

## Chapter 5 Resettlement Cost and Budget

The total static compensation cost estimate for reservoir inundation is about RMB138.48million yuan and the dynamic cost estimates at RMB173.72 million yuan (with tax). The estimated costs include compensation for land and land allowance, houses and auxiliaries, transfer and transportation, infrastructure development for host communities, special facilities, land-related taxes, compensation for temporary land borrow, training, contingencies (physical and price) and other costs. For the rural electrification program, the cost for land acquisition is about RMB836,023 and RMB980,000 for the training cost of thermal power plants closure.

### 5.1 Resettlement Cost Estimates

#### 5.1.1 Principles for Resettlement Cost Estimates

- (1) The Chinese Government has issued relevant policies, laws and regulations that, along with those of Provincial Governments, which provide the principles for resettlement compensation of reservoir inundation. The major principles are as follows:
  - As stipulated in The Land Administration Law of the People's Republic of China (executed on Jan. 1<sup>st</sup>, 1999): Urban land is owned by the State. Rural and suburb land, except ownership stipulated by the law belong to the State, is owned by the Collective. House plot, household plot and mountainous land of household belong to the Collective.
  - Resettlement with development, includes both compensation and allowances for the early period of relocation and rehabilitation of production means.
  - The purpose of “Resettlement with Development” is to develop a new means of production in the Resettlement Area and to form a new production structure to help resettlers develop their production and to ensure resettlers to reach their previous living standard as quickly as possible. Compensation and allowances must be fair and reasonable. According to the predetermined standards, resettlers are compensated for their loss of production and means of livelihood so as to enable them to recover their previous production and living standards. The compensation cost is included in the project's total investment.
  - While both the Reservoir and Resettlement Areas must provide land for the interests of the State on one hand, adequate compensation and allowances must also be paid to land contributors to ensure the rehabilitation of their production means and living standards on the other hand. Various measures used to enable resettlers to gradually reach or better-off than their original living conditions

include: 1) restoration of the social infrastructure in the Reservoir Area; 2) development of natural resources; 3) conservations of water and soil; 4) attention paid to the protection of the environment; and 5) promotion of economic development. Host villagers must also be included in these programs to promote the stable and equitable development of the ZPSPP Resettlement Areas.

- Calculation of compensation for rural and township residents, collectives and state-run enterprises and institutions on the basis of a detailed assessment of the physical assets of Reservoir Material Index.

Resettlement planning must calculate the cost of transportation, electric power, telecommunication and broadcasting facilities in accordance with the original scale, standard and class so as to restore their original functions. Similarly, resettlement planning must take into account of investment for the public facilities development in the Resettlement Sites.

(2) Compensation cost and estimates are based on the losses rechecked in 2001 and the compensation standards regulated by the PRC Land Administration Law.

### 5.1.2 Basis for Resettlement Cost Estimates

The local government, Hebei Province and Chinese Government have issued a number of policies, laws and regulations, which provide a basis for cost estimates of compensation for reservoir inundation. The major policies, laws and regulations are as follows:

- (1) Land Administration Law of the People's Republic of China (executed since Jan. 1<sup>st</sup>, 1999)
- (2) Stipulations of Compensation for Land Acquisition and Resettlement of Large- and Medium-Sized Water Conservancy and Hydroelectric Power Project Construction (Order of the State Council, No. 74)
- (3) Specifications for Design of Reservoir Inundation Treatment Planning for Hydroelectric Power Projects (DL/T5064-1996)
- (4) Stipulations of Land Management in Hebei Province
- (5) Implementation Methods of Tax for Farmland Occupation in Hebei Province
- (6) A Collection of Jingxing County Economic Statistics Materials (1999-2000) and Information (provided by relevant county departments on an ongoing basis.)

- (7) Budget for Construction Projects issued in Hebei Province (1999) and relevant regulations by provincial and municipal departments
- (8) Investigation of the Inundation Material Index and Results Of Resettlement Planning For Zhanghewan Pumped Storage Power Station

The Stipulations of Compensation for Land Acquisition and Resettlement of Large- and Medium-Sized Water Conservancy and Hydroelectric Power Projects Construction was issued by the State Council in February 1991. It is the first specialized law and regulation for the reservoir resettlement in PRC. The above documents serve as the legal basis for the principles and standards applied to the compensation for resettlement of the ZPSPP.

The new Land Administration Law, in which the compensation standards for land acquisition and resettlement subsidy have been raised, which was effective on January 1<sup>st</sup>, 1999 (see Chapter 3). The new Land administration Law has been taken into account in the Compensation Cost Estimate for the resettlement compensation of the ZPSPP, which as verified by the State Power Corporation in 1998.

## **5.2 Compensation Standards**

### **5.2.1 Compensation Standards for Rural Resettlement**

#### 5.2.1.1 Annual agricultural output value applied to the ZPSPP compensation for land acquisition and resettlement subsidy

In accordance with relevant regulations specified in the Land Administration Law of the People's Republic of China, Stipulations of Compensation for Land Acquisition and Resettlement of Large- and Medium-sized Water Conservancy and Hydroelectric Power Project Construction, and Stipulations of Land Management for Hebei Province, compensation for farmland acquisition in the ZPSPP Reservoir Area is 6 times the average annual output value of the last three years prior to land acquisition.

The resettlement subsidy for farmland acquisition is calculated in the light of the agricultural population to be resettled. The resettlement subsidy for this Project is 4 times the average annual output value of the last three years prior to land acquisition.

**Table 5-1 ZPSPP Reservoir Area: Total Hectares and Hectare Per Capita in the Inundated Village**

ITEM	VILLAGE						Total
	Nanhaoting	Nansi	Beihaoting	Zhanghewan	Yanzhuang	Shimeng	
Existing Farmland (Ha)	83	62	68.93	25.53	69.67	84.73	
Population At Design Level Year (Person)	1,730	945	422	178	1,305	880	
Farmland Per Capita at Design Level Year (Ha/Person)	0.048	0.066	0.163	0.143	0.053	0.097	
Inundated Area (Ha)	76.93	20.27	47.6	25.6	9.07	23.4	202.87

In accordance with the above calculation and analysis, the compensation for forest lands, garden plots, nursery gardens, and fish ponds to be acquired, plus resettlement subsidy, will be 10 times their average annual output value.

Also in accordance with relevant regulations of Hebei Provincial Forest Administrative Department, the above compensation and subsidy, compensation for trees and the expense for reforestation shall be paid.

Unused slope land will be compensated on the basis of 4 times the annual output value of the land, without a resettlement subsidy.

Land compensation and the resettlement allowance for re-adjusting land in resettlement sites are calculated on the same basis as in the Reservoir Area, in accordance with the quality and type of land to be acquired.

Table 5-2 shows the standards of land compensation and resettlement subsidy for different types of land to be acquired.

**Table 5-2: Standards for Land Compensation and Resettlement**

Type of Land Acquired	Times of Land Compensation	Times of Resettlement Subsidy	Total
Farmland	6	4	10
Garden Plot, Fish Pond	6	4	10
Forest Land, Nursery Garden	6	4	10
Unused Slop Land	4		4

Scattered economic trees are compensated on the basis of 4 times the average output value.

### 5.2.1.2 Compensation Standards for Various Types of Land Acquired

The compensation standards are established by calculating the annual output value of different types of land acquired per unit area, then by determining how many times of the annual output value to be adopted for compensation. This is done in accordance with the regulations issued by Chinese Government as well as relevant departments of Hebei Province, in combination of national economic statistics and the investigation data provided by the villages and townships in the ZPSPP Reservoir Area.

#### (1) Compensation Standard for Agricultural Land

##### A. Average Annual Output Value of Farmland

Different categories of farmland are calculated on the basis of their comprehensive annual output of per unit area and by the comprehensive unit price of crops growing in the farmland. The comprehensive annual output of the different types of farmland are calculated on the basis of the per unit area output of the different crops growing in the farmland, determined by the statistical data.

##### a. The Cropping Index

Based on an analysis of the existing situation of agricultural production within the ZPSPP Reservoir Area, it was discovered that farmland utilization for all the villages is almost the same. Nanhaoting Village's situation represents the farmland utilization in the Reservoir Area. Therefore, the cropping index for the Reservoir Area farmland is based on the statistical data gathered from Nanhaoting Village. According to the statistical data of 2000, Nanhaoting Village had 83 ha farmland and 107.0 ha were cropped. The cropping index is 1.29.

The cropping index for different types of farmland was determined through comprehensive analysis of the investigation and statistical data, which is as follows:

- Irrigated Land:

The cropping index is 1.75, calculated based on 75 percent of their area, and one crop of wheat grown in the autumn and one of corn in the summer.

- Dryland:

Statistical data shows that Nanhaoting village has 27.81 ha of irrigated land and 68.6 ha of dryland. Based on the area cropped in 1998, deducting 48.7 ha of corn and wheat grown on irrigated fields, the dryland area cropped is 75.7 ha. Thus the cropping index is 1.10.

- Other Farmlands:

Paddy land and flooded-bed land are calculated by the same standard as irrigated land. Paddy land has one crop of rice in summer and one of wheat in the autumn.

Land alternatively cultivated is utilized once every two years.

b. Comprehensive Per Unit Area Output

The annual output of per unit area for different farmland is obtained through a comprehensive analysis of the statistical data of agricultural production from the inundated and affected villages and village groups, as well as information about crop output in the Reservoir Area provided by the JCSB, in combination with information of the crop output for different types of farmland provided by the JCAB. The ZPSPP Resettlement Preliminary Design is based on the statistical data provided by the JCSB for grain production in Nanhaoting and Nanshiting Villages.

Table 5-3 shows the calculation per unit area output of grain production for different types of farmland in the Reservoir Area.

**Table 5-3 ZPSPP Reservoir Area: Calculated Per Unit Area Output (Kg/Ha) of Different Crops in Different Types of Farmland kg/ha**

Item	Rice	Wheat	Corn	Millet	Red Bean
Paddy Land	6,300	5,955			
Irrigated Land		5,955	4,170		
Dryland		3,375	2,625	2,550	675

- Irrigated Land:

The comprehensive per unit area output is 9,082.5 kg/ha. More specific, wheat is 5,955 kg/ha and corn is 4,170 kg/ha.

- Dryland:

Dryland is mainly used to grow corn, wheat, millet, beans, and various cash crops such as oil seeds. The cropping proportion is 44% for corn, 21% for wheat, 24% for millet, 7% for beans and 4% for cash crops. The output per ha is 2,625 kg, 3,375 kg, 2,550 kg, 675 kg and 750 kg, respectively. The cropping index is 1.1, and the comprehensive per unit area output for dryland is 2,805 kg/ha.

- Paddy Land:

The per ha output of rice grown on paddy land is 6,300 kg, and multi-cropping wheat is 5,955 kg/ha. The cropping index is 1.75, and the comprehensive per unit area output is 10,767 kg/ha.

- Flooded-Bed Land:

Flooded-bed land is low land and easy to be irrigated, but it is subject to flooding during flooding season, therefore the harvest can not be guaranteed. For compensation purposes, it is considered the same as irrigated land, except the calculations of its comprehensive output per unit area are based on two harvests in three years. Therefore, the output is treated as 67% of the irrigated land, and the comprehensive output per unit area is 6,085.5 kg/ha.

- Rotating Crop Land:

The comprehensive output per unit area of rotating crop land is 1,402.5 kg/ha, half of the dryland.

In consideration of the dynamic factors applied for the calculation of per unit area output, the annually progressive growth rate for the comprehensive grain output increase is 1.8%, totaling 9 years until the design level year. Therefore, the growth coefficient is 1.174.

Table 5-4 shows the comprehensive per unit area output of different fields by the Design Level Year.

**Table 5-4 ZPSPP Reservoir Area: Per Unit Area Output (Kg/Ha) of Different Fields kg/ha**

Type of Farmland	Irrigated Land	Paddy Land	Dry Land	Flooded-Bed	Rotating Crop Land
Design Level Year	10662.9	12640.5	3293.1	7144.35	1646.55

c. Comprehensive Grain Unit Price

The Comprehensive Grain Unit Price is calculated by a weighted method, on the basis of the grain price provided by the Hebei Provincial Price Bureau (HPPB) and the price of cash crops:

In accordance with regulations in the documents of Hebei Provincial Price Bureau and Grain Bureau, including “Ji Nong Jia Zi (1997) No.111 Notification of

Relevant Issues Concerning Summer Grain Purchase Price and “Ji Jia Nong Zi (1997) No.141 Notification of Relevant Issues Concerning Implementation of Protection Price”, wheat protection price is RMB1.408 yuan/kg and its purchase price is RMB1.55 yuan/kg; corn price is RMB1.12 yuan/kg and its purchase price is RMB1.26 yuan/kg. Comprehensive unit price of wheat and corn is calculated on the basis of 80% of protection price and 20% of purchase price (the above prices was applied in 1998). Prices of other grains are calculated by taking market price in 1998 as reference.

Except the calculation of the major products output value for various farmlands, the price of sideline products of crops (such as corn stock, wheat straw, etc. is calculated as 30% of the major product price.

d. Annual Output Value Of Per Unit Area (Ha) Farmland and Other Types of Land Use

The Annual Output Value of per unit area (ha) of different land in the ZPSPP Reservoir Area was calculated by using the above figures for the Comprehensive Output of per unit area for different land and the corresponding Comprehensive Grain Price:

Irrigated land --- RMB18,532.5 yuan/ha;  
 Paddy land --- RMB24,118.5 yuan/ha;  
 Dry land --- RMB6,292.5 yuan/ha;  
 Flooded-bed land --- RMB12,417 yuan/ha;  
 Land alternatively cultivated --- RMB3,146.3 yuan/ha.

B Annual Output Value of Per Unit Area (Ha) Garden Plot and Fishponds

- a. Apple Orchards: The annual output value of apple orchards is per ha RMB31,500 yuan. This calculation is based on the analysis of the data provided by relevant departments of Jingxing County and detailed site investigation. Calculation is based on 600 stock/ha, annual output is 35 kg, market price per kg is RMB1.50 yuan, and annual output per ha is 21,000 kg.
- b. Vineyards: The annual output value of vineyards is RMB36,000 yuan/ha. The calculation are based on 1,500 stocks per ha, annual output is 15 kg, annual output for each ha is 22,500 kg, and market price is RMB1.60 yuan/kg.
- c. Fishponds: The annual output value of fishponds is RMB31,191 yuan/ha.
- d. The Annual Output Value of Per Unit Area of Unused Slope Land: It is calculated on the basis of stocking rate of per unit area of grassland and the price of livestock products. Compensation for the unused slope land is RMB4,080 yuan.

- e. Compensation Standards For Different Types Of Agricultural Land and Land Uses: Based on the Annual Output Value of per unit area of the different land and land used as shown above and the standards of land compensation and resettlement subsidy shown in Table 5-2, the compensation standards for different agricultural land are shown in Table 5-5:

(2) Compensation Standards for Forest Land

A. Compensation Standards for Timberland.

In accordance with regulations specified in the Document (92) Ji Lin Ji Zhi No. 111 (effective in 1998) acquisition of forest land requires to cover four types of compensation: (a) compensation for forest land; (b) compensation for timber; (c) the reforestation cost; and (d) a resettlement allowance.

Compensation for forestland is 4 times the output value of per unit area on dryland. The compensation for timber is calculated on the basis of timber volume (81 m<sup>3</sup>/ha) and a timber unit price of RMB500 yuan/m<sup>3</sup>.

**Table 5-5 ZPSPP Reservoir Area: Compensation Standards for Different Land**

Type of Land	Per Unit Area Output (Kg/Ha)	Comprehensive Unit Price (RMB/kg)	Output Value of Per Unit Area (RMB/ha)	Compensation Standard (RMB/ha)
Paddy Land	12640.5	1.908	24118.5	241185
Irrigated Land	10662.9	1.738	18532.5	185325
Dry Land	3293.1	1.911	6292.5	62925
Flooded-Bed Rotating Cultivation	7144.35	1.738	12417	124170
Apple Orchard	1646.55	1.911	3147	31470
Vineyard	21000	1.50	31500.0	315000
Fish Pond	22500	1.60	36000.0	360000
Unused Slope Land	4032	7.73	31191	311910
			272	4080

The reforestation cost is MB12,000/ha, and the resettlement allowance is 3 times the output value of per unit area of dry land. Therefore the compensation rate for per ha forest land is:

$$419.5 \times 15 \times 10 + 81 \times 500 + 12,000 = \text{RMB}115,425/\text{ha}$$

B. Compensation Standards for Nursery Gardens

Compensation standard for nursery gardens is RMB207,000/ha, referring to the compensation standard for timber trees.

### C. Compensation Standards for Scattered Trees

In accordance with actual conditions of the Reservoir Area in 2001 and relevant documents issued by the Jingxing County Government, compensation standards for scattered trees in the Reservoir Area have been adjusted as shown in Table 5-6.

**Table5-6 ZPSPP Reservoir Area: Compensation Standards for Scattered Trees**

TYPES OF TREES	Compensation Standards (RMB /Stocking)	REMARKS
Walnut	378	Dried
Persimmon	450	
Apple	157.5	
Pear	192	
Peach	180	
Apricot	135	
Red Date	120	Dried
Black Date	105	
Haw	95	
Chinese Flowering	180	
Crabapple		
Grape	72	
Pomegranate	180	
Fig	120	
Chinese Prickly Ash	80	
Mulberry	113.5	
Bamboo (Bush)	90	
Economic Sapling	10	
Timber Sapling	3	
Timber Tree	15	

#### 5.2.1.3 Compensation Standards for Displaced Structures

In accordance with the regulations specified in the Design Standards of Reservoir Inundation Treatment for Water Conservancy and Hydroelectric Power Projects and the Budget for Construction Projects in Hebei Province, the Compensation Standard for displaced structures is established on the basis of the re-construction cost after deducting reusable old materials from the original houses. The compensation standard comes from the Detailed Site Investigation data with respect to the different types of houses in the Reservoir Area; the quantities of materials needed for the re-construction and other unit price standards; and the deduction of the value of re-usable materials. In 2001, the design institute made check and adjustment for cost of typical house in the Reservoir Area with the ZPSPP Project Office and JCRO.

Served as a basis of calculation, is the drawing of a typical brick-concrete structure in the ZPSPP Reservoir Area. Brick-concrete stone arch structures do not have re-usable materials, thus no deduction is made. For brick-wood and stone-wood structures, a deduction is made for 40 percent of the wood used in the structure.

The Detailed Site Investigation showed that stone-wood structures are similar to brick-wood structure, but the stone price is about 13 percent lower than the brick price. In recent years, with the raising of the living standard for people living in the ZPSPP Reservoir Area, stone-wood structures have been gradually replaced by brick-wood and brick concrete structures. Based on the actual investment shown in the actual building cost furnished by the local people, the per square meter price of a stone-wood structure accounts for 89 percent of brick-wood structure.

There are very few mud houses in the ZPSPP Reservoir Inundated Area, and most are broken and unused. Therefore compensation for these houses will be RMB138 yuan/m<sup>2</sup> with no old reusable material considered.

Other houses are small houses, for which compensation will be RMB152 yuan/m<sup>2</sup> with no old reusable material considered.

Table 5-7 shows the compensation standards for different structures in the ZPSPP Reservoir Area.

**Table5-7 ZPSPP Reservoir Area: Compensation Standards (RMB/m<sup>2</sup>) for Different Types of Houses (2000 price)**

Type Of House	Compensation Rates (RMB/m <sup>2</sup> )
Brick-Concrete	307
Brick-Wood	276
Stone-Wood	245
Stone Arch	231
Mud (Cave)	138
Other	152

#### 5.2.1.4 Compensation Standards for Associated Structures and Materials

Table 58 shows the Compensation Unit Price for associated structures and materials. It is based on the size and the type of structure, taking middle level structure as representative and the construction cost determined in the 2000 Detailed Site Investigation. The standards used for the calculation are included in the Budget for Construction Projects in Hebei Province.

**Table 5-8 ZPSPP Reservoir Area: Compensation Standards for Associated Structures and Materials**

ITEM	UNIT	Compensation (RMB)	ITEM	UNIT	Compensation (RMB)
Arch Over	Set	600	Indoor Electric Socket	Set	12
Gateway			Electric Wire	M	2
Brick Enclosure	m <sup>2</sup>	25	Pipe	M	6
Stone Enclosure	m <sup>2</sup>	15	Adobe	Set	100
Hand-Pumped Well	Set	200	Shadow Wall	m <sup>2</sup>	60
Yard Face Paved With Slabstone	m <sup>2</sup>	5	Stone-Mud Cave	Set	300
Yard Face Paved With	m <sup>2</sup>	2	Stone Preparation	m <sup>2</sup>	20
Line-Mud-Gravel Manure Receiver	Set	60	Yard Face Paved With Concrete	m <sup>2</sup>	6
Toilet	Set	120	Chimney (Brick)	Set	1200
Animal Shed	Set	80	Drainage Channel	M	6
Water Power Mill	Set	1000	Trench Of Car	Set	1000
Mill	Set	100	Garage		
Roller	Set	500	Kitchen Range	Set	60
Cellar	Set	60	Yard Platform	m <sup>3</sup>	15
Playground	m <sup>2</sup>	10	Stone Stairs	m <sup>3</sup>	30
Tap Water Pipe	m <sup>2</sup>	10			

#### 5.2.1.5 Compensation Standards for Water Conservancy Facilities

Compensation Standards for water conservancy facilities are defined as RMB15,000 yuan/set for a pumping station; RMB 50 yuan/m<sup>3</sup> for a storage pond; and a total of RMB1,489,700 yuan for the sections of the Yuejin Canal lost due to the ZPSPP inundation. The calculations were done in accordance with the relevant regulations of the Design Standards for Reservoir Inundation of Water Conservancy and Hydroelectric Power Projects and investigation.

According to reconstruction requirement of water conservancy facilities in the Resettlement Area, it is decided to add RMB800,000 yuan as allowance for the facilities reconstruction.

#### 5.2.1.6 Transportation and Transfer Cost

The calculation for the Transportation and Transfer Cost includes the numbers of people directly affected by inundation and the people whose farmland is inundated, then calculate the population based on the natural population growth rate. The transportation and transfer allowance are shown in Table 5-9.

**Table 5-9 Transportation and Transfer Allowance (RMB/Person)**

Allowance	Move Nearby	Relocation	Remarks
Travel Cost		40	
Transportation Cost	70	400	
Meal Allowance	20	20	
Medical Allowance	10	10	
Allowance for Working Hour Lost	75	150	
Allowance For Temporary Housing	20	120	

#### 5.2.1.7 House Compensation for Natural Population Growth

House compensation for natural population growth is calculated on the basis of house compensation for both the agricultural and non-agricultural populations require relocation at the time of inundation, multiplied by the natural population growth coefficient for the Design Level Year:

$$265 \times 7,614 = \text{RMB } 2,017,710 \text{ yuan}$$

#### 5.2.1.8 Management Cost, Supervision and Investigation and Design Cost

Management cost, supervision and investigation-design cost are determined on the basis of Specifications for Planning and Design of Hydroelectric Power Project Reservoir Inundation Treatment (DL/T5064-1996) and practical conditions in the Reservoir Area.

Investigation-design cost is taking 2% of the cost for rural construction, public facilities construction and reservoir bed clearance.

Management cost is taking 3% of partial cost for rural construction and 1% of cost for public facilities construction and reservoir bed clearance.

Supervision cost is taking 1% of cost for rural construction and public facilities construction and reservoir bed clearance.

#### 5.2.1.9 Technical Training Costs, Contingency and Loan Interest of Construction Period

Technical training costs are those required to train the resettlement cadres and resettlers, enabling them to master the technology and develop the means of production, for establishing a diversified economy and improving living standard as early as possible.

- Technical training cost is taking 0.5% of compensation for rural construction.
- Contingency includes physical and price contingencies.
- In accordance with Specifications, physical contingency is taking 10% of all above costs. Price contingency is taking 5% of all above costs.
- Loan interest rate. As shown in financial plan of the Project, the Project investment accounts for 25% of capital and 75% of loan, so the loan interest rate of project in construction period is 8.01%.

### **5.2.2 Compensation Standards for Construction of Public Facilities in the ZPSPP Resettlement Areas**

The investment for the Reservoir Inundation includes the Cost for public facilities in the ZPSPP Resettlement Sites, such as water supply, schools, cultural centers, clinics, village committee offices, roads within the villages and land acquired for the new site within the Reservoir Area. The compensation standards for land acquisition in new Resettlement Sites are the same as inundated farmland in the Reservoir Area. Table 5-10 shows the compensation standards for public facilities and land acquired in the new resettlement sites.

**Table 5-10 ZPSPP Resettlement Sites: Cost of Land Acquisition and Construction of Public Facilities**

Item	Unit	Quantity	Unit Price (RMB)	Amount (RMB)
<b>I. NEW SITE LAND ACQUISITION</b>				
1 Irrigated Land	ha	13.617	185,317.5	2,521,017
2. Dry Land	ha	3.41	62,931	214,595
<b>II. COST FOR PUBLIC FACILITIES CONSTRUCTION</b>				
Schools	m <sup>2</sup>	1,230	307	377,610
Village Committee Offices	m <sup>2</sup>	120	307	36,840
Clinics	m <sup>2</sup>	155	307	47,585
Cultural Centers	m <sup>2</sup>	205	307	62,935
Streets Within New Village	km	2.05	55,000	112,750
Paths For Walking	km	9.4	10,000	94,000
Drinking Water Wells For Both Human And Livestock	Set	3		1,127,100
Water Towers	Set	5		200,000
Retaining Walls	m <sup>2</sup>	1,500	80	120,000
Yard Leveling Works	m <sup>3</sup>	73,430	5	367,150

### 5.2.3 Construction Cost for Infrastructures

Special Infrastructures include highways, power and telecommunication lines, broadcasting lines, specialized cables and irrigation canals. Usually only part of these facilities will be inundated by the Reservoir impoundment. In order to recover the impacts, compensation will be provided and the infrastructures will be re-constructed.

To meet the requirements of production and living in the Resettlement Sites, necessary planning is required for re-construction of highways and power, telecommunication and telephone lines. Table 5-11 shows the investment requirements for these special infrastructures.

**Table 5-11 ZPSPP Reservoir Area: Construction Cost for Re-construction and Compensation of Special Infrastructures**

	ITEM	UNIT	QUANTITY	Unit Price (RMB)	Investment (RMB)
I.	Highways				
A	Highways in the Reservoir Area				
1.	Highway	km	5.78	1,314,400	7,597,500
2.	Highway Reinforcing and Heightening	km	1.025		845,600
3.	Bridge	km	0.235	14,000,000	3,290,000
B	Resumption of Traffic In Reservoir Area				
1.	Linking Road of Nansi	km	0.3		300,000
2.	Linking Road of Xigou	km	0.4		300,800
3.	Xigou Bridge	km	0.285	14,000,000	3,990,000
4.	Tractor Roads	km	0.96	120,000	115,200
C	Roads in the Resettlement Areas				
1.	Inter-village Roads	km	8.0	160,000	1,280,000
2.	Tractor Roads	km	4.8	120,000	576,000
II.	Power Lines				
A	Power Lines in the Reservoir Area				
1.	10KV Lines	km	12.3	65,000	799,500
2.	380/220 kV Lines	km	0.5	35,000	17,500
B	Power Lines in the Resettlement Areas				898,500
C	Transformer				
1.	50 KVA	Set	4	10,000	40,000
2.	100 KVA	Set	6	15,000	90,000
III	Telecommunication Lines				
A	Telecommunication Lines in the Reservoir Area	km	14.0	33,100	463,400
B	Telecommunication Lines in the Resettlement Area	km	20.5		678,500
IV.	Broadcasting Lines				
A	Broadcasting Lines In Reservoir Area	km	10.0	13,000	130,000
B	Broadcasting Lines in the Resettlement Area	km	17.0	13,000	221,000
V.	Specialized Cable				4,575,000
VI	Yuejin Canal		8.21		1,489,700

#### **5.2.4 Clearance of the ZPSPP Reservoir Bed**

The clearance of the Reservoir bed requires removal of all pollutants and obstacles below the inundation level line, including the clearance for sanitation and the removal of the remained structures and trees. Based on actual conditions in the Reservoir Area, cost of clearance of the ZPSPP Reservoir bed is RMB100,000 yuan.

#### **5.2.5 Tax of Farmland Occupation**

In accordance with the relevant regulations issued by the State and the Hebei Provincial Government, farmland occupation tax shall be paid by HZPSPPC, LTD for the farmland and garden plots inundated on the basis of unit area. The standard for the farmland occupation tax is RMB4.5 yuan/m<sup>2</sup>.

### **5.3 Cost Estimations for the ZPSPP Reservoir Inundation**

Table 512 shows the costs of compensation and allowances for all items included in the Reservoir Inundation, in accordance with the established basis for cost estimation and the State mandated principles and standards, new laws and rules and 2000 price level.

### **5.4 Summary of Total Cost of ZPSPP Reservoir Inundation Costs and the Yearly Investment Plan**

#### **5.4.1 Summary of Total Cost of ZPSPP Reservoir Inundation**

- (1) The total cost of the ZPSPP inundation is RMB138,477,000 yuan, including the farmland occupation tax and compensation for the loss of irrigation storage capacity.
- (2) In the investment of reservoir inundation, the investment for rural part is RMB70,204,900 yuan accounting for 50.7% of static investment in reservoir inundation. Per capita investment is RMB24,275 yuan.
- (3) The cost for re-construction of special infrastructures, such as highways and telecommunications lines, is RMB27,568,200 yuan, accounting for 19.91 percent of the total static investment, which covers renovation and reconstruction of highways, and power, telecommunication and broadcasting lines in the Reservoir and Resettlement Areas.
- (4) The total cost of inundation includes RMB15,000,000 yuan compensation for the loss of irrigation storage capacity. This compensation will be used for downstream irrigated areas to take anti-seepage measures to raise the water utilization coefficient of the canal system. The cost will be specially allocated

under the implementation plan for a canal anti-seepage component for the downstream irrigated areas.

- (5) The investment verified in 2001 for reservoir inundation is higher than the original designed investment. The main reason is due to the variation of policies and regulations and changes of prices.

**Table5-12 ZPSPP Inundation: Total Investment (RMB10,000 Yuan)**

No	ITEM	INVESTMENT
	<b>Rural part</b>	<b>7,089.82</b>
1	Compensation for rural inundation	6,359.64
	Compensation for removing and rebuilding houses	2,143.31
	Compensation for farmland and resettlement subsidy	3,091.27
	Compensation for garden plots and fish ponds	309.05
	Compensation for forest land	57.35
	Compensation for individual fruit and timber trees	311.80
	Compensation for associated structures	140.86
	Compensation for water conservancy facilities	100.35
	Transportation and Transfer Allowance	205.65
2	Land acquisition cost and construction cost of public facilities in resettlement villages	528.41
3	House compensation taking natural population growth into account	201.77
<b>II</b>	<b>Construction cost for reconstruction and remodification of special infrastructures</b>	<b>2,756.82</b>
<b>III</b>	<b>Reservoir bed clearance cost</b>	<b>10.00</b>
<b>IV</b>	<b>Other costs</b>	<b>567.00</b>
1	Costs of investigation, planning and design	195.75
2	Management cost	238.28
3	Cost for resettlers' training	35.10
4	Cost of supervision	97.87
<b>V</b>	<b>Contingencies</b>	<b>1,553.15</b>
1	Physical	1,035.43
2	Price	517.72
<b>VI</b>	<b>Loan interest in construction period</b>	<b>3,006.62</b>
<b>VII</b>	<b>Relevant taxes</b>	<b>2,457.95</b>
1	Tax for farmland occupation	957.95
2	Compensation for irrigation storage loss	1,500.00
<b>VIII</b>	<b>Total investment for compensation (with tax)</b>	<b>17,441.36</b>
	Including: static investment (with tax)	13,847.70

#### 5.4.2 Yearly Investment Plan

The Yearly Investment Plan depends on a Relocation Plan that is closely integrated with the ZPSPP Construction Plan. The time required for relocating the ZPSPP inundated

villages will depend on the construction schedule for the Upper and Lower Reservoirs; the Reservoir water level inundated each year; and the time required for the construction of the Resettlement Sites.

(1) General construction schedule:

ZPSPP construction Pre-Preparation Period will be one year; Preparation Period will be a half year; Construction Period for the Main Works will be four-and-half years; and Completion Period will be one year. In total the construction will take seven years.

The construction period for the main works will start from the second half of the first year. The first construction work to be done will be heightening the Lower Reservoir Dam, including the excavation of the Dam foundation and the reservoir bed of the Upper Reservoir. In accordance with the construction schedule, the storage level of the Lower Reservoir will be raised as the Dam is heightened. The storage level will be to 470 m when it reaches minimum level and the first unit is put into operation by the fourth quarter of the 5th year.

(2) Resettlers' Relocation Plan.

Based on the resettlement planning carried out in the Preliminary Design Stage, the relocation work will be prepared in advance of actual relocation as much as possible. The major preparation for the relocation, including the reconstruction for Special Infrastructures includes:

- Establishment and strengthening of the implementing agencies in charge of resettlement at all governmental levels, to arrange for the relocation and construction as early as possible.
- Updating the Inundation Material Index and compensation fund and preparing all relevant compensation agreement documents.
- Completing all formalities relating to land acquisition and compensation of the ZPSPP Resettlement Site.
- Completing all formalities relating to agreements for land acquisition in both Reservoir and Resettlement Area.
- Preparing the land development plan to expand the agricultural potential in the Reservoir and Resettlement Areas.
- Implementing the ZPSPP Training Plan.

- Investigating, designing and constructing the public facilities and infrastructures for the ZPSPP Resettlement Villages.
- Completing construction of the resettlers' houses
- Reconstructing and modifying the Special Infrastructures
- Clearing the ZPSPP Reservoir bed.

(3) The Yearly Investment Plan

The Construction Schedule, the Relocation Plan and the Yearly Investment Plan are shown in Table 5-13.

**Table5-13 ZPSPP Inundation Treatment, Relocation and Construction: Yearly Investment (RMB10,000 Yuan)**

No	Item of Compensation	1 <sup>st</sup>	2nd	3rd	4th	5th	6th	7 <sup>h</sup>	8th	total
1	Rural parts	1404.10	2106.15	1755.12	856.50	526.54	372.09			7020.49
2	Special infrastructures	551.36	827.05	689.21	336.33	206.76	146.11			2756.82
3	Reservoir bed clearance	2.00	3.00	2.50	1.22	0.75	0.53			10.00
4	Other investment	113.40	170.10	141.75	69.17	42.53	30.05			567.00
5	Contingencies	2070.86	3106.30	2588.58	1263.23	776.57	548.78			1553.15
	Physical contingency	207.09	310.63	258.86	126.32	77.66	54.88			1035.43
	Price contingency	103.54	155.31	129.43	63.16	38.83	27.44			517.72
6	Taxes	0.00	0.00	0.00	819.32	819.32	819.32			2457.95
7	Interest	45.95	162.79	296.14	410.83	506.76	590.96	649.65	343.54	3006.62
8	Total investment	2427.44	3735.03	3273.00	2682.86	2219.14	2041.37	649.65	343.54	17372.03
9	Static investment	2277.95	3416.93	2847.44	2208.87	1673.55	1422.97			13847.70

- Note:
1. Compensation for construction land occupation is not included in above investment.
  2. Relevant taxes and compensation for loss of reservoir irrigation capacity are not included in above investment.

## 5.5 Cost Estimate of Rural Electrification

The transmission line passes through agriculture farming areas, it will occupy 3.18 ha of land. Among it, 1.55 ha is farmland. The newly built substation will occupy land permanently, but the rehabilitated substation will not occupy any additional land. The project will affect 79 villages, occupy land 8.56 ha, including 4.31 ha farm land,(the irrigation land is 1.82 ha, the dry land id 2,49 ha).

The land occupied has already been approved by the country. Each affected villager will be compensated for the permanently occupied land according to the relative stipulation in the “P.R.C. Land Administration Law”. Compensation standard: RMB62,925/ha and the compensation of young crops is RMB 6,292.5/ ha for the dryland, RMB185,325/ha for irrigated land and RMB18,532.5/ ha of young crops and RMB4,080/ ha for the wasteland.

According to the quantity of the land occupied and the compensation standard, the total investment of the land compensation is RMB 836,023 yuan, see the following table.

**Table 5-14 Cost estimate of rural electrification** Unit: RMB

Item	Irrigation land	Dry land	Waste land	Total
1. Rural electrification				696686
1) Transmossion line		107287	6650	113937
2) Substation	371021	172352	39376	582749
2. Tax on farmland				34834
3. Contingencies				104503
4. Total investment				836023

As far as a family is concerned, if the land acreage affected by the line and substation is small, the compensation fee will be given to the affected family directly, otherwise, the compensation will be paid to the villages which must responsible for the land distribution and land development.

## 5.6 Cost estimate of the closure of small old units

There is no resettlement involved in the closure of small old coal-fired power plants, the investment for the affected person only involves the training cost. According to the training plan, the cost totals at RMB 980,000 yuan, including contingencies.