nanpai Community | 1 | Baotou City Hongda Real Estate | Across to the 24 th Primary School | Disable | Thermal Station |
| 22 | Longda Group | 1 | Longda Group | Tuanjie Street 183# | Disable | Thermal Station |
| 23 | Baotou City Shining Metal Products Co., Ltd. | 1 | Baotou City Shining Metal Products Co., Ltd. | Tuanjie Street 13# | Disable | Thermal Station |
| 24 | Baotou Kun District Croak Spices Ltd. | 2 | Baotou Kun District Croak Spices Ltd. | Tuanjie Street | Disable | Thermal Station |
| 25 | Baogang Honghu Printing Factory | 1 | Baogang Honghu Printing Factory | Youth 19# | Disable | Thermal Station |
| 26 | Tuanjie Avenue 1th Primary School | 1 | Tuanjie Avenue 1th Primary School | Tuanjie Street 19# | Disable | Thermal Station |
| 27 | Baotou City Third Transport | 1 | Baotou City Third Transport Company | 38 Road | Disable | Thermal Station |

| | Company | | | | | |
|----|--|---|--|---------------------------------------|---------|-----------------|
| 28 | Baotou City Longju Dairy Liability Limited Company | 2 | Baotou City Longju Dairy Liability Limited Company | Tuanjie Street 22# | Disable | Thermal Station |
| 29 | Steel 22 | 2 | Baogang Heating Plant | Gang 22 Community | Disable | Thermal Station |
| 30 | First Affiliated Hospital | 3 | First Affiliated Hospital | Backyard of First Affiliated Hospital | Disable | Thermal Station |
| 31 | Tuan Jia 14 | 2 | Baogang Heating Plant | Jia 14 Community | Disable | Thermal Station |
| 32 | Yiingbin Boiler Room | 5 | Baotou Property Office | Yiingbin Community | Disable | Thermal Station |
| 33 | Pay 7 Boiler Room | 3 | Baotou Property Office | Pay 7 Community | Disable | Thermal Station |
| 34 | Great Wall Company North Heavy Industry Group | 2 | Great Wall Company North Heavy Industry Group | Kangle | Disable | Thermal Station |
| 35 | Baotou City Seventh Hospital | 2 | Baotou City Seventh Hospital | Knagle | Disable | Thermal Station |
| 36 | Fuhua Cashmere Factory | 2 | Fuhua Cashmere Factory | Minzhu Road | Disable | Thermal Station |
| 37 | Xincheng Secondary School | 1 | Xincheng Secondary School | Jiaer Ba | Disable | Thermal Station |
| 38 | Chang Xingda Textile Mill | 2 | Chang Xingda Textile Mill | Fu 14 | Disable | Thermal Station |
| 39 | Xiangda Furniture Company | 1 | Person | Xiwang Road | Disable | Thermal Station |
| 40 | Inner Mongolia-Power Electrical Equipment Company | 1 | Person | Xingfu South Road | Disable | Thermal Station |
| 41 | Guangzheng Electric Appliance | 1 | Person | Xitu Road | Disable | Thermal Station |
| 42 | Hope Feed | 1 | Group | Qinggong South Road | Disable | Thermal Station |

| | | | | | | |
|----|-----------------------------|---|--------|--------------------------|---------|-----------------|
| 43 | Rong Shiya Cashmere | 1 | Person | Laodong Road | Disable | Thermal Station |
| 44 | Hydraulic Machinery Company | 1 | Group | Laodong Road | Disable | Thermal Station |
| 45 | The new Hitachi Electronics | 1 | Person | Xitu Road | Disable | Thermal Station |
| 46 | Zhang Yuzhi | 1 | Person | Youyi Street | Disable | Thermal Station |
| 47 | Raymond Rare Earth Chemical | 1 | Person | Xingfu South Road | Disable | Thermal Station |
| 48 | Nuclear Industry 208 | 1 | State | Xingfu South Road | Disable | Thermal Station |
| 49 | Civil Foundry | 1 | Group | Youyi Street | Disable | Thermal Station |
| 50 | Tianfu Fan | 2 | Group | Youyi Street | Disable | Thermal Station |
| 51 | Farming School | 2 | Group | Xingfu South Road | Disable | Thermal Station |
| 52 | Post Office Family Wings | 1 | Group | Steel Street 64 | Disable | Thermal Station |
| 53 | Mingtian Technology | 2 | State | Youyi 22 First Community | Disable | Thermal Station |
| 54 | Shengao Music Square | 1 | Person | Shaoxian Road | Disable | Thermal Station |
| 55 | Baogang Youyi Hotel | 1 | State | Youyi Street 15# | Disable | Thermal Station |
| 56 | Yunlong Orthopedics | 1 | Person | Aerding Street 61 | Disable | Thermal Station |
| 57 | Financial Building | 1 | State | Steel Street 50 | Disable | Thermal Station |
| 58 | Bus Company | 1 | State | Shaoxian 23# | Disable | Thermal Station |
| 59 | Cologne Hotel | 1 | Person | Steel Street | Disable | Thermal Station |
| 60 | Shenhua Real Estate | 1 | State | Aerding Street 1 | Disable | Thermal Station |
| 61 | Defeng Trade | 1 | Person | Steel Street 52 | Disable | Thermal Station |
| 62 | Baotou Medical School | 2 | State | Steel Street | Disable | Thermal Station |
| 63 | ICT Jianan | 1 | State | Caoyuan Community | Disable | Thermal Station |
| 64 | Mingzhu | 1 | Person | Youyi Street | Disable | Thermal |

| | Real Estate | | | | | Station |
|----|-------------------------------|-----|----------------|----------------------|---------|-----------------|
| 65 | Huanghe Community Boiler Room | 3 | State | Linyin Zhong Road | Disable | Thermal Station |
| 66 | Youyi 31# | 2 | State /Baogang | Youyi 31# | Disable | Thermal Station |
| 67 | Youyi 18# | 9 | State /Baogang | Youyi 18# | Disable | Thermal Station |
| 68 | 101# | 4 | State /Baogang | Youyi 26# | Disable | Thermal Station |
| 69 | East Youyi 22# | 7 | State /Baogang | Youyi 22# | Disable | Thermal Station |
| 70 | West Youyi 22# | 4 | State /Baogang | Youyi 22# | Disable | Thermal Station |
| 71 | 114# | 6 | State /Baogang | Youyi 18# | Disable | Thermal Station |
| 72 | 106# | 8 | State /Baogang | Youyi 13# | Disable | Thermal Station |
| 73 | Shaoxian 20# | 3 | State | Shaoxian 20# | Disable | Thermal Station |
| 74 | 105# | 4 | State | Youyi 15# | Disable | Thermal Station |
| 75 | Erye Community | 8 | State /Baogang | Youyi West Community | Disable | Thermal Station |
| 76 | Yingbin Community | 5 | State | Yingbin Community | Disable | Thermal Station |
| 77 | Total | 164 | | | | |

C. Chifeng Urban Central Heating Pipe Network Expansion Project

Chifeng Urban Central Heating Pipe Network Expansion Project plans to close 37 small boilers, it has been closed down, including 7 heat transfer stations, 4 disabled, 25 removed.

Table 21: Small Boiler Closed Information of Chifeng Urban Central Heating Pipe Network Expansion Project

| No. | Names | Location | Units | Services Scope/ Region | Closed Time | Recovery after Closed |
|-----|-------------------------------------|---------------|-------------------------|-----------------------------------|-------------|-----------------------|
| 1 | Dongchen Power Boiler Room | Hongshan Area | Dongchen Power | Dongchen Power / Near | 2013.8.6 | Disable |
| 2 | Hongshan Driving School Boiler Room | Hongshan Area | Hongshan Driving School | Institutions of Excellence / Near | 2014.7.4 | Thermal Station |
| 3 | Hongshan Area Quality Boiler Room | Hongshan Area | Hongshan Area Quality | Hongshan Area Quality | 2013.4.3 | Demolish |
| 4 | Hongshan Area Forest | Hongshan Area | Hongshan Area | Hongshan Area Forest Police | 2013.3.6 | Disable |

| | | | | | | |
|----|--|---------------|---------------------------------|-----------------------------------|-----------|-----------------|
| | Police Detachment Boiler Room | | Forest Police Detachment | Detachment | | |
| 5 | Longshang Mountain Villa Boiler Room | Hongshan Area | Longshan Mountain Villa | Eastern Suburbs of Forest Police | 2013.4.1 | Demolish |
| 6 | Chifeng Boyue School Boiler Room | Songshan Area | Chifeng Boyue School | Chifeng Boyue School | 2010.5.6 | Demolish |
| 7 | Songshan Civilian Residential Boiler Room | Songshan Area | Songshan Area Housing Authority | Civil Affairs / Near | 2011.6.3 | Thermal Station |
| 8 | Original Bearing Factory Office Boiler Room | Songshan Area | Original Bearing Factory | Bearing Factory Building | 2012.4.22 | Demolish |
| 9 | Songshan Erxiao Boiler Room | Songshan Area | Songshan Education Bureau | Songshan Erxiao | 2012.6.23 | Thermal Station |
| 10 | Inner Mongolia Geological Second Middle School Boiler Room | Songshan Area | Songshan Education Bureau | Geological Second Middle School | 2010.4.12 | Thermal Station |
| 11 | Songshan Administration Boiler Room | Songshan Area | Housing Authority | Songshan Administration / Near | 2009.8.6 | Thermal Station |
| 12 | Mujiaying Village Committee Boiler Room | Songshan Area | Mujiaying Village Committee | Mujiaying New Village / Year | 2010.11.2 | Demolish |
| 13 | Qunguan Real State Building Boiler Room | Songshan Area | Qunguan Real State | Mujiayingzi Government / Near | 2012.3.2 | Demolish |
| 14 | Geological Prospecting Ten Boiler Room | Songshan Area | Geological Prospecting Ten | Geological Prospecting Ten / Near | 2013.9.3 | Demolish |
| 16 | Songshan Hongqi Store Boiler Room | Songshan Area | Songshan Hongqi Store | Songshan Hongqi Store / Near | 2009.7.4 | Demolish |
| 17 | Songshan World Today Boiler Room | Songshan Area | Songshan World Today | Songshan World Today | 2010.6.28 | Demolish |
| 18 | Songshan | Songshan | Original | Songshan | 2011.3.25 | Demolish |

| | | | | | | |
|----|---|---------------|---|---|-----------|-----------------|
| | Activated Carbon Residence Boiler Room | n Area | Songshan Activated Carbon | Activated Carbon Residence / Near | | |
| 19 | Songshan Labor Camp Building Boiler Room | Songshan Area | Songshan Labor Camp | Songshan Labor Camp Building | 2012.4.14 | Demolish |
| 20 | Songshan Fangxiao Boiler Room | Songshan Area | Songshan Fangxiao | Songshan Fangxiao | 2010.6.7 | Demolish |
| 21 | Songshan Zhuye Guocai Hotel Boiler Room | Songshan Area | Songshan Zhuye Guocai Hotel | Songshan Zhuye Guocai Hotel / Near | 2010.8.3 | Demolish |
| 22 | Laosan Residential Construction Boiler Room | Songshan Area | Original Laosan Residential Construction | Laosan Residential Construction | 2012.7.4 | Demolish |
| 23 | Songshan Supply and Marketing Cooperative Boiler Room | Songshan Area | Original Songshan Supply and Marketing Cooperative | Songshan Supply and Marketing Cooperative | 2010.3.2 | Demolish |
| 24 | Qiaoxi Hotel Boiler Room | Songshan Area | Qiaoxi Hotel | Qiaoxi Hotel | 2012.5.5 | Demolish |
| 25 | Songshan Laoliu Hospital Boiler Room | Songshan Area | Songshan Laoliu Hospital | Laoliu Hospital | 2010.3.6 | Thermal Station |
| 26 | Songshan Geological Prospecting Hospitals Boiler Room | Songshan Area | Songshan Geological Prospecting Hospitals | Songshan Geological Prospecting Hospitals / Near | 2011.7.19 | Demolish |
| 27 | Industrial and Commercial Bank branch of Songshan Chifeng Boiler Room | Songshan Area | Industrial and Commercial Bank branch of Songshan Chifeng | Industrial and Commercial Bank branch of Songshan Chifeng | 2011.6.20 | Demolish |

| | | | | | | |
|----|---|---------------|---|--|-----------|-----------------|
| 28 | Tehu Sheng Old Building Boiler Room | Songshan Area | Tehu Sheng Company | Tehu Sheng Old Building | 2010.7.22 | Demolish |
| 29 | Cement Boiler Room | Hongshan Area | Original Cement | Cement / Near | 2010.6.4 | Demolish |
| 30 | Er East Street Health Bureau Boiler Room | Hongshan Area | Health Bureau | Er East Street Health Bureau | 2011.8.7 | Demolish |
| 31 | Northern Pharmaceuticals | Hongshan Area | Northern Pharmaceuticals | Northern Pharmaceuticals / Near | 2013.6.4 | Demolish |
| 32 | Woolen Mill Factory Boiler Room | Hongshan Area | Original Woolen Mill Factory | Woolen Mill Factory | 2012.8.8 | Demolish |
| 33 | Rhine Boiler Room | Hongshan Area | Rhine River Bath | Rhine / Near | 2013.3.20 | Demolish |
| 34 | Chifeng Third Experimental Primary School Boiler Room | Hongshan Area | Chifeng Third Experimental Primary School | Chifeng Third Experimental Primary School / Near | 2014.8.6 | Demolish |
| 35 | Songshan Fourth Primary School Boiler Room | Hongshan Area | Songshan Fourth Primary School | Songshan Fourth Primary School / Near | 2014.9.25 | Disable |
| 36 | Songshan Public Security Bureau Boiler Room | Songshan Area | Songshan Public Security Bureau | Songshan Public Security Bureau / Near | 2014.6.20 | Thermal Station |
| 37 | Songshan Fifth Middle School Boiler Room | Songshan Area | Songshan Fifth Middle School | Songshan Fifth Middle School / Near | 2014.7.15 | Disable |

D. Xingan Meng Zhalaiteqi Inder Town Central Heating Project

Xingan Meng Zhalaiteqi Inder Town Central Heating Project plans to close 31 units of 37 small boilers, it has been closed down, of which the 7 units of 10 transformation to heat transfer stations, 2 units of 2 is disabled, the rest removed.

Table 22: Small Boiler Closed Information of Xingan Meng Zhalaiteqi Inder Town Central Heating Project

| No. | Names | Small Boiler | Type | Amount | Closed Conditions | Recovery after |
|-----|-------|--------------|------|--------|-------------------|----------------|
|-----|-------|--------------|------|--------|-------------------|----------------|

| | | Room (t) | | | | Closed |
|----|--|-------------|----------------------|---|---------|--------------------|
| 1 | Original Plant Identification Oil Plant Building | 2 | DZL1.4-0.7/95/70-All | 1 | Disable | Demolish |
| 2 | Traffic Police | 1 | QXG60-8/95/70-A | 1 | Disable | Demolish |
| 3 | Inder Fourth Middle School | 4 | DZL1.4-0.8/95/70-All | 2 | Disable | Demolish |
| 4 | Meng Hospital | 4 | DZL1.4-0.7/95/70-All | 2 | Disable | Demolish |
| 5 | District Procuracy | 1 | QXG60-8/95/70-A | 1 | Disable | Thermal Station |
| 6 | Inder Sixth Middle School | 2 | DZL1.4-1.0/95/70-All | 1 | Disable | Demolish |
| 7 | Fire Fighting Unit | 1 | QXG60-8/95/70-A | 1 | Disable | Demolish |
| 8 | Party School | 2 | DHL1.4-0.7/95/70-All | 1 | Disable | Thermal Station |
| 9 | Inder Fifth Middle School | 2 | DHL1.4-0.7/95/70-All | 1 | Disable | Demolish |
| 10 | Inder Fifth Primary School | 1 | QXG60-8/95/70-A | 1 | Disable | Disable |
| 11 | Vocational High School | 2 | DZL1.4-0.7/95/70-All | 1 | Disable | Demolish |
| 12 | Sports School | 1 | QXG60-10/95/70-A | 1 | Disable | Demolish |
| 13 | Inder Second Middle School | 4 | DZL1.4-1.0/95/70-All | 2 | Disable | Disable |
| 14 | Inder Middle School | 4 | DHL1.4-0.8/95/70-All | 2 | Disable | Thermal Station |
| 15 | Agricultural Bank | 4 | QXG120-8/95/70-All | 2 | Disable | Thermal Station |
| 16 | Immigration Office | 1 | QXG60-8/95/70-A | 1 | Disable | Demolish |
| 17 | Running-water Company | 1 | DZL0.7-0.8/95/70-All | 1 | Disable | Demolish |
| 18 | Credit Union | 1 | DZL0.7-0.6/95/70-All | 1 | Disable | Demolish |
| 19 | Transportation Control Station | 2 | DHL1.4-0.7/95/70-All | 1 | Disable | Demolish |
| 20 | Quality and Technical Supervision Bureau | 1 | QXG60-8/95/70-A | 1 | Disable | Demolish |
| 21 | Inder Fourth Primary School | 2 | DZL1.4-0.7/95/70-All | 1 | Disable | Thermal Station |
| 22 | Inder Third Middle School | 4 | DZL1.4-0.7/95/70-All | 2 | Disable | Thermal Station |
| 23 | Oil Company | 2 | QXG120-8/95/70-All | 1 | Disable | Demolish |
| 24 | Agricultural Bureau | 1 | DZL0.7-0.6/95/70-All | 1 | Disable | Disable |
| 25 | Original IESS | 1.5 | QXG90-8/95/70-All | 1 | Disable | Thermal Station |

| | | | | | | |
|----|---------------------------|------|-----------------|----|---------|----------|
| 26 | Mobile Company | 0.3 | QXG20-7/95/70-A | 1 | Disable | Demolish |
| 27 | Zhongfa Appliance City | 0.5 | QXG30-8/95/70-A | 1 | Disable | Demolish |
| 28 | Sanjiang Department Store | 0.5 | QXG30-6/95/70-A | 1 | Disable | Demolish |
| 29 | Medical Hospital | 0.2 | QXG12-6/95/70-A | 1 | Disable | Demolish |
| 30 | Iner Town | 0.2 | QXG12-6/95/70-A | 1 | Disable | Demolish |
| 31 | Shenshan Hotel | 0.2 | QXG12-6/95/70-A | 1 | Disable | Demolish |
| | Total | 53.4 | | 37 | Disable | |

E. Xingan Meng Tuquan Heating Expansion Project

Xingan Meng Tuquan Heating Expansion Project plans to close 33 small boilers, 29 closed down, including 26 removal, three disabled; four runs, of which three are coal-fired boilers.

Table 23: Small Boiler Closed Information of Xingan Meng Tuquan Heating Expansion Project

| No. | Names | Location | Unit | Services Scope / Region | Close Time | Closed Conditions | Recovery after Closed |
|-----|---|--------------------|----------------------------|-------------------------|------------|-------------------|-----------------------|
| 1 | Xinguang Heating Company Central Heat Plant | Huafeng Street 249 | Xinguang Heating Co., Ltd. | Heating | 2016 | Close | Demolish |
| 2 | Xinguang Heating Company Central Heat Plant | Huafeng Street 249 | Xinguang Heating Co., Ltd. | Heating | 2016 | Close | Disable |
| 3 | Xinguang Heating Company Central Heat Plant | Huafeng Street 249 | Xinguang Heating Co., Ltd. | Heating | 2016 | Close | Disable |
| 4 | Xinguang Heating Company Central Heat Plant | Huafeng Street 249 | Xinguang Heating Co., Ltd. | Heating | 2016 | Operates | Operates |
| 5 | County Hospital | Kangle Street | County Hospital | Heating | 2016 | Close | Disable |
| 6 | Passenger Station | Huafeng Street | Passenger Station | Heating | 2016 | Close | Demolish |
| 7 | County Credit Union | Xinhua Road | County Credit Union | Heating | 2016 | Close | Demolish |
| 8 | Tianyu | Limin | Tianyu | Heating | 2016 | Close | Demolish |

| | Company | Street | Company | | | | |
|----|----------------------------------|-----------------|----------------------------------|--------------------|------|----------------|----------|
| 9 | Tianquan Company | Gongye Road | Tianquan Company | Heating | 2016 | Close | Demolish |
| 10 | EDB Material Factory | Zhenxing Road | EDB Material Factory | Heating | 2016 | Close | Demolish |
| 11 | First Middle School | Jianshe Street | First Middle School | 2 units of Heating | 2016 | Close | Demolish |
| 12 | Second Middle School | Kangle Street | Second Middle School | 2 units of Heating | 2016 | Close | Demolish |
| 13 | Running-water Company | Gongye Road | Running-water Company | Heating | 2016 | Close | Demolish |
| 14 | Forestry Bureau | Yuuwen Street | Forestry Bureau | Heating | 2016 | Close | Demolish |
| 15 | Livestock Management Station | Gongye Road | Livestock Management Station | Heating | 2016 | Close | Demolish |
| 16 | Tuquan Government | Limin Street | Tuquan Government | Heating | 2016 | Close | Demolish |
| 17 | Anda Animal Husbandry | Huafeng Street | Anda Animal Husbandry | Heating | 2016 | Close | Demolish |
| 18 | Agricultural Machinery Company | Huanfeng Street | Agricultural Machinery Company | Heating | 2016 | Close | Demolish |
| 19 | Quanye Market | Zhenxing Road | Quanye Market | Heating | 2016 | Close | Demolish |
| 20 | Ruyi Hotel | Huafeng Road | Ruyi Hotel | Heating | 2016 | Close | Demolish |
| 21 | County Hospital Second Clinic | Xinhua Road | County Hospital Second Clinic | Heating | 2016 | Close | Demolish |
| 22 | IRS | Huafeng Street | IRS | Heating | 2016 | Close | Demolish |
| 23 | Oil Company | Xiangyang Road | Oil Company | Heating | 2016 | Close | Demolish |
| 24 | Industrial and Commercial Bureau | Minzu Street | Industrial and Commercial Bureau | Heating | 2016 | Close | Demolish |
| 25 | Education Bureau | Xingan Street | Education Bureau | Heating | 2016 | Operates, coal | |
| 26 | Second Kindergarten | Nanxiang Street | Second Kindergarten | Heating | 2016 | Close | Demolish |
| 27 | Longxing Hotel | Xingan Street | Longxing Hotel | Heating | 2016 | Close | Demolish |

| | | | | | | | |
|----|-------------------------------|----------------|-------------------------------|--------------------|------|----------------|----------|
| 28 | Vocational High School | Xiangyang Road | Vocational High School | Heating | 2016 | Close | Demolish |
| 29 | Maintain a Road in the County | Yuwen Street | Maintain a Road in the County | Heating | 2016 | Close | Demolish |
| 30 | Xinghua Road Individual villa | Xinghua Road | Xinghua Road Individual villa | 2 units of Heating | 2016 | Operates, coal | |
| 31 | Personal Building | Xinghua Road | Personal Building | Heating | 2016 | Operates, coal | |
| 32 | Dongshan Gas Station | Huafeng Street | Dongshan Gas Station | Heating | 2016 | Close | Demolish |
| 33 | Oil Company Residence | Xiangyang Road | Oil Company Residence | Heating | 2016 | Close | Demolish |

F. Xingan Meng Arxan Yi'ershi "coal-to-wood" Central Heating Project Phase I

Xingan Meng Arxan Yi'ershi "coal-to-wood" Central Heating Project Phase I plans to close 39 small boilers, it has closed down 23, wherein four are converted into thermal stations, 18 outage, one demolition; the remaining 16 plan to close in 2017.

Table 24: Small Boiler Closed Information of Xingan Meng Arxan Yi'ershi "coal-to-wood" Central Heating Project Phase I

| No. | Name | Location | Unit | Services Scope / Region | Close Time | Close Conditions | Recovery after Closed |
|-----|---|-----------------|--|-------------------------|------------|------------------|---------------------------------------|
| 1 | Arxan Forestry Bureau Life Services Office-First Heating Station | Xincheng Street | Arxan Forestry Bureau Life Services Office | 3 units of Heating | 2013 | Close | Built the Thermal Station, but unused |
| 2 | Arxan Forestry Bureau Life Services Office-Second Heating Station | Xincheng | Arxan Forestry Bureau Life Services Office | 2 units of Heating | 2013 | Close | Built the Thermal Station, but unused |
| 3 | Arxan Forestry Bureau Life Services Office-Third Heating Station | Xincheng | Arxan Forestry Bureau Life Services Office | 3 units of Heating | 2012 | Close | Disable |

| | | | | | | | |
|----|---|---------------|---|--------------------|------|-------|---------------------------------------|
| 4 | Arxan Forestry Bureau Life Services Office-Fourth Heating Station | Linhai Street | Arxan Forestry Bureau Life Services Office | Heating | 2014 | Close | Built the Thermal Station, but unused |
| 5 | Arxan Forestry Bureau Life Services Office-Fifth Heating Station | Xincheng | Arxan Forestry Bureau Life Services Office | 3 units of Heating | 2014 | Close | Thermal Station is using |
| 6 | Hongbo Building Heating Station | Xincheng | Personal | Heating | 2013 | Close | Disable |
| 7 | Second Middle School | Linhai Street | Second Middle School | Heating | 2013 | Close | Disable |
| 8 | Turntable Road Heating Station | Xincheng | Personal | Heating | 2011 | Close | Disable |
| 9 | TV Station | Linhai Street | TV Station | Heating | 2013 | Close | Disable |
| 10 | Tsinghua Park Heating Station | Xincheng | Personal | Heating | 2011 | Close | Disable |
| 11 | Comfort House Hotel | Xincheng | Comfort House Hotel | Heating | 2013 | Close | Disable |
| 12 | Transport Management Office | Linhai | Transport Management Office | Heating | 2013 | Close | Disable |
| 13 | Senxing Construction and Installation Company | Linhai | Senxing Construction and Installation Company | Heating | 2012 | Close | Disable |
| 14 | Xingan Meng Border Protection Troops | Linhai | Xingan Meng Border Protection Troops | Heating | 2014 | Close | Disable |
| 15 | Office of Local Taxation | Linhai | Office of Local Taxation | Heating | 2014 | Close | Disable |
| 16 | Trading Estate | Linhai | Trading Estate | Heating | 2014 | Close | Disable |

| | | | | | | | |
|----|---|----------|------------------------|---------|------|-------|---------|
| 17 | Fire Company | Linhai | Fire Company | Heating | 2014 | Close | Disable |
| 18 | Army Provisions Supply | Xincheng | Army Provisions Supply | Heating | 2014 | Close | Disable |
| 19 | Second Middle School | Linhai | Second Middle School | Heating | 2013 | Close | Disable |
| 20 | Lumber Storage Yard | Xincheng | Lumber Storage Yard | Heating | 2014 | Close | Disable |
| 21 | Spring Water | Xincheng | Spring Water | Heating | 2014 | Close | Disable |
| 22 | Third Primary School | Linhai | Third Primary School | Heating | 2015 | Close | Disable |
| 23 | Forestry Bureau Detention House | Linhai | Forestry Bureau | Heating | 2017 | | |
| 24 | Yi'ershi Forestry Center | Linhai | Forestry Bureau | Heating | 2017 | | |
| 25 | Forestry Bureau Fireproof Office | Linhai | Forestry Bureau | Heating | 2017 | | |
| 26 | Yi'ershi China Union | Xincheng | China Union | Heating | 2017 | | |
| 27 | Postal Savings | Xincheng | Postal Savings | Heating | 2017 | | |
| 28 | Shengda Community | Xincheng | Personal | Heating | 2017 | | |
| 29 | Billionaire Commerce and Trade Building | Linhai | Personal | Heating | 2017 | | |
| 30 | Forestry Bureau | Linhai | Forestry Bureau | Heating | 2017 | | |
| 31 | Forest Policeman | Linhai | Forestry Bureau | Heating | 2017 | | |
| 32 | Xingchen Hotel | Xincheng | Personal | Heating | 2017 | | |
| 33 | Junyue Community | Xincheng | Personal | Heating | 2017 | | |
| 34 | Hufalin Community | Xincheng | Personal | Heating | 2017 | | |
| 35 | West Gas Station | Xincheng | Gas Station | Heating | 2017 | | |

| | | | | | | | |
|----|------------------------------|----------|-----------------|------------|------|-------|------------|
| 36 | East Gas Station | Linhai | Gas Station | Heating | 2017 | | |
| 37 | Linhai Hotel | Linhai | Personal | Heating | 2017 | | |
| 38 | Railway Station | Xincheng | Railway Station | Heating | 2017 | | |
| 39 | Second Wood Products Factory | Xincheng | Personal | Demolished | | Close | Demolition |

VII. . PUBLIC CONSULTATION

In the preparation stage of this project, the plan on information disclosure and public participation had been formulated. According to the public participation plan, implementing agency (IA) would open the project information, inform the affected people, introduce the complaints settlement mechanism to the affected residents and guarantee the effect of publicity in the project area.

In the construction stage, maintain a smooth channel of dialogue between the IAs and the affected population and the main stakeholders, by continued public participation (such as questionnaires, interviews, seminars, public hearings etc.). This kind of public participation activities is needed at least once a year. During the construction period, the environmental engineer contractor and construction supervision company will conduct monthly informal interviews of the affected residents. Through these activities, understand the matter of public concern and ensure timely treatment of complaints or unforeseen negative environmental impact.

All complaints received (including community leaders, nearby institutions, local authorities, the local environmental protection bureau and the Contractor) and public complaints unit contact information should be open at least on the construction site of the information bulletin board publicly.

Additional public participation will be based on the inspection and monitoring during construction and operation of the impact and mitigation measures, and further evaluation results of economic and social impact on the environment to decide whether to implement.

According to the requirements in the plan on information disclosure and public participation, the task content in the preparation stage has been completed. However, the requirement content during construction has not been implemented. The detailed public participation plan is shown in table 26 and detailed implementation status is shown in table 27.

Table 25 Public participation plan

| Organizer | Measure/Time | Theme | Participants |
|--|---|---|---|
| A. Project preparation period | | | |
| IMPMO, Subproject coordination office, IAs, EIA unit, Resettlement planning unit | The EIA public opinion survey: Once for each subproject | Priority, design, environmental benefits and impacts, social benefits and impacts and mitigation measures, attitude and suggestion on the subprojects | IMPMO, Subproject coordination office, IAs, Design Institute, EIA unit, resettlement planning unit, environmental protection bureau, the relevant government departments and the community government and community representatives |
| | The expert group review: Once for each the subproject | | |

| | | | |
|---|---|---|--|
| | The social economy and the affected population survey | | |
| | Public participation meeting and questionnaire survey; Once for the whole project | | |
| | Site investigation : Many times | | |
| B. Construction Period | | | |
| Subproject coordination office, IAs | Public participation and site review :At least once a year | Adjust mitigation measures, construction impact, opinions and suggestions in accordance with actual needs | Residents in the vicinity of the construction area |
| Contractor and construction supervision company | Informal interviews of the affected residents:At least once a month | collect public opinions and suggestions to adjust mitigation measures accordingly | Residents in the vicinity of the construction area |
| Subproject coordination office, IAs | Information publicity: At least once a year | Adjust mitigation measures, construction impact, opinions and suggestions in accordance with actual needs | Residents and representatives of the society |

Table 26: Implementation status of subprojects

| Project | Preparation period | Construction period |
|--|--|--|
| Hohehot city heating network and boiler house reform and | Public survey started in Dec. 2007. Investigated people through newspaper or questionnaire are mainly nearby residents. They show different understandings to the project and fill in the questionnaire carefully. 101 questionnaires were collected. Investigated people include cadres, workers, farmer, freelances and etc. Among | Informal interview to affected residents at lease once a month |

| | | |
|---|--|--|
| expansion project | the 101 investigated people, 79 show approvals to the project construction, 10 stay neutral and 10 express objections. Their major concern is the noise impact after operation to their life. After patient explanation and positive promise of staff from Futai Corporation they show acceptance to the project construction. | |
| Baotou city central heating renovation and expansion project | 250 questionnaires were distributed in Sep.(50) and Nov. (200)2007. Investigations were carried out to relevant groups. In the questionnaire, both basic situation of the project construction and the purpose of investigation are listed. The investigated people included nearby residents, workers, students, cadres, businessmen and so on. A large majority of people show positive approval to the project construction. | Informal interview to nearby residents at least once a month |
| Chifeng downtown central heating network renovation and expansion project | Questionnaire survey were carried out to 50 nearby residents including Zhao Lihong and Dai Junying on Sep. 2007. All of them show approval to the project. They regard the project as environmental friendly, livelihood beneficial and energy conserving. On Oct. 2007, experts from Chifeng Environmental Science Research Institute ,Chifeng Academy of Environmental Sciences and EPA carried on expert discussion on the environmental impact of the project. | In Jul. 4 2012, experts from many sections study on environmental impact related matters of heat engineering construction in Changqing street and Songzhou Road. Those experts include Yao Xiangmin,Chifeng Municipal government Housing and construction Committee,Zhao Mingquan in Planning Bureau; Wang Pinzhong inSARFT; Hao Lihua in Civil Air Defense Office; Li Jiwei from river and road division; Pang Xuesong from heat supply office; Zhao Hongguang, Chifeng Electric Power Bureau; Wang Hongbin from China Mobile; Sun Lifeng from China Telecommunication;Zhang Jian from China Unicom;Zhang Xiaodong from Public transport cooperation; Liu Fujun, Yu Zhikui, Jiang Limin, Yu Guohui from Fulong heating company; Zhang |

| | | |
|--|--|---|
| | | Zhiliang from Hongshan District; Zhang Xin, Zhang Shufeng, Xu Chunhua from Songshan District; Informal interview to nearby residents at least once a month. |
| Central heating project in Yindeer town, Jalaid banner, Hinggan league | Central heating project requires long pipeline with heat exchange station between, so the investigation were carried out in Nov. 2007. The investigation scope include people from nearby residences, government agencies, schools and enterprises. The living address of investigated people is in the vicinity of boiler houses. The nearest distance between boiler house to residence is 20-30. The total number of investigated people was 24, 98% out of which approve the project construction and only one people stay neutral. A large majority of people approve the direction of central heating project, regarding it beneficial to the development of Yindeer town. | Informal interview to nearby residents at least once a month |
| Heating system renovation and expansion in Tuquan county, Hinggan League | The first publication of environmental assessment information were done from Mar. 5-16, 2012 through the government website of Tuquan County. During Mar. 19-30, publication of environmental impact of the project were done in the government website of Tuquan county. Contractors visited nearby villages and enterprises during Mar. 20-30 and solicit public opinions. They distributed and collected 50 efficient questionnaires. The investigated people basically approve the project construction. Local residences show great expectations to the project. | Informal interview to nearby residents at least once a month. |
| Central heating project I replacing wood to coal in Irsch, Arxan City, Hinggan League. | The first publication of environmental impact assessment was done during Aug. 5-16, 2011 through the website of Arxan government; the second publication was done in the same way during Aug. 19-30, 2012. Contractors visited nearby villages and enterprises during Mar. 20-30 and solicit public opinions. They distributed and collected 50 efficient questionnaires. The investigated people basically approve the project construction. Local residences show great expectations to the project. | Informal interview to nearby residents at least once a month. |

VIII TRAINING AND INSTITUTIONAL STRENGTHENING

To enhance the environmental management and monitoring abilities for the six PIAs, training plan on institutional enhancing had been formulated in the early stage of this loan project (Table 27). In the consulting inception stage, training on environmental management and monitoring requirements had been carried out for PIAs by the environmental specialist.

According to the data obtained in the field, the training requirements proposed before has been implemented during the period of this report. And other training plan will be carried out in future.

Table 27: Training Plan on Institutional Strengthening

| Training | participant | Content | Time | Day | Number of people | Budget (CNY) 10,000 | Source of Funds | Implementation situation |
|---|---|---|------|-----|------------------|---------------------|--|--|
| Environmental regulations and policies of the ADB and China | PMO, PIAs, Contractors | The security policy and other environmental regulations of ADB; Chinese Environmental laws, policies, standards and regulations; International environmental management practices on civil construction | 2 | 1 | 30 | 4 | Included in the loan implementation consulting package | Date: Jan. 20, 2016 Place: Xi'an Training teacher: Dr. Liu Jinsong Theme: introduction on ADB environmental policies and measures |
| Complaint settlement mechanism | PMO, PPCU, PIAs, local Environmental Protection Bureau, the community and the main stakeholders | Complaint resolution structure, responsibilities and time frame; Type of the complaint and qualification assessment | 2 | 1 | 30 | 4 | | Will conduct |
| Implementation of | PMO, PIAs, Co | Impact and mitigation measures | 4 | 1 | 40 | 10 | | Date: Jan. 20, 2016 Place: Xi'an |

| | | | | | | | | |
|---|---|--|----|---|-----|----|--|---|
| environmental monitoring plan | contractors, Construction Supervision Company | in construction and operation period; Monitoring and audit mechanism; Reporting requirements; EMP' corrective action | | | | | | Training teacher: Dr. Liu Jinsong Theme: Environmental management plan and monitoring plan |
| International good practice and technology on central heating | PMO, PIAs | best practices on the operation and maintenance of central heating system; New heating technology | 2 | 2 | 30 | 6 | | <p>Date: Jan. 19 2016; Place: Xi'an Training teacher: Dr. Prof. Dang Xiaoqing Theme: Heating situation and updated heating techniques in Xi'an</p> <p>Date: Jan. 20 2016 Training teacher: Prof. Qiu Xiaozhen Theme: Energy saving and emission reduction status and techniques in Shanxi Province.</p> <p>Date: Mar 29 2016 Training teacher: Xu Guofu Theme: New energy saving techniques and application</p> <p>Training teacher: Ma Yan Theme: Application of water source heat pump technology in heat supply system</p> |
| Total | | | 10 | 5 | 130 | 24 | | |

IX KEY ENVIRONMENTAL ISSUES

As described above, no major environmental problems were found during the period of this report. EMP has got proper implementation and mitigates the environmental impact to controllable situation.

Raw materials and scrap are stacked at random on the construction site, and there is no block. It is recommended to put raw materials in the raw material warehouse, waste unified in the waste yard, and cover it. During the construction, adopt the method of site road hardening and regular watering to reduce the impact of dust on the surrounding environment.



X. CONCLUSIONS AND SUGGESTIONS

During the period of this report, no major environmental problems were found in the project. Different degrees of environmental management and monitoring were carried out in subprojects. Under the joint efforts of IMPMO, consultation experts of EED and owners of subprojects, Environmental Management Plan was implemented thoroughly and appropriately. But there are still spaces for further perfection. The following tasks are suggested to accomplish in the next step:

- (1) sign contracts with professional environmental monitoring agencies for external environmental monitoring; realize the responsibilities of supervision company;
- (2) ensure the normal operation of environmental protection facilities in subprojects;
- (3) enhance the management of construction sites; perfect environmental mitigation measures; solve the environmental problems in compensation measures.