

**COAL MINE METHANE DEVELOPMENT PROJECT
(SHANXI PROVINCE)**

Resettlement Plan

Coal Mine Methane Transmission Pipeline and
Coal Mine Methane Distribution

**Shanxi Energy Industry Group Corporation
in Association with
Energy Institute of Shanxi Province Academy of Social
Sciences**

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ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
APs	Affected Persons
AAOV	Average Annual Output Value (over the last three years' harvest)
CBM	Coalbed Methane
CMM	Coal Mine Methane
CO ₂	Carbon Dioxide
DMS	Detailed Measurement Survey
EI	Energy Institute
GDP	Gross Domestic Product
GHGs	Greenhouse Gas
GoC	Government of China
HH	Household
IA	Implementation Agency
IMA	Independent Monitoring Agency
LA	Land Acquisition
PPP	Power Purchase Parity
PPTA	Project Preparatory Technical Assistance
PRC	People's Republic of China
RP	Resettlement Plan
RRP	Report and Recommendation of the President
SASS	Shanxi Academy of Social Sciences
SEJGC	Shanxi Energy Industry Group Corporation
SJCMG	Shanxi Jincheng Coal Mining Group
SJMGC	Shanxi Jincheng Municipal Gas Corporation
TGs	Township Governments
TVEs	Township and Village Enterprises
VCs	Village Committees

UNITS

<i>mu</i>	area; 15 <i>mu</i> = 1 ha
ha	area; 1 ha = 15 <i>mu</i>
m ²	square metre

1. INTRODUCTION

1.1 Background of the Project

Coalbed Methane (CBM) is a kind of natural gas that is stored in the coalbed and near rock layers, and its main component is methane, which is a gas with strong green-house effect. If it is discharged directly into the air, its green-house effect would be about 20 times more than that of carbon dioxide, and its damage to the ozonosphere is seven (7) times more than that of carbon dioxide. At present in coal mines of People's Republic of China (PRC), CBM is directly discharged into the air. It does not only damage ozonosphere, produce green-house effect and pollution, but also greatly wastes the resources. In addition, the gas in the mine shafts is one source of the most serious calamities in the coal extraction, and it is regarded as a dangerous gas with a great threat to coal miners. Gas explosion has been one of main accidents prevalent in coal mines of PRC.

Meanwhile from the point of view of resources utilization, CBM is a kind of efficient and clean energy. Its components are basically identical with those of the natural gas. CBM as a kind of precious chemical material, it does not produce smoke and dust and gases of sulfur dioxide from burning, without the coal smoke pollution and acid rain damage. On the other hand, the oil price is getting higher and higher and the consumption structure of global energy products is being gradually adjusted, natural gas becomes the energy that is developed most quickly since the 1970s, and its annual consumption has already been close to that of oil at present.

China now ranks 2nd in the global energy consumption. As the economy continues to be developed at a high speed and the oil consumption is increased rapidly, the oil import of PRC is increased tremendously since the domestic oil supply could not meet the large demand. Because of the lack of oil resources in China and serious air pollution, natural gas exploitation as a substitution energy is listed by the State as one of the important industries to be developed.

Shanxi is rich in CBM resources, with estimated deposit at $10 \times 10^{12} \text{m}^3$, which accounts for one third of CBM reserves of the country. The coal resources and extraction is ranked at the 1st position in China. The Government of Shanxi pays great attention to CBM utilization, and has listed CBM exploration and exploitation as the important development strategy in “the Ninth Five-Year Plan for National Economy and Social Development of Shanxi”, “the Tenth Five-Year Plan for National Economy and Social Development of Shanxi” and “the Strategic Importance of Shanxi Coal Industry”.

The Qinshui Coal Field and Hedong Coal Field is at the 1st rank in deposit with 90% of total CBM reserves in Shanxi. The Qinshui Coal Field is situated at the southeast of Jincheng City. Its deposit is 40.219 billion cubic meters, and the amount which can be

exploited is 21.839 billion cubic meters, according to “the Report of the Newly Explored Coalbed Methane Storage in Qinshui Coal Field” issued by the Oil and Natural Gas Evaluation Office of the Ministry of State Land and Resources. The purity of methane concentration is high (more than 95%).

For a long time, the coal mining, smelting, chemical, power, building material industries have taken a dominant position in the economic structure of Jincheng City. These industries, with high cost, low production, serious pollution problems and less advanced technology, have seriously polluted the environment of Jincheng. In order to improve the environment of the city, adjust the energy structure and realize the effective use of resources, the Government of Jincheng City will seek the loan from the Asia Development Bank (ADB) for the Shanxi Methane Gas Demonstration Project.

1.2 Description of the Project

The Shanxi Methane Gas Demonstration Project consists of three sub-projects, namely 1) Coalbed Mining Methane (CMM) and CBM Production for Power Generation owned by the Shanxi Jincheng Coal Mining Corporation (SJCMC); 2) CMM Transmission Pipeline Project owned by Shanxi Energy and Industries Group (SEIG); and 3) CMM Distribution Project owned by Shanxi Municipal Gas Corporation (SJGC). In this report, the last two sub-projects are covered. The first sub-project is discussed in another separate resettlement plan (RP) report and the other two sub-projects are addressed in this report.

CMM Transmission Pipeline Project

The project being undertaken by SEIG is to extract the CBM of 23 high-gas mine shafts within the two counties of Qinshui and Yangcheng by the multiple shafts collection methods. The extracted gas will be conveyed separately to urban areas of Jincheng City, Zezhou County and Yangcheng County, and the industrial park of Yangcheng through gas pipelines. The gas will be used for household cooking, heating boilers and industrial boilers and furnaces. At the first stage of the project construction, two (2) main gas pipelines and 17 gas stations will be built.

The total length of the main gas pipelines is 75.1 km, the first section of the pipeline, from Jiafeng General Gas Collection Station to the main gas pipeline in Jincheng, is 40 km at length, with the diameter at D406.4m x 8.7m. The second section, from Daning Gas Collection Station to Yangcheng County and the industrial park in Yangcheng, is 19 km at length, with the diameter at D355.6m x 7.1m. There are also 16.1 km of smaller diameter pipelines.

Of the 17 coalbed methane stations, 11 are gas collection stations, one (1) general gas

collection station, and one (1) gas transmission and distribution station, 3 terminal stations, and one (1) control and dispatch center.

The CMM Transmission Pipeline Project will be completed within two years. The annual gas supply is 244.93 million cubic meters. The total investment is estimated at RMB 290 million, of which 60% of the investment will be from the Asia Development Bank.

CMM Distribution Project in Jincheng City

The CMM Distribution Project in Jincheng City owned by Shanxi Municipal Gas Corporation (SJGC) is to build a gas pipeline network to connect with the main pipeline built by SEIG in Jincheng city proper, Yangcheng County, Zezhou County, Gaoping City, Lingchuan County, and Qinshui County in the Jincheng to supply clean CBM gas for industrial and domestic use.

The gas transmission and distribution systems in the urban area of Jincheng City proper, the county sites of Yangcheng, Zezhou, Gaoping city, Lingchuan and Qinshui will be built. There will be two gas storage and distribution stations, each with the total capacity of 50 thousand cubic meters and 20 thousand cubic meters, respectively; 1 gas administration station, 81.95 km medium pressured gas pipeline; 26 pressure-regulation stations; 789 pressure regulators; 29.87 km low-pressured gas pipeline; 546.3 km courtyard pipelines and a gas transmission company with a building area 5,700 square meters. The investment of the Project will be RMB 295.89 million, including a loan from ADB at RMB 174.30 million (US\$ 21 million). The remainder of the financing of RMB 77.59 million will be raised independently by Jincheng City

1.3 Socioeconomic Benefits of the Project

The exploitation and utilization of CBM can change not only the energy structure, reduce the environmental pollution and the accidents of coal mines, but also save energy, increase the local economic development, and create more job opportunities for local communities.

It is estimated that the Project will directly benefit a total urban population of about 410,000 in the project beneficiary area of Jincheng. Of the total beneficiary population, about 53,670 persons or about 13.09 percent of the total beneficiaries belong to the poor measured by the local urban poverty lines. The increased use of CBM gas is expected to decrease the use of conventional fuels such as raw coal and coal briquettes that cause serious environmental and health impacts, in particular for the poor. The Project will indirectly benefit the entire population residing in the Project area that includes the municipality of Jincheng. This area is home to about 221,470 of rural poor based on the poverty line of RMB 1,000 and about 96,950 urban poor who have an annual per-capita

net income of less than 1,800 (weighted average) for urban areas in the project area.

The construction of the CMM Transmission Pipeline Project and CMM Distribution Project will create about 640 fulltime employment opportunities during the construction phase and about 652 during the project operation, and increase income of employees during the phases of construction and operation. Women and the poor will benefit from the Project in particular. In addition, local procurement of the materials required for the program is expected to create additional jobs.

By increasing CBM gas supply to the local residents, industries, commercial users and public institutions, the Project is expected to result in a major improvement of socioeconomic infrastructure for the Project areas and promote regional economic development by accelerating the region's GDP growth and by changing production process from manual- or coal- and diesel-operated into methane gas-operated to improve the efficiency and product quality and output values, which in turn could facilitate poverty reduction in the region.

Improved methane gas supply could phase out the coal burning and hence reduce air pollution. The improved urban environment can improve the local investment climate to attract more investment to the region, and act as a catalyst for future development. The improved methane gas supply and resultant improvement of environmental quality in the Project areas could have provisions for the growth of other sectors in the region in addition to industry and business, such as real estate, transportation, service, recreation and tourism, and in turn will increase employment opportunities and income for the local population. Moreover, the greater availability of methane gas supply could bring in increased revenues (tax revenues from sale revenue of the Project). The proportion of these benefits accruing to the poor could be determined by the increased percentage of government spending on poverty reduction programmes on health, education, water supply and sanitation, employment schemes and so on.

The tremendous benefits from the increased CBM gas supply will be the reduced air pollution from phase-out of the coal fired thermal power plants and other plants using coal as fuels, and from substituting coal with the cleaner methane gas for cooking and heating in the beneficiary urban areas. It will substantially reduce the coal burning and associated air pollutants and solid wastes. **Table 1.1** shows the expected environmental benefits of the CMM Transmission Pipeline Project and CMM Distribution Project. The improvement of air quality will reduce the morbidity and mortality rate of air-related diseases and associated medical costs, loss of healthy working days, as well as human suffering. The poor, elder, children and women, who have less coping resources and are more vulnerable, will benefit disproportionately more from the replacement of coal and wood. In addition, women usually spend more time than men on cooking, and the length of their exposure to smoke is considerable higher. As such the Project would bring to women much greater benefits than to men. A recent medical study in China indicates that

the incidence rate of respiratory diseases (such as asthma, chronic bronchitis, throat infection and tonsillitis) amounts to 77.78% on average for communities using individual coal stoves for cooking and space heating, which is 50% higher than that for areas where centralized heating is provided.

Table 1.1 Environmental Benefits as A Result of the CMM Transmission Pipeline and CMM Distribution Projects

No.	Reduction of Pollutants	Unit	Amount	Remarks
1	Annual substitution of coal	1,000 tons	316.0	In standard coal
2	Annual saving of coal	1,000 tons	39.5	
3	SO ₂	Ton /year	2,100.0	
4	Smoke and dust	Ton /year	7,047.0	
5	Sludge	1,000 tons/year	30	
6	Transportation	1,000 tons km/year	3,460.0	

According to the statistical data from the Chinese National Safety Board, methane gas explosions during coal mining account for approximately 80% of the coal mine accidents. The ratio of death stands at approximately 5-6 persons per million tons of coal mined. According to the Shanxi Coal Gas Company, the supply of methane gas will replace the use of five million tons of coal per year. This will translate into the reduction in the loss of 30 human lives per year from mine accidents. A World Bank study shows that a statistical life in China is valued at US\$123,700, based on daily earnings and adjusted by purchasing power parity (PPP). As most of the coal miners are the poor people. The saved lives from the CBM development to replace coal mining would therefore accrue to the poor. In non-tangible terms, the saved lives will represent ultimate benefits to the poor families who would have lost their loved ones.

Moreover, the results of the socioeconomic survey indicates that the vast majority of the local residents (92%) consider that the Project will improve the overall quality of life, 87% consider that the methane gas supply will reduce the housework for women, 75% believe the Project will reduce health problems, and 50% believe the Project will improve space heating.

1.4 Impacts of Land Acquisition and Resettlement

The construction of 17 gas stations and the installation of 75.1 km gas pipelines in the project area to be undertaken by the Shanxi Energy Industries Group (SEIG) will acquire 211.5 mu of land permanently, affect 1,668.9 mu of land temporarily, and demolish 6,135 m² of houses and yards (2,665 m² of houses and 3,470 m² of yards). In total, 186

households or 723 people will be affected by permanent land acquisition, temporary land occupation and house demolition. They include 35 households or 128 persons affected by permanent land acquisition, 116 households or 455 persons by temporary land occupation, and 35 households or 140 persons by house demolition. In addition, 13 trees with fruits, 24 trees without fruits, 20 toilets and 3 tombs will be removed permanently. The temporary occupation of 276.9 mu of dryland, 300.1 mu of un-used land, 643.9 mu of rural road, 401 mu of asphalt road, and 47 mu of urban road will be involved during pipeline laying.

The project undertaken by the Shanxi Jincheng Gas Corporation (SJGC), includes the construction of 4 gas storage and distribution stations, 26 pressure regulation stations, 1 gas administration station, 4 gas conveyance companies, 81.95 km medium pressured gas pipeline and 29.87 km low pressured gas pipeline and 546.3 km pipelines through courtyards, which will acquire land 151 mu permanently. In total, 46 households or 173 people will be affected by permanent land acquisition. In addition, 1,974,360 m² or 2,961.5 mu of asphalt road and pedestrian road will be occupied temporarily during pipeline laying, but no households will be directly affected.

1.5 Preparation of RP

This RP combines the sub-projects of the CMM Transmission Pipelines Project in Qinshui Coal Field owned by Shanxi Energy and Industries Group (SEIG), and CMM Distribution Project in Jincheng City owned by Jincheng Municipal Gas Company (JMGC) into one report. Another RP for the CMM and CBM Production for Power Generation Sub-Project has been prepared separately as a stand-alone document.

Entrusted by the Project Implementing Agencies (SEIG and SJGC), the Energy Institute of Shanxi Academy of Social Sciences (SASS) completed the draft RP in August 2003, which was revised in October 2003 and September 2004 under the guidance of the ADB PPTA Resettlement Specialist. During the RP preparation, the Energy Institute of SASS have made comprehensive investigations and consultations to the affected communities where land acquisition and resettlement will take place. Data collection methods include census survey, socioeconomic survey, as well as visits to the affected areas and families, and meetings held with business owners, the leaders of planning and development bureaus of city and county, the heads of affected townships and villages, and representatives of villagers to consult their opinions and suggestions about land acquisition and resettlement, and livelihood and income rehabilitation. In addition, the review of the Project feasibility study report and relevant documents has also been made. On this basis, the Energy Institute of SASS has prepared this RP.

2. SOCIOECONOMIC BASELINE SITUATION OF APs

In order to understand the socioeconomic profile of APs and socioeconomic impacts on the affected communities, a socioeconomic survey of a 20% or 42 households random sample was carried out between August 12 and 20, 2003 in the areas to be affected by the Project components of CMM Transmission Pipeline and CMM Distribution Project from six (6) towns in the affected area was conducted. The findings of the surveys are presented in the following sections.

2.1 Socioeconomic Profile of the APs

2.1.1 Demographic Features

Of the 42 respondents (30 males and 12 females), the average age is 49.3 years, with the youngest being 23 years and the oldest being 84 years. 41 of them have been married. There is also one (1) widow.

]In terms of education, 3 persons (7.1%) are illiterate or semi-illiterate, 12 persons (28.6%) graduated from primary school, 19 persons (45.2%) from junior middle school, and 8 persons (19.0%) from senior middle schools, secondary technical schools and colleges.

2.1.2 Size of Family and Length of Residence

Of the 42 surveyed households, the total population is 172 and the average size is 4.1 persons, with the smallest being one (1) and the largest six (6). Detail information is given in **Table 2.1**.

Table 2.1 Family Size

Average Family size	Frequency	Percentage (%)
1	1	2.4
2	3	7.1
3	7	16.7
4	15	35.7
5	12	28.6
6	4	9.5
4.1	42	100.0

According to the results of the surveys, most of the families (37 families or 88.1%) have resided in the present place of residence for generations, and the rest only takes a small proportion. The detailed results of the surveys are shown in **Table 2.2**.

Table 2.2 Length of Residence

Length of Residence	Number of Surveyed Families	Percentage (%)
5~10 years	2	4.8
10~20 years	1	2.4
20~30 years	1	2.4
30~50 years	1	2.4
Generations	37	88.1
Total	42	100

2.1.3 Occupations and Family Income

Of the 172 people living in the 42 households, 127 persons have the capability to work. 105 persons are employed, including 54 (51.4%) as agricultural farmers and 51 (48.6%) as non-agricultural labourers. The average agricultural work force per family is 1.29 persons; non-agricultural is 1.21 persons. Detailed information is given in **Table 2.3**.

Table 2.3 Occupations in the Surveyed Population

Occupations	No. of Surveyed Population	Percentage (%)
Public servant	1	0.95
SOE employee	2	1.9
TVE employee	26	24.76
Owner of POE	1	0.95
Self-employee	10	9.52
Technical professional	1	0.95
Farmer	54	51.43
Employee of POE	10	9.52
Total	105	100

SOE = state-owned enterprise

TVE = township and village enterprise

POE = private-owned enterprise

All of the surveyed households are rural families. The average annual income of the families is RMB 8,000, with the highest income being RMB 44,650 and the lowest RMB 500. The average annual per capita income is RMB 2,962.76, with the highest being RMB 7,500 and the lowest income RMB 366. There are two (2) families whose per-capita net income is below the international poverty line of RMB 1,000 recommended by the Asian Development Bank. Provided in **Table 2.4** are the details on income levels of the sampled APs.

Table 2.4 Average Net Income Per Capita

Income (RMB)	No. of Surveyed Households	Percentage (%)
500 and below 500	3	7.14
501—962	2	4.76
963—1500	7	16.67
1501—2000	7	16.67
2001—3000	11	26.19
3001—4000	5	11.9
4001—5000	2	4.76
5001—6000	3	7.14
6001—7000	1	2.38
7001—8000	1	2.38
Total	42	100

2.1.4 Ethnic Minorities and Most Vulnerable Groups

All of the 42 surveyed families are the Han nationalities except one (1) *Hui* family. However, the life of the *Hui* has been fully integrated into Han's life. There is no socio-economic and cultural difference with Hans, except their religion is Muslim and their custom is not to eat pork.

The vulnerable population includes: (1) the elderly (male over the age of 60, female over the age of 55) and children under the age of 16, without income sources, without working capability, and lawful supporters; (2) the disabled or the mentally-disordered people, above the age of 16; (3) the extremely poor families due to the accidents or natural disasters; (4) the extremely poor families disabled under the protection of public and collectives; (5) the extreme poor families which need social relief; and (6) the extreme poor families caused by other reasons. The survey results show that the vulnerable group is mainly composed of the widowed old people. One family has only one elderly person, with annual income of RMB 500 provided by his children. Another family has three persons, with two 70 year-old people and a 16-year-old child. The annual total income is RMB 1100, generating from agricultural farming. The family cannot maintain their basic

living and live on the social relief periodically. Of the 42 surveyed families, one household with three persons is extremely poor, with annual income per capita below RMB 600.

Based on the definition of the vulnerable group and the survey result, about 10% of the surveyed households are vulnerable. Since there are 219 households in total to be affected by the Project, it is estimated that 21 households could be classified as vulnerable.

2.2 Opinions on LAR and Compensation

2.2.1 Preferred Options of Resettlement and Compensation

The respondents were asked about their preferences for compensation and resettlement. The responses are summarized in **Table 2.5**. From the table we can see that two-thirds of the families prefer to have equivalent houses built by the government, one-quarter of the families prefer to have cash compensation and the rest prefer to have other choice.

Table 2.5 Preferred Option of House Compensation

Compensation	No. of Surveyed Households	Percentage (%)
Cash	11	26.19
Equivalent house	28	66.67
Other	3	7.14
Total	42	100

In terms of compensation for the loss of land, there are 18 families or 43% of the surveyed households prefer to have job arrangement for their family members, 10 households (24%) prefer to get equivalent land as compensation, eight (8) households or 19% prefer to have cash compensation, and 6 families (14%) did not answer. The detailed is presented in **Table 2.6**.

Table 2.6 Preferred Option of Land Compensation

Compensation	No. of Surveyed Families	Percentage (%)
Cash	8	19.05
Equivalent land	10	23.81
Job arrangement for family members	18	42.86
No answer	6	14.29
Total	42	100

When asked about their plan of house construction after obtaining the compensation for the loss of their houses, the majority (34 persons or 81%) of the respondents will use the compensation to build their houses in the same village, 10% will purchase new house in other places, 2% will purchase house in the same village and rent house in other places and 5% without answer. The detailed information is shown in **Table 2.7**. The planning of resettlement areas should take into account the needs and expectations of the APs. More consultations with the APs should be carried out in order to prepare a proper rehabilitation program.

Table 2.7 Preferred Option of House Construction

Options	No. of Surveyed Households	Percentage (%)
Build new house in the same village	34	80.95
Purchase new house in the same village	1	2.38
Build new house in other places	4	9.52
Rent houses in other places	1	2.38
No answer	2	4.76
Total	42	100

2.2.2 Willingness to Training Provision on New Technology

Of the total surveyed households, there are 30 respondents or 71% who are willing to take the training on new technologies if there is other job opportunity available to them. The results are presented in **Table 2.8**. This provides a good sign for APs to switch their income-generation activities from farming to non-farming.

Table 2.8 Willingness to New Technology Training

Willingness	No. of Surveyed Families	Percentage (%)
Willing	30	71.43
Un-willing	3	7.14
Do not know	1	2.38
No answer	8	19.05
Total	42	100

2.2.3 Knowledge about the Project

The respondents were asked about their knowledge of the Project. The results of the surveys showed that 33 or 79% of the respondents had known the project from various channels, of which 12 respondents or 29% heard from the social enumerators. The

survey results are presented in **Table 2.9**. The results indicate that more efficient public information dissemination of the Project should be carried out by the project implementation agencies. Meanwhile, mass media should be utilized to help the affected communities and people gain more information and knowledge about the Project.

Table 2.9 Knowledge about the Project and Information Source

Source of Information	No. of Families	Percentage (%)
Newspaper	5	11.90
TV	9	21.43
Neighbour, friend and relative	4	9.52
Meeting	3	7.14
Social Enumerator	12	28.57
No answer	9	21.43
Total	42	100

2.2.4 Views and Perceptions

With the consultation activities, 60% of the respondents trust that the Project will promote the local economic development. The surveys also found the majority of the APs support the project. In fact, 93% of the respondents are in favour of the Project, 2% is against, 5% don't know. The detailed results are summarized in **Table 2.10**.

Table 2.10 Views and Perceptions of APs on the Project

Impacts on Local Economy	Response			
	No. of Respondents		% of Total Respondents	
Promote local economy	25		59.52	
Do not know	11		26.19	
No answer	6		14.29	
Total	42		100	
Do you support the project?	Yes	No	No answer	Total
	92.9%	2.4%	4.8%	100.0%

2.2.5 Knowledge about Legal Rights

The respondents were asked a series of questions concerning their legal rights: “Do you know the laws and policies of land acquisition and resettlement? How do you know them? Where would you go to for appeal if you are treated unfairly during land acquisition and

resettlement process?” The responses show that only 7 respondents or 17% have some knowledge of the laws and policies, 13 or 31% respondents who have a little bit knowledge in this respect, 20 or 48% have no knowledge. Of the 20 respondents (48%) know mainly from local government and village cadres. The analysis indicates that the local government and village committees play a major role to publicize the LAR laws, regulation and policies. Of the total surveyed households, 20 respondents (48%) are aware of the appeal procedures, 43% do not know, and 10% didn’t answer. Provided in **Table 2.11** is the knowledge of the respondents on the laws and policies of land acquisition and resettlement, **Table 2.12** the channels to gain the knowledge, and **Table 2.13** the knowledge of appeal procedures.

Table 2.11 Knowledge about LAR Laws and Policies

Knowledge of LAR Laws and Policies	No. of Respondents	Percentage (%)
Very well	0	0
Relatively	7	16.67
A little bit	13	30.95
Nothing	20	47.62
No answer	2	4.76
Total	42	100

Table 2.12 Source of Knowledge

Sources	No. of Respondents	Percentage (%)
Government promotion	5	25
Village cadres	13	65
Neighbours and friends	1	5
Self learning	1	5
Total	20	100

Table 2.13 Knowledge about Appeal Procedures

Knowledge about Appeal Procedures	No. of Respondents	Percentage (%)
Yes	20	47.62
No	18	42.86
No answer	4	9.52
Total	42	100

3. IMPACTS OF LAND ACQUISITION AND RESETTLEMENT

3.1 Types of loss

According to the inventory survey, the types of loss below have been identified as a result of the construction of CMM Transmission Pipeline and CMM Distribution Projects:

- 1) loss of farmland (paddy land and dryland) and unused land due to the construction of gas stations;
- 2) loss of the crops due to permanent land acquisition and temporary land occupation;
- 3) damage of urban road, asphalt road in cities and rural road due to excavation and laying of pipelines;
- 4) loss of homestead due to the construction of gas stations and pipelines;
- 5) loss of houses and auxiliaries;
- 6) loss of other production assets, such as fruit trees.

3.2 Principles for Location Selection of Gas Stations and Pipelines

During the design phase of the Project, the following principles have been followed:

- 1) To avoid acquisition of farmland by utilizing the wasteland, mountainous land and un-used land, and avoid the fruit trees, regular trees, economic crop area and important facilities of agricultural land.
- 2) To minimize resettlement by selecting less condensed area of townships and residential quarters for construction.
- 3) The alignment of the pipelines should be consistent with the engineering plans for municipal development, agricultural land, communication and mineral resources.
- 4) The pipelines should be smooth and straight to save the costs of construction materials, investment and maintenance. To make transportation, construction and future maintenance more convenient by laying gas pipelines near roads.
- 5) Site selection for construction of gas stations and pipelines should meet the operational and technological requirements, and installations of equipments and pipelines should be coherent, to make the operation safe; the alignment of gas pipelines should avoid the sections with engineering difficulties to lighten the construction and pipeline maintenance work.
- 6) The distance of safety for the city pipeline network should comply with the one of safety requirements stipulated in “the Regulations of Gas Design for City”, to make it convenient for construction and maintenance.
- 7) The afforestation of Jincheng City is at the leading position in the province and

PRC. Thus when choosing the locations for construction of gas stations, efforts should be made to avoid good vegetation or forest areas.

- 8) The project should contribute to the protection of ecology and environment, scenic spots and cultural relics.

3.3 Scope of Impacts

3.3.1 Status of Design and Impacts

During the period of the RP preparation, the construction areas of the gas stations have already been determined. Some sections of the pipeline network have generally been defined, although subject to small changes. Therefore, the accuracy of the impacts of the CMM Transmission Pipeline Project and CMM Distribution Project may subject some minor changes. With the completion of the final design, a detailed measurement survey will be carried out in November, 2004. A revised RP will be submitted to ADB if there are any significant changes.

3.3.2 Summary of Impacts

The project to be undertaken by SEIG will involve land acquisition and resettlement in one (1) city, three (3) counties, nine (9) townships, one (1) street administration office, and 29 villages/mines, 211.5 mu of land will be acquired permanently, of which 105.5 mu dryland, 2 mu of paddy land, and 104 mu of un-used land. In total, 35 families or 128 people will be affected. The construction of gas pipelines will occupy 1,668.9 mu of land temporarily, of which 276.9 mu are farmland, 300.1 mu unused land, 643.9 mu rural road, 401 mu asphalt roads, 47 mu urban road, and 116 families or 455 people will be affected. The project will also demolish 2,665 square meters of houses, 35 rural families or 140 people will be moved. In addition 3,470 square meters of yards, 13 trees with fruits, 24 trees without fruits, 20 toilets, and three (3) tombs will be removed.

The project to be undertaken by SJGC will acquire 151 mu of land permanently, including 133.53 mu of dryland and 17.46 mu of un-used land. The land acquisition involves one (1) city proper, five (5) counties, and nine (9) villages/communities in Jincheng city, 46 families or 173 persons will be affected. The urban road occupation will total 2,964.5 mu.

The CMM Transmission Pipeline Project by the SEIG will cause only 35 households or 140 persons to be relocated. The CMM Distribution Project will involve no relocation.

In summary, the CMM Transmission Pipeline and CMM Distribution Projects will affect 232 households or 896 people by the permanent land acquisition, temporary land

occupation and house demolition. Of the total affected households and population, 186 households or 723 people will be affected by the CMM Transmission Pipeline Project and 46 households or 173 people will be affected by the CMM Distribution Project. It should be noted that all of the APs possess legal land use rights and are the house owners. No tenants and renters were found from the census survey.

The details of the number of affected households and population are presented in **Table 3.1**. **Table 3.2** shows the impacts of permanent land acquisition for CMM Transmission Pipeline Project and CMM Distribution Project, **Table 3.3-A** temporary land occupation for CMM Transmission Pipeline Project and **Table 3.3-B** temporary land occupation for CMM Distribution Project, and **Table 3.4** house demolition.

Table 3.1 Number of Affected Households and Population by the CMM Transmission Pipeline and CMM Distribution Projects

Project Component	Impacts	Affected Household and Population	
		Household	Population
CMM Transmission Pipeline Project by SEIG	House Demolishment	35	140
	Permanent Land Acquisition	35	128
	Temporary Land Occupation	116	455
	<i>Subtotal</i>	<i>186</i>	<i>723</i>
CMM Distribution Project by SJGC	Permanent Land Acquisition	46	173
	<i>Subtotal</i>	<i>46</i>	<i>173</i>
TOTAL		232	896

Table 3.2 Permanent Land Acquisition by Construction of Gas Stations for the CMM Transmission Pipeline/CMM Distribution

No	Affected County/City	Affected Township	Affected Village/Mine	Affected HH and Persons		Permanent Land Acquisition (mu)				
				Households	Persons	Dry land	Paddy Field	Unused land	Land Ownership	Total
CMM Transmission Pipeline Project by SEIG										
1	Qingshui	Zhengcun	Xiahe Coal Mine	5	21	15.00			Collective	15.00
2			Houcun Coal Mine					15.00	Collective	15.00
4			Shangbanyu					15.00	Collective	15.00
5			Xiangyu					9.00	Collective	9.00
6		Jiafeng	Zhangshan Coal Mine	3	12	7.50		10.50	Collective	18.00
7			Yonghong Coal Mine	4	17	9.00		9.00	Collective	18.00
8			Jiafeng Coal Mine					8.50	Collective	8.50
9			Jiafeng	6	21	25.50			Collective	25.50
			Chang Zheng Coal Mine					15.00	Collective	15.00
10		Yangcheng	Runcheng	Tuncheng Coal Mine	4	17	9.00		6.00	Collective
11	Tuncheng Coal Mine			2	8	9.00		6.00	Collective	15.00
12	Tingdian		Daning Coal Mine	7	16	15.50		10.00	Collective	25.50
13	Fengcheng		Shuicun	1	4		2		Collective	2.00
14			Beianyang	1	4	2.00			Collective	2.00
15	Zezhou	Nancun	Langzhuang	1	4	2.00			Collective	2.00
16	Jincheng	Xishangzhuang	Gangtou	1	4	2.00			Collective	2.00
17	Jincheng Proper					9.00			State	9.00
	Total			35	128	105.50	2	104.00		211.50
CMM Distribution Project by SJGC										
1	Jincheng	Beishidian	Liujiachuan	16	65	29.25			Collective	29.25
2			Chenling					17.46	Collective	17.46
3			Beishidian town	4	15	8.05			Collective	8.05
4		City proper	Xishangzhuang street	4	16	7.20			State	7.20
6	Zezhou	Nancun	Langzhuang	5	20	13.50			Collective	13.50
7	Yangcheng	County seat	Gas Transmission Co.	4	15	15.00			Collective	15.00
8	Gaoping proper	County seat	Gas Transmission Co.	5	20	29.63			Collective	29.63
9	Lingchuan	County seat	Gas Transmission Co.	4	11	15.00			Collective	15.00
10	Qingshui	County seat	Gas Transmission Co.	4	11	15.90			Collective	15.90
	Total			46	173	133.53		17.46		151.00

Table 3.3-A Temporary Land Occupation by the Construction of CMM Transmission Pipeline Project

No.	Affected Village/Mine	Affected Township	Affected County/City	Affected HH & Popu.		Temporary Land Occupation					
				HH	Population	Dry land (mu)	Unused land (mu)	Asphalt Road (mu)	Rural Road (mu)	Urban Road (mu)	Total (mu)
1	Qingshui	Jiafeng	Wuan	3	12	6.00	8.00		5.50		19.50
2			Jiafeng	5	21	7.50	2.80	42.79			53.09
3		Zhengcun	Banyu	4	16	8.50	30.00		8.00		46.50
4			Xiangyu	3	12	8.00	28.00		30.00		66.00
5			Xiahe	2	8	3.50	3.30	45.05			51.85
6			Zaolin	2	9	2.80	2.10				4.90
7			Houcun	3	13	4.50	1.50	56.31			62.31
8	Zezhou	Chuandi	Mapingtou				19.50		90.00		109.50
9		Dadonggou	Banpo	2	8	2.00	26.00		175.00		203.00
10			Xinbi	9	36	25.00	16.00		74.20		115.20
11			Qigan	11	44	31.00	8.00				39.00
12		Beishidian	Xiwa	7	28	20.00	30.00	29.28	187.00		266.28
13			Xishang	7	28	20.00	18.60	72.07			110.67
14		Nancun	Gaojiang					9.00		38.00	47.00
15	Langzhuang		5	20	15.00	15.00		31.50		61.50	
16	Yangcheng	Tingdian	Daning	5	20	11.20			11.20		22.40
17			Baliwan	4	16	15.00	3.00				18.00
18			Tingdian				36.00				36.00
19		Fengcheng	Baigou	3	12	4.00	3.00	47.30			54.30
20			Hanshang	6	18	18.00	3.00				21.00
21			Xiali	5	20	11.00	3.00		10.00		24.00
22			Wozhuang	4	16	10.00	3.00		6.50		19.50
23			Jiuzhuang	3	12	5.30	4.50		9.00		18.80
24			Tulouzhuang	2	8	3.00	3.00		6.00		12.00
25			Dongguan	3	12	4.00	3.00	29.38		9.00	45.28
26			Hedong	5	20	12.00	3.00	18.02			33.02
27			Beianyang	6	18	20.00		33.78			53.78
28		Changzhen	4	17	6.00	11.20				17.20	
29	Runcheng	Tuncheng	3	11	3.60	6.60	27.03			37.23	
Total				116	455	276.90	300.10	401.00	643.90	47.00	1,668.90

Table 3.3-B Temporary Land Occupation by the Construction of CMM Distribution Project

No	Location (City/County)	Pipeline (km)				Type and Quantity of Land Occupation (mu)	
		Medium- Pressured	Low- Pressured	Courtyard	Total	Asphalt Road	Pedestrian Road
1	Jincheng city proper	37.95	29.87	286.00	353.82	159.22	1,432.97
2	Yangcheng county seat	12.80		55.00	67.80	30.51	274.59
3	Zezhou county seat	5.22		69.00	74.22	33.40	300.59
4	Gaoping city proper	11.00		58.05	69.05	31.07	279.65
5	Lingchuan county seat	13.20		62.00	75.20	33.84	304.56
6	Qinshui county seat	1.78		16.25	18.03	8.11	73.02
	Total	81.95	29.87	546.30	658.12	296.15	2,665.38

Table 3.4 House Demolishment by the CMM Transmission Pipeline Project

No.	Affected Village	Affected Township	Affected County/City	Affected HH		Structures and Areas of			Auxiliaries (no.)			
				HH	Popu.	Brick-Concrete	Brick & wood	Yard	Toilet	Trees with Fruits	Trees without Fruits	
Gas Stations												
1	Zezhou	Nancun	Langzhuang	3	13	220		286	3			
2	Yangcheng	Fengcheng	Xiali	4	16	300		390	4			
Subtotal				7	29	520		676	7			
Pipelines												
1	Qingshui	Zhengcun	Xiangyu	6	21	450		585	3	2	10	
2	Zezhou	Chuandi	Mapingtou	1	4	80		104	1	1	1	
3		Dadonggou	Xiwa	2	7	165		215	1	3	1	
4		Nancun	Langzhuang		2	8	150		195	1	2	1
5	Yangcheng	Fengcheng	Baigou	2	10	165		220	1	3	5	
6			Xiali		3	13	225		293	2	1	1
7			Wozhuang		4	15	300		390	2	3	3
8			Jiuzhuang		3	11	240		312	1	1	1
9			Dongguan		5	22	370		480	1	1	1
Subtotal				28	111	2,145		2,794	13	17	24	
Total				35	140	2,665		3,470	20	17	24	

4. LEGAL AND POLICY FRAMEWORK

There are two sets of regulatory and policy requirements that are applicable to the land acquisition and resettlement of the project: Chinese laws and regulations, and ADB policies. These regulatory and policy requirements are summarized below.

4.1 Chinese Laws and Regulations

1) *Land Administration Law of PRC, 1998*

The *Land Administration Law of the People's Republic of China* was passed at the 16th session of the *Sixth Standing Committee Meeting of the National People's Congress* on June 25, 1986. It was subsequently amended at the *Fourth Session of the Ninth Standing Committee Meeting of the National People's Congress* on August 29, 1998. The newly amended law was brought into force on January 1, 1999, according to the Decision on the Amendment to the Land Administration Law of the PRC that was adopted at the *Fifth Session of the Seventh Standing Committee Meeting of the National People's Congress*.

It is stipulated in **Clause 2, Article 1** of the land administration law that the state can acquire collective-owned land according to the law for the sake of public interests. The law requires that agreement from two thirds of villagers or two thirds of the villagers' representatives be obtained before making adjustments to the land, and be verified by the agricultural administration department of the county or township government.

It is stated in **Article 8** that land in urban districts is state-owned. Land in rural and suburban areas shall be owned by collectives, except for those portions that belong to the state in accordance with the law; house plots, private plots of farmland and hills are collectively owned by farmers.

Article 47 stipulates that in case land acquisition shall take place, compensation shall be made in accordance with the original usage of the acquired land, which shall include a land compensation fee, a resettlement subsidy and a compensation fee for the attachment of the land and standing crops. The land compensation fee for the acquired cultivated land is 6-10 times the average annual output value (AAOV) of the land in the previous three years before land acquisition. The resettlement subsidy of acquired farmland shall be calculated according to the agricultural population to be resettled. The agricultural population to be resettled is computed with the quantity of acquired farmland divided by farmland quantity per person of the acquired unit. The resettlement subsidy for the agricultural population to be resettled shall be 4-6 times the AAOV in the previous three years. But the resettlement subsidy for farmland shall not exceed 15 times the AAOV. However, in special cases a higher resettlement subsidy may be given to a maximum of 15 times the AAOV over the last three years. The provinces or municipalities directly

under the central authority shall determine the standards of compensation for the attachment of the land and standing crops.

If land compensation fee and resettlement subsidy paid as per the regulations cannot keep the resettled farmers at the original standards of living, the resettlement subsidy can be increased with the approval of the governments of provinces, autonomous regions and municipalities directly under the Central Government. But the sum of land compensation fee and resettlement subsidy shall not exceed 30 times of the AAOV for the three-years of the said land before acquisition. The State Council can raise the standard of land compensation fee and resettlement subsidy under special circumstances according to the social and economic development level.

Article 55 stipulates that if the state-owned construction land is involved, the construction unit shall apply to the land administration of county people's government or higher authority for approval. The state-owned land to be used by the construction unit shall be obtained through payment of a user fee. But the land for city infrastructure and public welfare undertakings can be obtained through free transfer with the approval of the county people's government or higher authority. Thirty percent (30%) of the user fees for the state-owned construction land shall be remitted to the State Revenue; and the remaining 70% is retained by the local government as a special fund for farmland development.

Article 57 states that the state-owned land or farmers' collective-owned land is required for temporary use for the construction and geological perambulation of the project. Approval shall be obtained from the land administration of the people's government at the county level. Land acquisition for temporary use within the city planning area shall be approved by the city planning administration and then submitted to the land administration for approval. The land user shall sign a land application contract with the land administration or countryside collective economic organization or villagers committee according to the land right or ownership and pay the compensation fee for temporary use of land as per the contract.

Temporary user of land shall use the land according to the use specified in the land contract and shall not build permanent buildings on the land. The duration of land for temporary use normally shall not exceed two years.

2) *Shanxi Management Guidelines for Implementation of the PRC Land Administration Law*

Article 16 states that the people's governments of each level shall control the converting use from cultivated land to non-agricultural construction purposes strictly. The design and site selection of the projects shall select the uncultivated land and use the cultivated land as little as possible. If the project really shall occupy the cultivated land, the party

shall be responsible for reclaiming the same amount of land in the same quality as that occupied according to the principle of “reclaiming the same amount of land occupied”.

If the energy, transportation, water conservancy, mineral mountains or military facilities shall occupy the cultivated lands, which shall occupy the cultivated land except for the (1) and (2) of this Article, the constructing units shall reclaim the same amount of land they occupied.

The new reclamation land shall be checked and approved by the provincial land administrative department and the provincial agricultural administration department. Any parties, who are not able to reclaim the land or the reclamation land is not accepted by the authorities, shall pay the reclamation fees to the people’s governments of municipalities or counties, where the land locates. The reclamation fee shall be equal to the 8-12 times of the average incomes of the occupied land in the past three years. The people’s governments of municipalities or counties shall organize to reclaim the equal land.

Article 27 of Chapter 5 stipulates that for land acquisition, the land acquisition units shall pay the compensations according to the following standard:

- 1) If the units acquired the basic agricultural land (garden plot, fish pond, and lotus-root pond shall be considered as the basic agricultural land), the compensation shall be equal to 8-10 times of the revenue of the acquired land in the past three years;
- 2) If the units acquired the land out of the basic agricultural land, the compensation shall be equal to 6-9 times of the revenue of the acquired land in the past three years;
- 3) If the units acquired the farm and grassland, the compensation shall be equal to 7 times of the revenue of the acquired land in the past three years;
- 4) If the units acquired the forest, the compensation shall obey the relevant provisions;
- 5) If the units acquired the homestead, the standard of the compensation shall be equal to the adjoining farmland;
- 6) If the units acquired the idle land, fell, uncultivated land, and desolate sands, the compensation shall be equal to 3-6 times of the average revenue of the total land in the village in the past three years;
- 7) If the units acquired the threshing floors and sunning ground, the compensation fees shall obey the original compensation standard of the land.

The relocation subsidy is stipulated in **Article 28**. It states that for acquisition of land, the

acquisition units shall pay the resettlement fees according to the following standard:

- 1) If the units acquired the basic agricultural land (garden plot, fish pond, and lotus-root pond shall be considered as the basic agricultural land), the compensation shall be equal to 8-10 times of the revenue of the acquired land in the past three years;
- 2) If the units acquired the land out of the basic agricultural land, the compensation shall be equal to 6-9 times of the revenue of the acquired land in the past three years;
- 3) If the units acquired the farm and grassland, the compensation shall be equal to 7 times of the revenue of the acquired land in the past three years;
- 4) If the units acquired the forest, the compensation shall obey the relevant provisions.

The maximum relocation subsidy of per hectare of land acquired, prescribed in the last paragraph, shall be shall not exceed 15 times of the average annual output value of the three years prior to the acquisition.

The acquisition of the homestead, idle land, fell, uncultivated land, desolate sands, and the threshing floors shall not give the relocation subsidy compensation.

Article 29 states that the average revenues of the acquisitioned land shall be calculated according to the following methods:

- 1) The original leaser of the acquisitioned land shall declare the planting situation of the past three years to the villagers' committee;
- 2) The people's governments and villagers' committee shall proclaim the planting situation of the leaser in the acquired villages and hear the opinions from the peasants;
- 3) The people's governments and villagers' committee shall verify the planting situation of the leaser according to the opinions;
- 4) The people's governments and villagers' committee shall calculate the total productivities, production values and average revenues according to the planting situation of the leaser, the statistics of the same period and the price of the crops of that period.

Other calculating methods of the average revenues of the past three years before the acquisition shall take the formal paragraph as references.

Article 30 stipulates the compensation fees for land acquisition and relocation subsidy fees, paid according to the **Article 27** and **Article 28**, can not sustain the original living

standard, it can be added after the approval by the provincial government. Nevertheless, the total amount of the compensation fees for land acquisition and relocation subsidy fees shall not be more than 30 times of the average revenues of the past three years.

Article 31 also states that the compensation of the ground attachments and green crops on the land acquisition shall be paid according to the following standard:

- 1) The compensation of the attachments, such as the constructions and buildings, shall be paid according to the value converting into money, or give the acquisition units some attachments of the same quality and quantity;
- 2) The compensation of green crops shall be paid no more than the production value of one season;
- 3) If the trees can be transplanted, the acquisition units shall be the labor cost and compensation for saplings. If the trees can not be transplanted, the acquisition units shall pay the relative compensation fees according to the provisions;
- 4) The compensation of the fish plot, lotus-root pond and meadow and grassland shall be paid according to the provisions.

The trees planted and the attachments constructed after the announcement of the Acquisition Plan. The constructions and other facilities built on the illegally occupied land shall not be compensated.

3) Temporary Standards of Jincheng House Demolishment Compensation

The compensation for house demolition in Jincheng follows the *Temporary Standards of Jincheng House Demolishment Compensation*, which is presented in **Table 4.1**:

Table 4.1 Temporary Standards of Jincheng House Demolishment Compensation

Items	Type	Unit	Compensation standards (RMB)	Remarks
Residential house		m ²	840-940.5	Compensate according to house structures
Toilets	With roof	No.	300	
	Without roof	No.	200	
Trees	Economic tree	No.	50	
	Timber tree	No.	20	Compensate RMB 5 for a tree with diameter less than 10 cm.

4) Compensation Standards for Civic Engineering Facility Road Excavation of

Jincheng City:

- 1) Cement-concrete road: RMB 150/m²;
- 2) Asphalt concrete road: RMB 130/ m²;
- 3) Un-paved road: RMB 20/ m²;
- 4) Cement-brick pedestrian: RMB 110/ m²;
- 5) The compensation standards for land levying and people settlement in Yangcheng county

4.2 ADB's Involuntary Resettlement Policy

The Asian Development Bank sets out its official requirements in the Involuntary Resettlement Policy adopted in 1995. The *Bank's policy on involuntary resettlement* is aimed to: (i) avoid involuntary resettlement wherever feasible; and (ii) minimize resettlement where population displacement is unavoidable, and ensure that displaced people receive assistance, preferably under the project, so that they would be at least as well-off as they would have been in the absence of the project. Appropriate land, housing, infrastructure, and other compensation, comparable to the without project situation, should be provided to the adversely affected population, including indigenous groups, ethnic minorities, and pastoralists who may have usufruct or customary rights to the land or other resources taken for the project.

According to the Bank policy, the contents and level of detail of a resettlement plan, which may vary with circumstances, especially the magnitude of resettlement, should normally include a statement of objectives, policies and strategy, and should cover the following essential elements: (i) organizational responsibilities; (ii) community participation and integration with host population; (iii) socioeconomic survey; (iv) legal framework, including mechanisms for resolution of conflicts and appeals procedures; (v) identification of alternative sites and selection; (vi) valuation of and compensation for lost assets; (vii) land ownership, tenure, acquisition and transfer; (viii) access to training, employment and credit; (ix) shelter, infrastructure and social services; (x) environmental protection and management; and (xi) implementation schedule, monitoring and evaluation.

The Bank policy also requires that cost estimates should be prepared for these activities; they should be budgeted; and implementation of the activities should be scheduled with time-bound actions in coordination with the civil works for the main investment project. The resettlement plan should have an executive summary. A summary resettlement plan should be included in the draft Report and Recommendation of the President (RRP) for Management Review Meeting, and in the final RRP for Board circulation.

4.3 Gaps Between ADB and Chinese Policies

Chinese regulations require giving all APs the same treatment without gender consideration. However, the ADB policy requires giving special consideration to women, female-headed households and other venerable groups. The SEIG/SJGC has followed the policy of the Bank and has incorporated the issues of vulnerable groups and gender equity into the resettlement planning and implementation.

4.4 Principles and Objectives of Land Acquisition and Resettlement (LAR)

Taken together, the principles of land acquisition and resettlement as well as the ADB requirements and procedures, the primary objectives of the RP are to restore the income and living standards of the affected persons (APs) within a short period of time after land acquisition and resettlement and with as little disruptions as possible in their own economic and social environment. Particular attention will be given to the needs of the poorest and vulnerable groups to be affected. The RP for this project has been prepared with these as the guiding principles. **Table 4.2** presents the main elements of the approach, which meets the ADB requirements as outlined in the Involuntary Resettlement Policy and ADB Handbook on Resettlement.

Table 4.2 LAR Principles and Approach

LAR Principles	Approaches
1. Land acquisition and involuntary resettlement should be avoided or minimised where feasible from an economic, engineering, social and environmental aspect.	Land acquisition and resettlement issues have been considered for project alternatives during project design stage, which could minimise land acquisition and resettlement.
2. Plans should be prepared for those displaced.	APs identified and their land, houses and other assets enumerated during project design, measurement survey and socio-economic survey conducted to assess impact and propose income rehabilitation plan.
3. APs should receive full compensation for all of losses, including assets and livelihoods regardless of land tenure status.	Cash compensation for land, houses, crops, trees and other assets in accordance with existing procedures; RP includes provisions for other assistance.
4. APs should be informed of and consulted on land acquisition resettlement and compensation options.	Meetings with APs, village leaders, and local governments were held; household interviews and socio-economic survey of APs were conducted. Information campaigns through the local media and meetings and through neighbourhood, village committees and resettlement offices to inform the APs will be carried out. This process will continue throughout the planning and implementation stages.
5. Land acquisition and resettlement should be an integral part of project design. No land acquisition will take place prior to the satisfactory relocation of APs.	Environment and land acquisition and resettlement aspects were considered as major factors for the selection of the project scheme, including the minimisation of land acquisition and house demolition. Project schedule will take into account land acquisition and resettlement timetables.
6. Land acquisition and resettlement program to be monitored by the Government and ADB.	An independent agency will be engaged, under terms of reference acceptable to ADB, to monitor the land acquisition and resettlement plan and to report on it to the Government and ADB.

4.5 Entitlement and Compensation

4.5.1 Principles of Compensation

In accordance with the legal and policy requirements of the Chinese Government and the Asian Development Bank, the principles of the compensation and entitlements established for the project are as follows:

- Compensation and entitlements provided to APs are adequate to at least maintain their pre-project standard of living, with the prospect of improvement;
- Land temporarily occupied and the period of disruption are kept to a minimum;
- All APs, legal and illegal, are taken into consideration and accounted for;
- After land acquisition, the average land holding per capita should be sufficient to maintain their living standard;
- Where land allocation per capital is not sufficient to maintain previous livelihood standards, other income generating activities are provided for;
- All APs are adequately informed on eligibility, compensation rates and standards, livelihood and income restoration plans, and project timing.
- No land acquisition will take place prior to satisfactory compensation and resettlement of the APs.
- The resettlement cost should be included as part of the Project costs.

4.5.2 Definition of APs and Compensation Eligibility

Affected persons (APs) refer to all persons whose livelihood or living standard is adversely affected through the loss of land, other assets, income as a consequence of the CMM Transmission Pipeline Project by SEIG and CMM Distribution Project by SJGC. **Table 4.3** below summarizes the types of people who are eligible for compensation and entitlements.

Table 4.3 Summary of Eligibility Criteria

Project Component	Eligibility
<i>CMM Transmission Pipeline Project by SEIG</i>	
Gas Stations	All of the people losing their land, houses, standing crops and trees within right-of-way (red line)
Pipeline	People affected due to the land occupation by pipeline construction, excavation and equipment storage
<i>CMM Distribution Project by SJGC</i>	
Gas Station	All of the people losing their land, houses, standing crops and trees within right-of-way (red line)

All APs losing land, houses, young crops or sources of income will be compensated or rehabilitated in accordance with the type and amount of their losses and whether they are identified as affected temporarily during construction, or included in the final Detailed Measurement Survey (DMS) to be completed within the deadline specified by the government. The deadline of October 30, 2003 specified by the government is set as the final date for compensation eligibility. APs cultivating land, constructing buildings or

settling in project affected areas after the deadline will not be eligible to compensation or subsidies.

4.6 Compensation Standards

The objectives of the compensation and entitlements standards are based on the principle to improve living standards of the local communities, including those who will lose their land, houses and other properties. Compensation equivalent to replacement value will be paid for all losses due to land acquisition and involuntary resettlement of the APs. In order to adequately compensate for the above categories of impacts and ensure proper relocation and economic rehabilitation of affected persons, the following entitlement policies and compensation standards have been formulated and used for the LAR of the Project.

4.6.1 Compensation for Agricultural Land

As regulated in the **Article 47** of the *Land Administration Law* of 1998 (amended in 1999), the compensation of land acquisition for agricultural land should include: i) land compensation, ii) relocation subsidy, and iii) compensation for attachments and standing crops on the acquired land. The compensation for permanent loss of agricultural land of the Project is nine (9) times the Average Agricultural Output Value (AAOV), the relocation subsidy is five (5) times the AAOV. The compensation for standing crops is the production value for one season.

According to the PRC Land Administration Law, the compensation of land losses consists of land compensation, land relocation subsidy and standing crops compensation. Combined together, they are equal to 14.5 times the AAOV. The detailed standards of compensation are presented in **Table 4.4**.

Table 4.4 Compensation Rate of Permanent Agricultural Land Acquisition

Type of Land	Output (kg/mu)	Output Value (yuan/kg)	Compensation Factor (x AAOV)						Total (RMB/mu)
			Land		Relocation Subsidy		Young Crops		
			Times	Total (RMB)	Times	Total (RMB)	Times	Total (RMB)	
Dryland	1,000	1,000	9	9,000	5	5,000	0.5	500	14,500
Paddy land	1,500	1,500	9	13,500	5	7,500	0.5	750	21,750
Vegetable Land		3,000	9	27000	5	15000	0.5	1500	43500
Un-used Land*	1,000	1,000	6	6,000					6,000

Note: *Compensation standard follows the one of dryland.

However, the current land acquisition procedure should follow the “*Notification for Strict Implementation of Commercialized Land Use Rights Transfer through Open Bidding*” issued by the Ministry of State Land and Resources and Ministry of Inspection on August 26, 2002. The notification points out that the commercialized land use right transfer must go through open bidding process, the supply plan for other types of land has been publicized, if the same land has over two land users to use the land, it also should go through open bidding for land transfer. The current bidding price of land in Jincheng City is about RMB 86,000 per mu. Therefore, the compensation rate proposed for the Project will be RMB 86,000 per mu for agricultural land loss, which will several times higher than the compensation rate calculated under the PRC Land Administration Law.

4.6.2 Temporary Land Occupation

The construction of the gas transmission and distribution pipelines will require the temporary occupation of cultivated land and non-cultivated land. The affected persons will also be paid cash compensation to ensure that their standards of living are maintained.

At the end of the construction period, the IAs will be responsible to rehabilitate the land and restore the productive capacity before returning the land to the APs. The affected persons can then resume their agricultural occupations. Temporary agricultural land losses will be compensated in cash to the APs through a land recovery subsidy equivalent to the production value of one season relative to the crops cultivated in the affected plot. The compensation for temporary land acquisition will be around RMB 2,910 per mu.

Land cannot be occupied for more than 2 years. The duration of occupation will be minimized in order to reduce impacts.

4.6.3 Houses, Buildings and Auxiliaries

All structures that belong to the APs are eligible for compensation. These also include decoration, electricity meter, water meter, phone line and so on that are not removable. Compensation will be at replacement costs (i.e., new construction costs), including labour costs, in the form of cash or in-kind or both.

All houses, buildings and auxiliaries will be compensated at replacement cost. The compensation for houses and auxiliaries are:

Brick house = RMB 600/m²
Yard = RMB 45/m²

Tomb = RMB 300
 Toilet = RMB 150
 Tree with fruits = RMB 100
 Tree without fruits = RMB 80

4.6.4 Transfer and Transportation Allowance

All affected households whose houses are to be demolished will receive the transfer and transportation allowances, which are as follows:

Transfer and transportation	RMB 250/household
Loss of transfer	RMB 120/household
Lost working time	RMB 200/household
Temporary housing	RMB 150/household

4.6.5 Others

- 1 □ Farmland development fee = RMB 8,000/ mu
- 2 □ Road excavation compensation:
 - Cement and concrete road = RMB 150/m²
 - Asphalt road = RMB 130/m²
 - Un-paved road = RMB 20/m²
 - Cement-brick pedestrian road = RMB 110/m²
- 3) State-owned land tax = RMB 7/m²
- 4) Land acquisition fee = 2% of land acquisition cost
- 5) Administration fee of resettlement offices = 3% of LAR cost
- 6) Special fund for vulnerable group: RMB 105,000 (including RMB 90,000 provided by SEIG and RMB 15,000 provided by SJGC)
- 7) Training cost = RMB 55,000 (including RMB 40,000 provided by SEIG and RMB 15,000 provided by SJGC)
- 8) Monitoring and evaluation = 1.5% of LAR cost
- 9) Contingency = 14% of LAR cost (10% physical contingency and 4% price contingency)

4.6.6 Provisions for Vulnerable Groups

Incorporation of the needs and interests of women, minority, elderly and children will be ensured, special attention will be given to the potential difficulties faced by low-income earners in the affected villages in resettlement planning and implementation. The employment opportunities generated by the construction and operation of the Project will

be given to the vulnerable groups first. Additional social assistance of RMB 5,000 per household will be made available to them for their income-generation activities.

4.7 Entitlement Matrix

From the results of inventory surveys, the major impacts of LAR have been identified based on the nature of losses, an Entitlement Matrix has been prepared as a guide to compensation payments. It is presented in **Table 4.5**.

Table 4.5 Entitlement Matrix

Type of Losses	Level of Impact	Entitled Persons	Compensation Policy and Standards	Implementation Issues
Permanent land loss (No illegal APs) (81 households or 301 persons)	Permanent loss of agricultural land and crops. 362.5 mu (24.17 ha) of land in total for the Project	All users with or without legal papers including AP settled on the land after 29/08/98 (Land Law) as long as they are included in the final AP list or are able to prove their occupation of affected plots before the cut-off date. The cut-off date is the date of conclusion of the socio-economic survey in project area, i.e. by the end of August 2003 All users (including encroachers) shall receive compensation for loss of standing crops, and trees only	<ul style="list-style-type: none"> ● Cash compensation for loss of standing crops and trees at market prices. The compensation rates for crops shall be around RMB 500 per mu for dryland, RMB 750 per mu for paddy land, and RMB 1,500 for vegetable land <p>AND</p> <ul style="list-style-type: none"> ● As a priority, provision of land with an area closing that of the lost land and satisfaction to the AP, OR ● If the land lost is marginal, the AP have the option of receiving cash compensation at full replacement cost if they wish 	
Temporary farmland occupation (116 households or 455 persons)	Loss of use of land and crops during construction and operational period. 276.9 mu (18.46 ha) dryland in total for the Project	All users (including encroachers) shall receive compensation for loss of standing crops only	<ul style="list-style-type: none"> ● Cash compensation for loss of standing crops and trees at market price. The compensation rates for crops shall be like this: RMB 500 <p>AND</p> <ul style="list-style-type: none"> ● Restoration of land to its previous or higher quality when land is returned. 	Measures shall be taken to improve land quality in cases of land quality being adversely affected. Mainly keeping the surface rich soil and levelling and modifying the land by the user of the land when they are returned.
Permanently affected house (35	With structures built thereon. 2,665 square	All users with or without legal house certificate papers including AP settled on	<ul style="list-style-type: none"> ● The provision of replacement residential land of equivalent size, at a location satisfactory to the AP. 	

Type of Losses	Level of Impact	Entitled Persons	Compensation Policy and Standards	Implementation Issues
households or 140 persons)	meters houses and 3,470 square meters yards in total	<p>the land after 29/08/98 (Land Law) as long as they are included in the final AP list or are able to prove their occupation of affected plots before the cut-off date. The cut-off date is the date of conclusion of the socio-economic survey in project area, i.e., by the end of Oct. 2003.</p> <p>Encroacher (persons who occupied the affected land after the cut-off date and without deed of transfer from previous legitimate AP).</p>	<p>The rates shall be RMB 600 per square meter for brick house. AND</p> <ul style="list-style-type: none"> ● Cash compensation for affected structures at full replacement cost of materials and labor with no deduction for depreciation or salvageable materials. ● If the impact on residential land and structure is minor, cash compensation at replacement cost acceptable to the AP will be provided. ● If the residential land and/or structure is only partially affected by the Project and the remaining residential land is not by the Project and the remaining residential land is not sufficient to rebuild the residential structure lost, then at the informed request of the AP the entire residential land and structure will be acquired at full replacement cost, without deduction for depreciation or salvageable materials. ● The threshold of insufficient remaining residential land is to be determined based on consultation with AP. ● Only AP with no other shelter will be provided with new residential land plot, AND ● Rehabilitation assistance 	

Type of Losses	Level of Impact	Entitled Persons	Compensation Policy and Standards	Implementation Issues
Other private properties	20 toilets, 3 tombs	Owners	<ul style="list-style-type: none"> ● Cash compensation for affected property at replacement cost, OR ● Compensation to move the property, OR ● Repair of property by contractor to original or better condition. 	
	13 fruit trees, 24 trees without fruits and 66.45 mu crops shall be permanently affected and 276.9 mu crops shall be affected during construction period.	Owner	<ul style="list-style-type: none"> ● Cash compensation for loss of trees and standing crops at market prices: RMB 100 for trees with fruits and RMB 80 for trees without fruits 	
Measures for income restoration	The persons who lost 20% of their property in these two projects.	The farmers who will loss more than 20% of their land		At the time of compensation, all allowances will be adjusted to account for inflation.
	Materials, transfer and transportation allowance	Relocating AP	<ul style="list-style-type: none"> ● All relocating AP will be entitled to cash assistance to transport household effects, salvaged and new building materials to Resettlement Sites. The assistance rate shall be RMB 770 Y for each household. 	

Type of Losses	Level of Impact	Entitled Persons	Compensation Policy and Standards	Implementation Issues
	Training allowance	AP with agricultural landholding affected, and AP with income affected. Training is intended to give each household affected by permanent land acquisition an opportunity to enhance household productivity and improve living standards.	<ul style="list-style-type: none"> ● Two members (male and female, where applicable) of the affected household to receive income generation training provided by village, and ● Village may use land compensation money belong to the village collective to pay those participating the training for their training expense and the living expense during the training. 	Training course will be developed in current occupations or to learn new occupations or skills, depending on the needs of the AP. The cost of training courses is included in the RP.
	Special allowance for households receiving social assistance and/or households.	Vulnerable APs (may be the very poor, elderly disabled, receiving social assistance, or female-headed households)	<ul style="list-style-type: none"> ● According to the sample survey, there are 9.52% or 21 vulnerable households. Each households will get a special subsidy of RMB5,000. 	

5. RESETTLEMENT AND INCOME RESTORATION PLAN

The ultimate purpose for the implementation of the resettlement plan is to improve the living conditions of the affected people. The APs' living condition should be made better-off from the Project, or at least will not be worse off as a result. From the socioeconomic survey and meeting discussion in the affected communities made by Energy Institute Shanxi Academy of Social Sciences (see **Appendix A** for a sample meeting notes), two-third (2/3) to four-fifth (4/5) income of majority of the affected villages comes from non-farming activities, only a small proportion of families' income are from farming activities for those families are lack of labor force under 50 years old. For those villagers who live on land, the permanent loss of land caused by this project will decrease their arable land resources. It will take one to two years to get same amount of land through the land adjustment of collectives). Therefore, income restoration plan should be made to them by providing the affected people with alternatives for living.

5.1 Resettlement Choice of APs

The results of the socioeconomic survey show that the affected people have expressed their willingness to move. Of the 42 surveyed families, 35 families or 83.4% in total would like to build new houses or buy old houses in their villages; 5 families or 11.9% would like to build, rent, or buy houses in other places. **Table 5.1** provides the resettlement preference.

Table 5.1 Options of Resettlement by APs

Options of Resettlement	No. of Surveyed Families	% of Total Families
Build new house in the same village	34	80.95
Purchase old house in the same village	1	2.38
Build new house in other places	4	9.52
Rent house in other places	1	2.38
No answer	2	4.76
Total	42	100

Before relocation, the LAR implementation agencies should confirm all possible location for resettlement and provide the affected people with sufficient information for them to choose the resettlement plan so that their needs and expectations are well met.

The CMM Transmission Pipeline and CMM Distribution Projects will not require much land as gas stations will need less land and the long pipelines are long. The houses will

be affected are small and sparsely distributed. After the discussion with the APs, it is planned that the new house should be built as near as possible to the original location. The compensation for homestead will be equivalent to the original quantity and quality. Cash compensation will be provided to APs for the loss of houses and structures. The LAR implementation agencies will be in association with local government to provide full compensation at replacement value for house loss to APs. The homestead will be re-allocated to APs before the house demolition. In addition, the LAR implementation agencies will also provide the APs with building materials at preferable prices to compensate their losses.

Resettlement in the original places is the best option as this will not affect the existing socioeconomic and environmental structure of APs. This option could make the affected people maintain their old social networks and relationships of relatives after their relocation.

5.2 Income Restoration Plan

The Project will acquire relatively less land permanently by the construction of gas stations. According to the investigation, about 87.5% of the affected villages have land to be re-adjusted, most of the APs could get back equivalent land within one (1) to two (2) years. For the villages with relatively less land, the income of villagers is mainly generated from non-agricultural sectors. Even if those villages that do not have land to be allocated to the affected people, the impact of land acquisition on their life will be small. The land occupation for the installation of gas pipelines is temporary, the construction will use the method to recovery land while construction, and land will be restored into its original conditions. Therefore, the impacts will be temporary for farmers. For those APs who will be relocated are living along the pipeline scatteredly, generally speaking, the impact will be small.

For the income loss of APs, it can be restored from the job opportunity generation created by the construction, operation and maintenance phases of the Project and employment opportunities in the newly established and expanded enterprises created by the local government with the compensation from land acquisition of the Project. Moreover, the local government will provide the APs with land through land re-adjustment. The LAR implementation agencies (SEIG/SJGC) will arrange training opportunities and other special measure to APs. Special fund will also provide to the vulnerable households. Through the socioeconomic survey, 21 vulnerable households have been identified, for each of the household, RMB 5,000 will be provided to them for income-generation opportunities. By the implementation of the measures, the APs will be ensured to benefit from the project, at least not suffer from losses.

The construction of the Project will generate many employment opportunities during the

construction and operational phases. The details are described as follows:

1) CMM Transmission Pipeline Project By the Shanxi Energy Industries Group

It is estimated that the Project by will create the following job positions during the construction and operational periods of the Project (see **Table 5.2** and **Table 5.3**, respectively)

Table 5.2 Job Opportunities Generated by the Project Construction

	Total Person-Yrs	Management		Technical		Skilled		Un-Skilled	
		No. of Jobs	Av. Monthly Wage (RMB)	No. of Jobs	Average Monthly Wage (RMB)	No. of Jobs	Average Monthly Wage (RMB)	No. of Jobs	Average Monthly Wage (RMB)
Total	215	17	2,000	25	1,500	108	1,200	65	800

Table 5.3 Job Opportunities Generated During Operation and Maintenance

	Total Person-Yrs (Full-Time)	Management		Technical		Skilled		Un-Skilled	
		No. of Jobs	Average Monthly Wage (RMB)	No. of Jobs	Average Monthly Wage (RMB)	No. of Jobs	Average Monthly Wage (RMB)	No. of Jobs	Average Monthly Wage (RMB)
Total	119	26	2,000	22	1,500	68	1,000	3	800

During the construction period of the Project, in total 215 person-years jobs will be generated, such as land leveling, excavation, cement-concrete casting, pipeline laying. Although the jobs are temporary, it will provide the local residents temporarily. All of the APs could be hired. Of which 15% of the jobs will be suitable for the women. About 50% of the total jobs could be provided to the poor. Based on the past experience, the un-skilled and skilled jobs could generate RMB 800 to RMB 1,000 respectively for the APs, which will increase their income and rehabilitate their livelihood temporarily.

During the operational and maintenance phase of the Project, the 71 positions of skilled and un-skilled job positions will be first given to the APs. The monthly salary could reach RMB 800 to RMB 1,000 per person.

2) CMM Distribution Project by Jincheng Municipal Gas Company

The CMM Distribution Project will take two (2) years construction. The construction requires 422 person-years labors in total. Of which 15% of the jobs will be suitable for the women. About 50% of the total jobs could be provided to the poor. It could generate

RMB 800 to RMB 1,000 respectively for the APs, which will increase their income and rehabilitate their livelihood temporarily.

During the operational and maintenance phase of the Project, of the total employment opportunities generated, 90 will be skilled and un-skilled labors. The APs, particularly women will be given first priority for employment. The monthly wage could reach RMB 800 to RMB 1,000 per person. The production and operation staff will also be given to the APs as priority, however, training will be provided before job starts. **Table 5.4** and **Table 5.5** provide the details of the employment generation during the construction and operation/maintenance of the Project, respectively.

Table 5.4 Job Opportunities Generated During the Project Construction

	Total Person-Yrs	Management		Technical		Skilled		Un-Skilled	
		No. of Jobs	Average Monthly Wage (RMB)	No. of Jobs	Average Monthly Wage (RMB)	No. of Jobs	Average Monthly Wage (RMB)	No. of Jobs	Average Monthly Wage (RMB)
Total	422	42	2,000	42	1,500	169	1,200	169	800

Table 5.5 Job Opportunities Generated During Operation and Maintenance

	Total Person-Yrs	Management		Technical		Skilled		Un-Skilled	
		No. of Jobs	Average Monthly Wage (RMB)	No. of Jobs	Average Monthly Wage (RMB)	No. of Jobs	Average Monthly Wage (RMB)	No. of Jobs	Average Monthly Wage (RMB)
Total	179	49	2,000	20	1,500	50	1,200	60	800

5.4 Livelihood Rehabilitation Plan of Local Government and Village Committees

According to the Land Management Law of PRC in 1998, local governments at all levels should assist the establishment of collective economy, enterprises of affected villages and establishment of new enterprises by individual farmers. Thereafter, the local government will use the land compensation and relocation subsidy to create employment opportunities for the affected communities and adopt other measures, such as increase of agricultural production, assistance to vulnerable groups, improvement of infrastructure and education, health and sanitary conditions and basic infrastructure of villages. After discussion with APs (**Appendix A-I** to **Appendix A-VIII**), the local government will fully respect the willingness of APs to adopt three rehabilitation measures for the APs of the Project: 1) land re-adjustment; 2) employment in enterprises; and 3) self-employment. For self-employment, the APs should be compensated with full land compensation, relocation subsidy and standing crops.

5.5 Agricultural Production Based Income Rehabilitation Plan

For those living on lands, if the Project will result in the reduction of their land holding, the village committee will re-allocate land to the APs through re-adjustment within the village. The land use before and after land acquisition for major affected villages is presented in **Table 5.6**. In addition, the local governments will design and undertake programs to intensify and diversify farm operations for the APs in order to raise the value of production and income per unit of land. Idle land will be brought into production through land development and irrigation. Waste mountains and land will be developed and arable land will be expanded. It is projected that the income of the APs could increase from RMB 2,963 in 2003 to RMB 3,200 in 2006 to after the implementation of income rehabilitation measures (see **Table 5.7**).

Table 5.7 Income Projection of APs

	Current Year	During LAR Implementation	After Completion of LAR
	2003	2004 -2005	2006
Average Income Per Capita (RMB)	2,962.76	2,762.76	3,200.00

Table 5.6 Comparison of Land Holding Before and After Land Acquisition in Major Affected Villages

Village	Households (no.)	Population (no.)	Area of Farmland (mu)	Farmland/HH (mu)	Farm-land to Be Acquired (mu)	Area of Land Before Acquisition (mu/person)	Area of Land After Acquisition (mu/person)	% of Land Loss
Xiangyu	268	835	900	3.36	15.0	1.10	1.06	1.67
Daning	542	1,706	1,900	3.50	15.5	1.12	1.10	0.82
Dongguan	1,100	3,026	400	0.36	2.0	0.13	0.13	0.50
Liujiachuan	384	1,162	821	2.13	30.5	0.70	0.68	3.71

According to consultations with local government agencies, the introduction of new crops and new farming techniques and technologies will be promoted to farmers in the affected communities. The departments of agriculture and science & technology will be mobilized to carry out this task. Specific measures being considered include construction of introduction of high-quality agricultural products, high-yielding crops, use of plastic films and green houses, more efficient application of fertilizers, and so on. Agricultural technicians and cadres will be dispatched to the affected villages and farmer households to provide workshops and hands-on training.

5.6 Special Provisions for Severely Affected APs

Severely affected APs (APs losing more than 20% of their land and APs forced to relocation) will be given priority in the distribution of project employment opportunities. They will also receive a special training allowance to be used to cover transport, food and lodging expenses afforded by the APs to participate in training programs organized at training county and township training centers by the LAR implementation agencies..

5.6.1 Training Allowance

Each severely affected household will receive a training allowance which is mainly provided to the farmer engaged in agricultural production in the households for which women are the majority labors. Each allowance will correspond to RMB 300 covering transport and food/lodging expenses for 10 days. Training allowances will be directly disbursed to the affected families.

5.6.2 Training and Training Fees

The severely affected APs will be give access to a wide range of training opportunities offered by the training centers in County and township centers. Training programs are offered semi-annually and include the following subjects:

- 1) Economy crops planting in courtyard;
- 2) Technology on planting fruit and vegetable in greenhouse during the winter;
- 3) Prevention and cure measures on pest of greenhouse plants;
- 4) Skills on mechanical repairing for farm use.(automobile, tractor, autobike);
- 5) Training program to women on sewing skills;
- 6) Skills on knitting for women;
- 7) Cuisine skills.

For each severely affected AP, the project will earmark RMB 100 to cover training fees. This payment will be directly disbursed to the training institution.

5.7 Income Rehabilitation Plan for Women

In the affected areas, women play a very active role in the economic development activities as well as household work. Apart from family responsibilities, women are playing an active role in the agricultural production process, both on farm and non-agricultural activities.

LAR implementation agencies and the local government will pay special attention and support to women, concerning their household needs, particularly women-headed households, and maintain their sources of livelihood and traditional production pattern. Priority of employment will be provided to women through the employment generation of the project and expanded enterprises to maximize the benefits to women. In addition, special economic support (such as tax exemption, low interest loan and subsidy) should be provided to affected women to set up their own businesses.

5.8 Income Rehabilitation Plan for the Poor

To facilitate the poverty reduction efforts and employment opportunity generations for APs, the SEIG will work with the Government of Yangcheng to invest RMB 500 million in establishment of the Yangcheng County Industrial Zone within three to five (3-5) years to manufacturing ceramic products. It is planned that 20 automatic production lines will be established in the zone, which could provide about 3,500 job positions. SEIG will coordinate with the enterprises in the industrial zone to adopt a series of measures to provide more job opportunities for the poor, women and APs. It is expected that the industrial zone could provide about 3,500 jobs for the poor, women and APs, with average income of RMB 800 per month.

In addition, SEIG and SJGC have discussed with the relevant governments at county, township and village levels to propose measures for the poor, women and APs. Every township government and village committee expressed that different measures will be taken to assist the poor and the APs to increase their living standards according to the concrete conditions of each family and village. For example, SJGC will construct a gas collection station at the Liujiachuan Village and Shitu village of Beishidian township of Jincheng city, 30 mu of land will be acquired. After communication dialogue with the leaders of the village committees, the Liujiachuan Village will invest RMB 4.3 million to use industrial waste from No. 1 fertilizer plant of Jincheng Nanhua Group to manufacture 100,000 m³ cement-concrete brick production line with gas as fuel. The production line will

create 88 positions. The priority will be given to the poor and the APs.

6. ENVIRONMENTAL PROTECTION AND MANAGEMENT

6.1 Necessity of Environment Protection

During the construction phase, the Project will cause certain environmental pollution to the Project areas, which includes air pollutants, noises, wastewater and solid wastes, and during the operational phase, the inspection of equipments and pipelines will cause small amount of CBM discharge into air.

The air pollutants, noises and waste solids will have certain impacts on the health and daily living of people near the construction site. The excavation and storage of soil will also have negative effects on the ecological environment, communications and transportation. Therefore, various measures have to be taken to minimize the negative environmental impacts.

6.2 Environment Impacts and Mitigation Measures

6.2.1 Environment Impacts

- (1) Air pollutants – During the phase of project construction, the air pollution is mainly caused by vehicle air emission and dusts. The main pollutants include NO_x, CO and TSP, which will exert certain negative impacts on the surrounding environment.
- (2) Noise – During the process of project construction, excavation machinery and transportation vehicles will produce noise, which will affect the living of people near the construction site.
- (3) Wastewater - Wastewater mainly comes from domestic uses of workers, such as cooking and washing and engineering wastewater from pipeline pressure testing and pipe cleaning. The pipeline pressure testing usually uses clean water, with the use of large quantity of water. The pollutants produced are mainly TSP and small amount of COD, BOD, SS, etc.
- (4) Solid wastes - Solid wastes are discarded wastes (such as solder, antiseptic material) and domestic garbage daily. In addition, small quantities of waste sludge and liquid will be produced for clearing pipelines, but the toxic is very small, which will not be harmful.
- (5) Earth excavation will create negative impacts on the ecological environment. During construction process, it will cause destruction to the surface of earth, vegetation damage, change of soil structure, loss of soil nutrient and soil erosion, etc.

6.2.2 Measures of Pollution Control During Construction Period

In order to mitigate the negative environmental impacts during the construction phase of the Project, the following mitigation measures have been proposed:

(1) Protection of ecological environment

- ii) Pipelines should avoid water body and water ponds;
- iii) While construction of pipeline, earth should be excavated, piled and filled layer by layer, and returned to its original conditions after the completion of construction;
- iv) Feasible design should be prepared to make full use of existing roads, avoid the construction of access road;
- v) The major wastes produced during construction phase are earth and gravel waste. Proper sites should be selected to bury and pile the wastes. After construction, the wastes should be taken away on time; the stones and gravel can be used to pave roads and the remains should be piled in special sludge disposal sites. However, approval should be obtained from the local soil erosion and environment protection department. Sludge disposal sites should be proper, away from flood-relief channels, retention ditches and sludge retention dikes in the disposal sites should be constructed for holding back of water and blocking residues. Land leveling and trees planting should be carried out.
- vi) Land should be restored. Deep-rooted plants should not be planted to prevent the plant roots to penetrate the protective coat of pipes.

(2) Noise prevention

- i) The construction equipments should choose the ones with low noise and high quality. The equipments with high noise should be avoided to operation at the same time;
- ii) Working time for construction should be strictly limited. At night equipments with high noise should not be used. In sensitive areas, construction should not be allowed before 7:00 am and after 22.00 pm;
- iii) Time period in contact with high-noise machines should be controlled to lower the impacts of high noise machines on the workers;
- iv) Single machine with noise higher than 72 DB should be limited its use when there are people in the sites. The time of construction and noise control should strictly follow GB 12523-90 “Noise Limit in Construction Site”.

(3) Wastewater control

- i) Temporary septic tanks should be built for the construction workers. Domestic wastewater and nightsoil wastewater after treatment should be taken away by environmental sanitation department or used as fertilizers and should not be discharged at will;
- ii) SS is the major pollutant from underground water leakage and pipe pressure testing water. It is recommended that proper plan should be prepared before construction. Simple cement-concrete sediment tank should be built in the construction sites and wastewater should be discharged after sediment with medical treatment.

(4) Solid waste disposal

Solid wastes mainly come from solid waste materials and domestic garbage. These wastes should be collected and buried.

(5) Dust and earthwork piling prevention

Excavation and piling of earthwork may cause dust and traffic jam. It is suggested that earth excavation should be done partially to avoid large-area excavation which will exert negative impacts on the local environment due to time lasts too long.

6.3 Environmental Management

The main impact caused by pipeline engineering comes from various construction activities during construction phase and accidents during operation phase. All of these will cause relatively negative impacts and damages to the natural ecology and ecologic environment of agriculture. In order to limit the impact of construction activities on the ecological environment, reduce accidents and ensure the pipeline to operate safely, it is very important to set up scientific and efficient environmental management system, and implement the environmental protection and safety measures.

The main environmental management measures of the project are as follows:

- to set up an effective environmental management institution and propose proper management system;
- to strengthen the management capability of the project contractors, and include the environmental protection clause into the contract and implement monitoring and checking and acceptance management system;
- to strengthen the training and education of environmental awareness of staffs, to reduce the man-made damage to the ecologic environment;
- to set up the supervision and control institution, work out, and carry out the monitoring programmes on air, drainage, noise and accidents, and make ecological investigations and accident monitoring.

7. PUBLIC PARTICIPATION AND CONSULTATIONS

7.1 Resettlement Policies and Information Dissemination

In order to make the affected people fully understood the Resettlement Policies and their lawful rights, the Project Management Department of Shangxi Energy and Industry Group and staffs of SJGC in association with the Energy Institute of Shanxi Social Science conducted efficient and extensive work on promoting and explaining the resettlement policies and information to APs, through meetings with representatives of the affected villages and individual household visits, and socioeconomic surveys. The subjects include: 1) resettlement laws, regulations and policies; 2) basic rights of APs; 3) livelihood and income restoration plan; 4) introduction of the Project, engineering schedule, geographic areas to be affected and scope of impacts; 5) standards of compensation, etc. Staff from Shangxi Energy and Industry Group and SJGC has responded many questions raised by APs concerning the issues of land acquisition and resettlement. Opinions and suggestions from APs have been solicited, which has been integrated into the RP. These efforts have strengthened the transparency of the work of resettlement.

7.2 Public Consultation and Participation during the RP Preparation

The public consultation process for the Project began in August 2003 with the asset inventory survey and socioeconomic survey by the Energy Institute of Shanxi Academy of Social Science. The investigation indicates that 92% of the local residents supports for the project, 69% considers that this project will benefit them. By the end of the surveys, all of the APs have been made aware of the Project.

Through discussions with the village committees and the representatives of the affected villages, the opinions and suggestions of the people affected are summarized as follow:

- (1) Provision of fair compensations to their losses on the basis of relevant laws and regulations;
- (2) Minimizing the land acquisition of irrigated land and good farmland as much as possible;
- (3) Provision of permanent and temporary job opportunities;
- (4) The living standards could be rehabilitated and raised.

The public consultation and participation have been conducted through the following series of activities:

- Census survey of land acquisition and resettlement, conducted by Shanxi Academy of Social Sciences from August 12 to 20, 2003;

- Socioeconomic survey of APs, conducted by Shanxi Academy of Social Sciences between August 12 and 20, 2003;
- Village meetings held between the Project Management Department of SEIG and staff of SJGC with local governments at different levels and representatives of villages between August 12 and 25, 2003 (**Appendix A-I to Appendix A-VIII** provides the meeting notes).
- Verification of census survey conducted by Shanxi Academy of Social Sciences between August 20 and 21, 2003.
- RP booklet disclosure to APs between September 21 and 25, 2003

The results of the surveys and consultation discussions have been integrated in the RP report.

7.3 Disclosure of Information on Resettlement

7.3.1 Resettlement Information Brochure

Based on the resettlement policy and the entitlement matrix, SEIG and SJGC have prepared, published a brochure in *Mandarin* Chinese for distribution to all APs. The brochure contains the following aspects: i) description of the Project; ii) the Project impacts; iii) the applicable policies and regulations; iv) compensation entitlements; v) compensation rates; vi) income restoration programs, grievance procedures; and vii) implementation schedule. The disclosure has enhanced transparency in the resettlement operation.

Between September 21 and 25, 2003, the SEIG and SJGC distributed the “Resettlement Information Brochure” to the APs in the affected areas. On October 20-25, SEIG and SJGC also organized meetings with the affected APs. The APs were each provided a copy of the brochure and were asked to provide comments and suggestions on the impacts of the construction of the CMM Transmission Pipeline Project and CMM Distribution Project on the lives, property and production in the affected areas. The APs of the affected villages and mines generally support the Project and accept the contents of the RP, and satisfied with the compensation standards. They expect that the compensation payment could be paid to them timely and at full amount so that that they can use the compensation for their livelihood rehabilitation.

The staff from the SEIG and SJGC also explained to those APs the appeal and grievance channels, including Shangxi Energy and Industry Group and SJGC and the Municipal People’s Governments, the counties, the towns and villages and multiple means (e.g., personal visits, letters, and phone calls) for appeals and grievances.

7.3.2 RP Distribution

This RP has been translated into Mandarin Chinese and will be distributed to all villages affected by the project in November 2004 and will be available to anyone wishing to consult the document at the villages. Copies of the RP in *Mandarin* Chinese will be also available at resettlement implementing offices and townships and village/street committee while copies in English will be submitted to ADB.

7.4 Plan for Public Participation and Consultation

In order to address the problems and needs of the APs properly and timely regarding land acquisition and resettlement, further consultation with the APs will continue so that all issues may be addressed prior to the start of construction and implementation of the RP. The meetings will be arranged by the LAR implementing agencies, as appropriate. Each affected household will have the opportunity to negotiate on a valuation contract, which they will sign with the respective LAR implementing agencies. The planned public participation and consultation plan is presented in **Table 7.1**.

Table 7.1 Plans for Public Participation

Purpose of Event	Form of Event	Timing	Implementing Agencies	Target Participants	Remarks
1. Provide briefings to APs on Project & RP. Solicit comments from APs.	Public meetings	Completion of PPTA Draft Final Report (Sept-Oct, 2003)	SJCMG, township government, and village committees	All APs	Meetings to be held in each village
2. Disclosure of RP Booklet	Public & community meetings and focus group discussions	Sept., 2003	SJCMG, township land administration office, and village committees	All APs affected by land acquisition of the Project	Distribution of the RP booklet to APs to discuss concerns to RP Undertake discussions with various focus groups to solicit comments & suggestions
3. Conduct final detailed census survey	Site investigations and household interviews	Nov, 2004	SJCMG, township land administration office, and village committees	All APs affected by land acquisition of the Project	Inventory of all assets and land holdings Collection of socio-economic data
4. Present draft final LA Plan to APs	Public & community meetings and focus group discussion	Nov. 2004	SJCMG, township government, and village committees	All APs	Distribution of the draft LA Plan to APs to discuss concerns & gaps relating to RP Undertake discussions with various focus groups to solicit comments & suggestions
5. Inform beneficiaries of project progress, final design, and timing	Community meetings and focus group discussion	Ongoing	SEIG, SJGC, township government, and village committees	Stakeholders, beneficiaries, and APs	Meetings to be held with beneficiary population, and with APs
6. Advise APs of entitlements and dates of disbursement	Public meetings	Sept, 2004	SEIG, SJGC, township government, and village committees	All APs	Household meetings to outline entitlements
7. Monitoring of APs, beneficiaries and health impacts.	Household interviews	Post land Acquisition (Dec. 2004 – Dec 2006)	SJCMG, township government, and village committees, independent external monitor	Random samples	Identify need for additional support, particularly for vulnerable and disadvantaged group Provide recommendations and update RP monitoring plan Identify health improvements

8. INSTITUTIONAL FRAMEWORK

8.1 Institutional Arrangements and Responsibilities

A major issues in land acquisition implementation and management is the appropriate institutional framework. It is important to ensure timely establishment and effective functioning of appropriate organisations mandated to plan and implement land acquisition, compensation, income restoration and livelihood programs. For a successful implementation of the RP, an institutional framework has been developed. The respective responsibilities of the SEIG and SJGC and other relevant organizations are developed. The major LAR related institutions is described as follow:

8.1.1 LAR Implementation Agency

SEIG as the LAR implementation agency for the CMM Transmission Pipeline Project will take full responsibilities for the implementation of LAR programs of the Project. It has been staffed with three (3) to four (4) resettlement officers who are from the Construction Department of SEIG, of which one (1) is female.

SJGC as the LAR implementation agency for the CMM Distribution Project will take full responsibilities for the implementation of LAR programs of the Project. It has been staffed with two (2) resettlement officers, of which one (1) is female.

8.1.2 LAR Leading Group

The LAR Leading Group will be formed by the Jincheng Planning Commission and Planning and Development Bureaus of Yangcheng, Qingshui, and Zezhou Counties, SEIG and SJGC.

8.1.3 LAR Coordination Group

It is suggested that a LAR Coordination Group should be formed to coordinate and supervise the LAR activities. The Group should consist of the LAR implementation agencies, representatives from APs (both males and females), the poor, affected villages, townships, county land administration bureau, civil affairs bureau, construction units, environmental protection bureaus and women's federation.

Meeting should be held six months in advance before the construction starts. Every two months should have one meeting till the completion of LAR. The meetings should be

organized by the LAR implementation agencies. The Director General of SEIG will be the leader of the Group and SJGC as deputy leader.

The major responsibilities of each institution involved in the LAR process are described in **Table 8.1**.

Table 8.1 Institutional Responsibility Matrix

Institution	Responsibility
LAR Implementation Agency (SEIG/SJGC)	<ol style="list-style-type: none"> 1) Coordinating construction and RP, including: contracting the relevant design Institutes to determine the boundary of construction according to Project design, applying to Municipal Planning Bureau for land-use permit, and applying to Municipal State Land and Resources Bureau for construction land use permit and permit of house demolition to Municipal House Administration Bureau 2) Conducting measurement survey of land acquisition and resettlement within the construction boundary 3) Negotiating and signing LAR contracts 4) Disbursing compensation funds 5) Conducting internal monitoring on the progress of RP 6) Supervising the implementation of the RP 7) Review monitoring reports and adopt corrective measures if necessary 8) Disburse funds for LAR to APs and village committees/township 9) Inspect land use conditions after LAR 10) Entrust Shanxi Academy of Social Sciences to conduct the final census survey 11) Entrust an independent agency to conduct external monitoring and evaluation of LAR
Jincheng Planning Bureau	<ol style="list-style-type: none"> 1) Review the application from SEIG/SJGC for land use permit and preliminary approval document 2) Verify the boundary of land and property acquisition 3) Issue “planned land use permit” 4) Inform the SEIG/SJGC and respective County State Land and Resources Bureau
Jincheng Land Administration Bureau	<ol style="list-style-type: none"> 1) Issue “construction land use permit”, in accordance with the land use application of the SEIG/SJGC and the “planned land use permit” issued by Jincheng Planning Bureau 2) Supervise the implementation of the RP for compliance with approved plan and approval documents 3) Handle complaints and grievances from APs
Jincheng House Administration Bureau	<ol style="list-style-type: none"> 1) Issue “housing demolition permit” 2) Supervise the implementation of the RP for compliance with approved plan and approval documents 3) Handle complaints and grievances from APs
Jiafeng Township Government/Village Committees	<ol style="list-style-type: none"> 1) Conduct detailed survey 2) Negotiate compensation amounts and sign LAR compensation agreements with SEIG/SJGC for land loss and relocation 3) Reassign collective agricultural land to APs 4) Provide income restoration and livelihood rehabilitation programs to APs 5) Provide necessary assistance to APs during land acquisition process 6) Provide arrangements with local enterprises for job seekers 7) Ensure that APs receive adequate training 8) Carry out the internal monitoring of RP Plan implementation 9) Handle/resolve grievances
LAR Leading Group	<ol style="list-style-type: none"> 1) Supervise and monitor the implementation of LAR 2) Review internal monitoring reports 3) Review summary reports and independent reports prepared by relevant institutions 4) Propose corrective actions if problems are discovered in reviewing the progress reports and supervising implementation 5) Handle/resolve grievances

	6) Review external monitoring reports prepared by the independent monitoring agency 7) Propose mitigation measures for any gaps in the RP to ensure that the objectives of the RP will be achieved
LAR Coordination Group	1) Resolution of grievances related to all activities concerning land acquisition, compensation and resettlement operation 2) Planning for land development to ensure adequate replacement land for APs 3) Planning and implementing income-generation measures 4) Developing community participation 5) Involving vulnerable groups in planning and implementation of LAR 6) Decide if some additional measures, not described in the RP, need to be taken in order to achieve the objectives of resettlement given in the RP. Review whether all categories of impacts are being adequately compensated for and all categories of affected persons can at least restore their standards of living after resettlement

8.2 Training of Resettlement Staff

In order to ensure that the staff of SEIG/SJGC and township/village committees can properly and smoothly handle the land acquisition and resettlement, training program will be organized. During implementation, the officers in SEIG/SJGC will regularly interact with the various respective local governments and other agencies, identify problems early and bring them to the attention of the Land Acquisition Leading Group. It is planned that the training will take about two weeks in total to cover the areas of LAR policies, principles, approaches, methods and consultation techniques, etc.

One of the major responsibilities of the land acquisition office staff is to conduct internal monitoring of the LAR program. The staff of the land office of SEIG/SJGC and township/village committees will be provided with special training in project monitoring before the initiation of field activities related to land acquisition.

9. GRIEVANCE PROCEDURES

The whole RP should be carried out under the participation of APs, therefore it could minimize serious grievances and appeal. Meanwhile, in order to ensure the channel for APs for dissatisfaction of LAR, the RP has established the following grievance procedures:

- 1) APs could appeal to the village committees;
- 2) If the village cannot solve the issue it is taken to any of the following:
 - SEIG/SJGC
 - Respective County/Township Government
 - Respective County Land Administration Bureau
- 2) Reply should be made by the above agencies on the appeal within 15 days;
- 3) If AP is not satisfied with response or if the complaint is of a serious nature, then the appeal is taken to the Jincheng State Land and Resources Bureau;
- 4) Reply should be made by the Jincheng State Land and Resources Bureau on the appeal within 30 days;
- 5) If the AP is not satisfied with the response then they have the legal right to submit the appeal to the court.

The grievance lodged by an affected person can relate to any aspect of the land acquisition and resettlement program, including the compensation rates being offered for their losses.

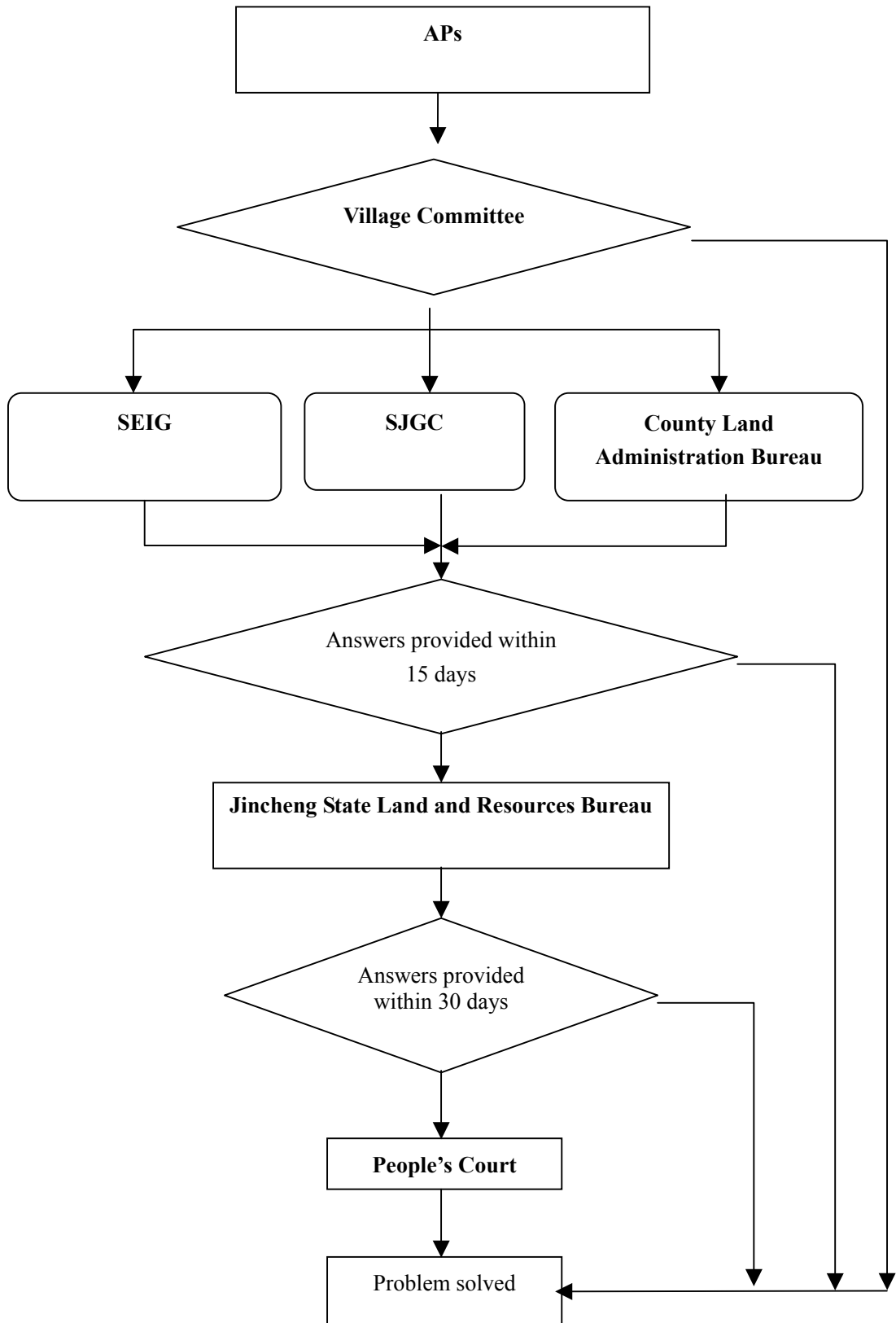
All fees and administrative expenses connected to the grievances lodged by APs will be waived. In case grievances are escalated to the court level the APs will have the right to be provided with free legal advice.

APs will be informed of the above grievance and appeal procedure through public information meetings, the resettlement information brochure and other mediums, so that they can fully understand their rights for grievance and appeal.

An independent monitoring agency (IMA) will be hired to inspect and report on the resettlement processes and the operation of the Resettlement Offices at different levels and correct any faults and mistakes made during the resettlement process. LAR implementation agencies should keep good record about it, and make it available to the external monitor for inspection and verification.

The grievance procedures are presented in **Figure 8.1**.

Figure 8.1 Grievance Procedures



10. LAR COSTS AND BUDGET

10.1 Costs and Budget

The costs to be incurred on land acquisition and resettlement are included in the overall budget of the Project. The total cost of land acquisition and resettlement for both CMM Transmission Pipeline Project and CMM Distribution Project at open bid and transfer price is estimated to be **RMB 68.82** million at the prices of 2004, including 14% contingencies (physical and price). The breakdown of the budget for land acquisition and resettlement for the CMM Transmission Pipeline Project is RMB 34.35 million, and the CMM Distribution Project RMB 34.47 million. The estimated costs include compensation for land and relocation subsidy, houses and auxiliaries, transfer and transportation, compensation for temporary land borrow, monitoring and evaluation and other costs. The detailed cost estimates are presented in **Table 10.1** for the CMM Transmission Pipeline Project and **Table 10.2** for the CMM Distribution Project. The summary of LAR cost estimates are presented in **Table 10.3**.

The construction of the Project will take two (2) years. The annual cash flow is estimated to be 65% or RMB 44.73 million for the first year (December 2004 to December 2005), and 35% or RMB 24.09 million for the second year (January 2006 to December 2006) respectively.

10.2 Flow of Funds

SEIG/SJGC will be responsible for the financing of land acquisition and resettlement costs under the Project. In accordance with the compensation policies and rates given in this RP, SEIG/SJGC will sign compensation agreements with and advance the LAR funds to the respective township government, in turn to village committee and APs. The SEIG/SJGC will also be responsible to budget, allocate and disburse LAR payments directly to respective township government, which will pay to the village committee and APs.

According to the institutional arrangements, the resettlement offices of SEIG/SJGC will pay the following land acquisition and resettlement funds to:

- affected households for the compensation of affected houses, auxiliaries, productive assets (such as, trees), and transfer and transportation allowances;
- township governments/village committees for: a) the losses of farmland land and non-farmland, and village road permanently affected;
- compensation of standing crops which will be paid to individuals of APs;
- private businesses, and public utility companies for the impacts on public infrastructure.

An independent auditor will conduct annual audits of the disbursement of land acquisition and resettlement funds. A summary audit report will be submitted to ADB each year.

10.3 Inflation Allowance

The cost estimates in the LAR are based on the prices of 2004. Annual adjustment in the cost estimates will be made based on the inflation rate for the past year. This adjustment will be made in the month of April every year. The rates of compensation payable to the affected persons and village committees will accordingly be adjusted annually, based on the actual inflation during the year. The inflation allowance and the need to adjust compensation rates annually will be stated in the resettlement compensation agreements with the various agencies. The overall project budget includes an allowance for price contingency for LAR activities at the rate of 4% for the duration of the Project.

10.4 Physical Contingencies

Physical contingencies have been included to provide for any local changes in design or alignment and for any unforeseen circumstances during RP implementation. The rate of physical contingencies budgeted for is 10% of the total cost of land acquisition and resettlement.

SEIG/SJGC is responsible for provision of adequate funds to carry out the implementation of the RP. If any cost over-runs of RP implementation would occur, SEIG/SJGC will guarantee the provision of additional funds in a timely manner. The General Manager of SEIG/SJGC is authorized to grant any non-budgeted expenditure with regard to the implementation of land acquisition and resettlement related activities.

**Table 10.1 LAR Cost for CMM Transmission Pipeline Project by SEIG
(Open Bid and Transfer Price)**

Compensation for Losses	Type	Quantity	Unit	Unit price (RMB)	Total (RMB)
Permanent Land Acquisition	Land	211.5	mu	85,779.2	18,142,230
	Subtotal				18,142,230
Temporary Land Occupation	Dry land	276.9	mu	2,909.7	805,700
	Subtotal				805,700
Road Recovery	Road	96,960.72	M ²	90.96	8,820,000
	Subtotal				8,820,000
Houses and Auxiliaries	Brick house	2,665	M ²	600	1,599,000
	Yard	3,470	M ²	45	156,150
	Tomb	3	No.	300	900
	Toilet	20	No.	150	3,000
	Tree with fruits	17	No.	100	1,700
	Tree without fruits	24	No.	80	1,920
	Subtotal				17,62,670
Transfer and Transportation Allowances	Transfer & transport	35	HH no	250	8,750
	Loss of working day	35	HH no	200	7,000
	Loss of transfer	35	HH no	120	4,200
	Temporary house for transit	35	HH no	150	5,250
	Subtotal				25,200
Others	Special fund for vulnerable group				90,000
	Training				40,000
	Monitoring & Evaluation	1.5% of total LAR			443,338
	Subtotal				573,338
Contingency	Physical	10% of total LAR			3,012,921
	Price	4% of total LAR			1,205,168
	Subtotal				4,218,089
TOTAL					34,347,297

Table 10.2 LAR Cost for CMM Distribution Project by SJGC (Open Bid and Transfer Price)

Compensation for Losses	Type	Quantity	Unit	Unit price (RMB)	Total (RMB)
Permanent Land Acquisition	Land	133.53	mu	137,793.75	18,399,599
Urban Road Recovery	Urban Road	111,820	m ²	101.6	11,360,912
Subtotal					29,762,199
Others	Special fund for vulnerable group				15,000
	Training				15,000
	Monitoring & Evaluation	1.5% of total LAR			446,408
Subtotal					476,408
Contingency	Physical	10% of total LAR			3,023,692
	Price	4% of total LAR			1,209,477
Subtotal					4,233,169
TOTAL					34,470,088

Table 10.3 Summary of LAR Cost for CMM Distribution Project and CMM Distribution Project

Item of Compensation	Total (RMB)
Permanent Land Acquisition	36,541,829
Temporary Farmland Occupation	805,700
Temporary Road Occupation	20,180,912
Houses and Auxiliaries	1,762,670
Transfer and Transportation	25,200
Others	1,049,746
Contingency	8,451,258
TOTAL	68,817,315

11. MONITORING AND EVALUATION

Monitoring and evaluation of the RP will be carried out during the whole process the land acquisition and the resettlement, including rehabilitation activities to ensure the objectives to be met and the successful implementation of the RP, in accordance with the ADB's Handbook on Resettlement¹. Based on requirements stipulated in the "Regulations on Construction Supervision" promulgated by the Ministry of Construction of PRC in 1995, a construction project shall be properly supervised. It is also a requirement of the ADB that loan projects that result in resettlement be properly monitored and evaluated, both "internally" and "externally", during and after the implementation of the Project.

For the internal monitoring, the resettlement office of the SEIG/SJGC, will take full responsibility for conducting regular internal monitoring and supervision of the RP implementation, assisted by the township governments/village committees and other relevant organizations to ensure to follow the schedule and comply with the SEIG/SJGC will provide quarterly progress reports on the LAR to ADB commencing January 2005 until resettlement and rehabilitation is successfully completed.

For the external monitoring, SEIG/SJGC will engage Shanxi Academy of Social Sciences which has had ADB resettlement experiences and good qualification in social development field to undertake resettlement supervision, monitoring and evaluation for the Project. This will be for a period of 2 years from commencement of the Project till two years after relocation.

11.1. Objectives and Requirements of Monitoring and Evaluation

The objectives of monitoring and evaluation are to assess if the RP is implemented on schedule and within the budget and if the goals and principles of the RP are achieved. Monitoring and evaluation will include, but not be limited to: (1) monitoring the progress and effectiveness of RP implementation; (2) evaluation of income restoration and post-resettlement conditions of the APs; (3) houses reconstruction; (4) the performance of the resettlement implementing agencies; and (6) APs' living standards over time.

Specifically, monitoring and evaluation will focus on the following aspects of the APs' situation and resettlement process:

- Economic situation prior to and after land acquisition /use;
- Timely disbursement of funds;
- Environmental conditions;

¹ Asian Development Bank. 1998. Handbook on Resettlement: A Guide to Good Practice. Manila, Chapter 9, "Monitoring and Evaluation".

- Social adaptability after resettlement;
- Special items related to the vulnerable groups;
- Condition and quality of land to be acquired temporarily when it is returned to the original land users;
- Measures taken by the Resettlement Office of SEIG/SJGC, township governments/village committee and forest stations;
- Living conditions and economic status following resettlement.

Monitoring and evaluation includes: establishment of socio-economic baseline of the APs prior to actual land acquisition or physical relocation and regular monitoring of their situation for a period of 2 years after land acquisition and relocation. In addition, qualitative and quantitative evaluation will be made on the sustainability of at least the “without project” standard of living of the APs.

11.2 Internal Monitoring

During the RP implementation, the Resettlement Office of SEIG/SJGC will collect and record the information of resettlement activities. In the overall internal monitoring framework, there will be continuous information circulation from the village level to the SEIG/SJGC and periodic supervision and verification by the SEIG/SJGC. The internal monitoring for the implementation of the RP will be undertaken every six weeks and this will continue till the end of the Project construction. The main monitoring indicators will include:

- Payment of compensation fees in the various categories on a timely basis;
- Allotment of housing in accordance with the options expressed by the APs. The number of people who have been allocated housing on a given date will be recorded. Distance of new houses from the original locations will be documented. In order to compare the standards of new housing with that of the old, photographs of all affected houses and structures will be taken and kept in the project files of each affected household;
- Construction of new housing by APs that choose to construct by themselves;
- Payment of moving allowances and adequacy to resolve hardships.
- Planning and implementation of income and livelihood restoration measures by the Resettlement Office of SEIG/SJGC. Monitoring of investments made by villages and groups will also be carried out.
- Restoration of production activities.
- Restoration of temporarily used land to pre-existing condition.
- Inspection of the complaints register and actions taken for resolution of conflicts.
- Assessment of progress on income restoration and maintaining pre-project standards of living.

11.3 External Monitoring

SEIG/SJGC will engage Shanxi Academy of Social Sciences to undertake resettlement monitoring and evaluation for the Project. SASS will prepare an independent monitoring report every six (6) months during resettlement implementation and every year once resettlement has been completed. A baseline survey will be conducted at the beginning of the monitoring. All reports will be submitted to SEIG/SJGC and the ADB at the same time. SASS will also provide training in best resettlement practices to the resettlement staff at different levels.

The information for monitoring and evaluation will be checked from three sources: 1) the SEIG/SJGC; 2) township governments/street committees; and 3) the affected persons.

Data and information will be gathered through:

- Questionnaires surveys (20%).
- Interviews with affected households and businesses.
- Specific focus group interviews aimed at identifying the specific problems/issues related to groups such as the elderly, women, poor, persons affected due to land acquisition and resettlement.

Data and information collected will be analysed for affected areas, timing of impacts, types of impacts, levels of compensation, duration of the resettlement process, etc.

11.3.1 Principal Duties of Monitoring

The monitoring work will focus on the following two aspects: (1) the progress of disbursement and provision of entitlements to APs, and (2) comparison of pre- and post-resettlement socio-economic situation for APs and villages.

The following indicators will be monitored and evaluated:

- Disbursement of entitlements to APs: compensation, housing, cultivated farmland, and employment as specified in the RP;
- Development of economic productivity: re-allocation of cultivated land, land restoration, job opportunities available to APs, number of APs employed or unemployed;
- Provision of alternative housing: the affected persons must move into their alternative housing at least one month before the relocation; for those opting for self-construction, payment of compensation and provision of housing sites should be

completed at least 3 months before the relocation; the compensation for construction of houses should be equivalent to the replacement cost; the affected persons must receive on time their entitlements regarding transfer and transportation allowance;

- Level of satisfaction of APs: level of satisfaction of APs with various aspects of the resettlement program; the operation of the mechanisms for grievance redress will be reviewed and the speed and results of grievance redress measures will be monitored;
- Standard of living: Throughout the implementation process, the trends in standards of living will be observed and the potential problems in the way of restoration of standards of living will be identified and reported. The external monitoring agency will carry out a comprehensive socio-economic survey after the completion of resettlement implementation to document the standards of living and the conditions of the APs after resettlement. The survey will be updated annually;
- Social adaptability and cohesion: impacts on children, ethnic minorities and other vulnerable groups, public participation, APs' attitude and reaction to post resettlement situation, number of complaints and appeal procedures, implementation of preferential policies, income restoration measures, and improvements in women's status in villages

11.3.2 Special Considerations

Special attention will be paid to the poor and vulnerable groups during monitoring. These include:

- The status and function of women: closely monitor any change in women's status, function and situations. At least 40% of APs surveyed will be women. The monitoring and evaluating unit will also provide recommendations and assistance to SEIG/SJGC in respect of women's issues;
- Care and attention to vulnerable groups: closely monitor living conditions of the elders, handicapped, and other vulnerable groups after resettlement, to ensure that no hardship is experienced;
- Monitoring and evaluating will provide information on utilization and adequacy of resettlement funds. An independent auditor will audit resettlement accounts and funds. The details of this audit will be made available to SASS.

11.3.3 Contents and Distribution of Independent Monitoring Reports

A monitoring report will include:

- M&E baseline survey of resettlement
- Progress of land acquisition, house demolition and rehabilitation
- Allocation of compensation funds
- Usage of land compensation and resettlement subsidy
- Usage of collective compensation funds
- House demolition and re-construction
- Livelihood and income rehabilitation
- Evaluation on capacity of the resettlement implementing agencies
- Rehabilitation of vulnerable groups
- Gender Issues
- Participation and Consultation
- Grievances and Appeals
- Problems and suggestions
- Levels of AP's Satisfaction
- Conclusion of evaluation;
- Major existing and potential problems, including follow-up of problems previously identified;
- Recommendations of mitigation or prevention measures.

The external monitoring will be undertaken every six (6) months. SASS will provide the status reports semi-annually from the start of the implementation of RP to SEIG/SJGC, the LAR Leading Group, LAR Resettlement Coordination Group, and township governments/village committees until the Project is completed.

SEIG/SJGC will forward copies of reports to the provincial project management office (PMO), which in turn forward the reports in English to the ADB. SEIG/SJGC shall ensure that information on the progress and status on all aspects of land acquisition and resettlement activities will be provided to SASS for verifying the progress reports. SEIG/SJGC will also submit a resettlement completion report to the ADB, to be followed by a post-resettlement impact evaluation reports by the monitors, which should provide further evidence whether adverse effects of the Project have been mitigated adequately, and at least “without project” income levels have been restored.

12. IMPLEMENTATION SCHEDULE

The resettlement schedule for land acquisition, house demolition and relocation for the CMM Transmission Pipeline Project and CMM Distribution Project will be coordinated with the respective construction schedule. Based on the time schedule of the two Project components, a preliminary land acquisition and resettlement schedule has been developed, reflecting the linkage and consistency between the time schedule of resettlement/land acquisition and civil works construction tasks.

In order to ensure that all aspects of the RP can be achieved, land acquisition and resettlement will start at least one month before construction. The affected persons must move into their alternative housing at least one month before the relocation. For those opting for self-construction, payment of compensation and provision of housing sites should be completed at least three month before relocation. This will ensure that the implementation will be completed within the two-year construction period. Resettlement implementation will be scheduled in stages to coincide with construction of gas stations, transmission pipeline, and gas distribution network started in December 2004. However, before the land acquisition and APs are moved, a final measurement survey will be conducted in each village, and the household contracts will be negotiated and signed. Also, arrangements for housing replacement and replacement of agricultural land will be established before relocation proceeds.

The LAR schedule will be carried out by stages. The general Implementation Schedule of the Projects is presented in **Figure 11.1**. The land acquisition, relocation and resettlement schedules of the Project (including the project components of the CMM Transmission Pipeline and CMM Distribution Project) are presented in **Figure 11.2**. **Figure 11.3** provides the implementation schedule of the LAR program.

Figure 11.3 LAR Schedule for the CMM Gas Transmission Pipeline Project and CMM Distribution Project

LAR Activities	2004	2005												2006												2007												
	10 11 12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10			
Planning of Land Acquisition and Resettlement																																						
Conduct detailed survey of APs	██																																					
Apply the permission of land acquisition and house demolition	██	██																																				
Finalize the choice of resettlement areas of APs	██	██																																				
Identify and confirm poor and vulnerable APs	██																																					
Finalize compensation/resettlement strategies	██	██																																				
Negotiate and sign contracts		██	██																																			
Land Acquisition and Resettlement																																						
Provide compensation payment		██	██																																			
Allocate replacement land			██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	
Construc new houses			██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	
Transfer Aps to new locations			██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	
Demolish houses/structures									██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	
Income Restroation																																						
Employment of APs in the Project construction																																						
Farmland re-adjustment and development/improvement of land									██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██
Agricultural extension service/training									██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██
New skill training									██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██
Other income rehabilitation program									██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██
Special assistance to the vulnerable groups									██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██
Monitoring																																						
Establish internal monitoring system, procedures and formats																																						
Engage monitoring agency																																						
Approve TOR by ADB																																						
Training of resettlement staff																																						
Monitor LAR activities																																						
Monitor income restoration programs																																						
Monitor socioeconomic indicators and vulnerable program																																						
Conduct external evaluation																																						

Appendix A: Sample of Meeting Notes: Gongjin Village

Place: Dongjin Village, Fengcheng Town, Yangcheng County
Date: Aug 13, 2003
Participants: Gao Qiang (Project Office of SEIG); Xia Bing, Chen Hong'ai (SASS); Liu Shudong (Chief of the Social Development Section, the Development and Planning Bureau of Yangcheng County); Wang Jianzhong (SJGC); Li Minjie (Vice Head of Fengcheng Township); Chen Qiuchao (Secretary of CPC Dongjin Village Committee); Cheng Kuanming (Director of Dongjin Village Committee); and, Tan Huqun, Tian Xiaotai, Li Yulong, Li Dunhu, and Zhao Fengnian (Representatives of the Villagers)

The RP author from Shanxi Province Academy of Social Sciences conducted the socio-economic survey in Dongjin Village, Fengcheng Township, Yangcheng County, where villagers will be affected by the Project, and together with the Project Executive Office, they had a group discussion among the leaders of the village, the township and the county, and the representatives of the villagers. During the discussion, all of the participants negotiated the compensation standards and payment, the resettlement and income restoration measures for the land acquisition and relocation. The general situation of the village and the summary of the group discussion are as follows.

I. General Situation

Dongjin Village lies in the middle of the gas pipelines between Da'ning and Yangcheng, which has a higher economic level in the region. It has 524 households in 2002, with 876 labor forces, of whom 545 are engaged in manufactories, 12 in commerce, 5 in services, 24 in transportation, 25 in construction, and 264 in agriculture.

The village has 2,088 mu of farmland in total, all of which is dry land, with the land holding per capita of 1.4 mu. The land is mainly for grain cultivation, including 500 mu for wheat, 800 mu for corns, and 500 mu for millet. Dongjin Village is self-subsistent, and sells some proportion of food. In recent years of agricultural adjustment, the village has planted 600 mu Bunge-prickly-ash trees, 80 mu mulberries, and 10 mu licorice, in accordance with the mountainous character and combined with policies of "land conversion into forest and grass land", which has laid a foundation for improving local ecological environment and sustainable income growth.

The village has a coalmine with an annual yield of 60 thousand tons, with a high quality of coal, a shallow bed, and a good profit prospect, which is important economic support to the village. Workers in the mine come from the village, neighbouring villages, and also other provinces. However, the coal resource is now nearly exhausted, so the village

is going to finance and merge a neighbouring state-owned coalmine, in order to maintain the coal industry. Besides the coal mine, there are 2 steel plants, 1 brick factory, 1 Chinese traditional medicine manufacture and 1 medium-sized coal manufacture, of which the coal manufacture has a good economic effect, with the demand for its products exceeding the supply. The village is going to expand its size. Each worker's monthly wages, welfares and bonuses totals at RMB1,000.

The level of collective welfare in Dongjin Village is slightly higher. There are 2 recreation centers for elders. Employees will be allocated with foods, clothes, coal, etc on festivals. Vulnerable people, such as the old and the poor, will receive special treatments. Therefore low-income people's living standard can also reach the level of "enough foods to eat and clothes to wear".

II. Summary of the Meeting Discussion

1. The Project Office informed the participants of the project, tasks, importance, finance, time limit, and land acquisition, and the situation of the impact on the village.
2. The RP authors informed the participants of the requirements from the State, the local government and ADB concerning the resettlement and the income restoration.
3. Local leaders and villager representatives requested that land acquisition should be in compliance with the relevant national laws and regulations, and the compensation standards for young crops should be negotiated with the villagers.
4. Local governments, the Project Office and village representatives made an agreement on the following compensation standards and resettlement means.

1) Agricultural Compensation

Permanent farmland loss: compensation at 9 times of the AAOV of the last 3 years. About RMB 14,000 to RMB 27,000/mu for the villages should be compensated in cash.

Land resettlement subsidies: compensation at 4 to 5 times of the AAOV of the last 3 years, about RMB 5,000 to 15,000/mu.

Young crops compensation: full compensation for half of the average product value of the last 3 years.

Temporary farmland loss: subsidized by 1 times of the AAOV of the last 3 years. The period of land appropriation should be less than 2 years.

The villagers who use affected arable land legally will be compensated by "land for

land” through the land re-distribution in the village.

2) Homestead, Houses and Other Buildings

Affected people should be fully and directly compensated for their loss of house sites, houses, or other buildings. House sites will be exchanged with other land in the village by means of “land for land”. Houses and other buildings will be compensated in cash according to the relocation fees (material and labour fees).

3) Relocation Subsidies

All the residents who suffer from the loss of houses will acquire the following subsidies:

- i. Transfer and Transportation Fees: RMB 250/household;
- ii. Working day loss: RMB 120/household;
- iii. Relocation Loss: RMB 120/household;
- iv. Temporary Accommodation: RMB 150/household

4) Training for the APs

The APs will receive special training subsidies, including costs of transportation, accommodation and food if their land will be affected by over 20% or they will be relocated. The training will take 10 days, and each person, mainly female farmers will be subsidized by RMB 300.

5. Local governments, the Project Office and village representatives made an agreement on the following resettlement measures.

The APs should be compensated in accordance with the present construction costs, and they should rebuild their houses themselves in the village. The village will allocate the house site to the APs and the payment of compensation in cash should be enough for APs to build their new houses.

6. The local government, the Project Office and the representatives of village reached an agreement on the following way of payments.

The relevant local people's government should proclaim the plan of compensation on acquisition and resettlement which has been fixed according to the Land Administration Law of PRC, 1998 and the regulations of its implementation, meanwhile, they should consult the opinions of the village collectives and the farmers affected.

To make sure that all items of compensation payment will be paid in full amount timely. All subsidies for land acquisition and house removal should establish specific accounts only to prevent from financial losses.

The Project IAs should take pro-active action to coordinate the local government and to ensure that residents affected by the acquisition and house removal are handled properly, and to ensure the improvement of the APs' living standards in the Project area after LAR.

Energy Insitiute of Shanxi Province Academy of Social Sciences

Aug 13, 2003