World Bank Loan Project

Shaanxi Poor Rural Areas Community Development Project (P153541)

Environmental Management Plan (EMP)

Foreign Capital Project Management Centre of
Shaanxi Provincial Poverty Alleviation and Development

Preparation unit: No.203 Research Institute of Nuclear Industry

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Content

1.Introduction to Project

1.1Project Background

Since the mid-1990s, the Chinese government has been working with the World Bank to carry out multiple poverty alleviation projects. The Chinese government drew lessons from the World Bank's guidance and provided the most needed help to the poorest county, village and farmers through the participatory approaches of demonstration. Based on the exploration and innovation of method and model of poverty alleviation, the Chinese government improved and enhanced the use efficiency of poverty alleviation funds and achieved good results. Therefore, Shaanxi Provincial Development and Reform Commission, Shaanxi Provincial Department of Finance, Shaanxi Provincial Department of Housing and Urban-Rural Development, and Provincial Poverty Alleviation and Development Office decided together to use the loan of the World Bank to invest the Poor Rural Areas Community Development Project for 29 villages and towns of 11 counties in 5 cities of Shaanxi province.

The environmental security file of The Environmental Management Plan of Shaanxi Poor Rural Areas Community Development Project of the Loan of the World Bank includes three components, namely, Environmental Management Plan, Environmental and Social Management Framework, and Pest Management Plan. These three files respectively contain different components and scopes of the project environment management.

Among them, Environmental Management Plan (EMP) is one of the preliminary documents of project evaluation of the World Bank. Its scope of application aimed to determine the detailed information during the project preparation phase (such as category, address and size), drafting according to the project feasibility study report. The determined subproject activities are located in 13 project areas among 11 project counties. According to the World Bank's environmental evaluation guideline and Chinese relevant laws and regulations, the purpose is to make project undertakers, construction units, supervision units and environmental managing departments clarify their responsibility, earnestly implementing various environmental protection measures in the project implementation and operation stage, reducing the projects' adverse environmental impact to acceptable levels and achieving the maximum realization of the projects' positive environmental impact.

The scope of application of Environmental and Social Management Framework (ESMF) is mainly regard to the project activities whose detailed information can only be determined during the project implementation. In addition to the 13 project areas in Environmental Management Plan, it includes the rest 16 project areas in 11 project counties. It will prepare the environmental and social management framework according to China's relevant policies and regulations as well as the safeguards policy of the World Bank, developing the principles, regulations, guidelines and procedures to assess the environmental and social impact, including the measures of reducing, mitigating, and/or canceling the adverse influence and improving the positive impact.

Pest Management Plan (PMP) is mainly regard to the control practice of new plant diseases and insect pests of new environmental problems possibly caused by the development activities of agriculture value chain (mainly crop farming activities) in the project, which is part of the environmental management plan. This plan encourages the farmers to adopt environment-friendly and good agricultural practice and integrated pest management (IPM) technology, and provide technical assistance, farmer training, equipment procurement, monitoring and evaluation, and so on , to improve the quality and safety of agricultural products.

1.2 Project objective

The goal of this project is: to increase the per capita income and improve the living standard of farmers, especially the poor rural population, by supporting the development of project rural community industry ; to improve the basic public service of rural community and make mass farmers widely enjoy necessary basic public services by supporting the construction and development of public infrastructure of project community; to explore the new methods and new ways of constructing new rural communities in poor areas by supporting the development of agricultural economical cooperative organization of project community of poor counties; to realize the sustainable development of project community construction by strengthening the capacity building of poor areas and poor population.

1.3Project description

1.3.1Site of project implementation

The entire execution scope of this project is located in Shaanxi province, including 11 counties in 5

cities, namely, Linyou County and Long County in Baoji City, Changwu County in Xianyang City, Fuping County, Baishui County and Heyang County in Weinan city, Dingbian County and Mizhi County in Yulin City, Yichuan County, Yanchang County and Yanchuan County in Yan'an City. 29 residential areas of poverty of appropriate scale will be selected as project areas and 13 communities among them will be the first project areas for implementation.

For the site of the first projects, see figure 2.

1.3.2Components of the project construction

For Summary of the Main Construction Project Components and the Summary of the Specific Work Amount of the first 13 communities of this project, respectively see table 1.3-1 and table 1.3-2 to table 1.3-12.

Table 1.3-1 Summary of the Main Construction Project of the First 13 Project Areas

Serial number	Subprojects activities	Unit	Total	Baoji City		Weinan city				Xianyang City	Yan'an City			Yulin City		
				Changfeng Community of Linyou County	Liangquan Community of Long County	Shiguan Community of Baishui County	Lingao Community of Baishui County	Caocun Community of Fuping County	Ganjing Community of Heyang County	Tingkou Community of Changwu County	Shijiao Community of Yichuan County	Leichi Community of Yanchang County	He'er Chuan Community of Yichuan County	Yangjin Community of Dingbian County	Longzhen Community of Mizhi County	Yangjiagou Community of Mizhi County
				work amount	work amount	work amount	work amount	work amount	work amount	work amount	work amount	work amount	work amount	work amount	work amount	work amount
1	Pipe network project of irrigation system	km	26.623	2.5	11.523	12.0							0.6			
2	Greenhouse project	building	105	30			10		50							15
3	Community (village) road project	km	158.83	19.0		17.0	12.33	12.33	13.35	2.82	13.1	1.3	11.6	12.0	13.0	31.0
4	Production road project	km	242.99	7.54	7.41	13.5	11.63	14.1	13.6	9.5	31.6	17.91	40.2		20.0	56.0
5	Air-conditioned cold storage project	building	6		1		1	1	1	1		1				
6	Office building of cooperative	m^2	1670		200	540		240		260		240		100	90	
7	Storage project of agricultural products	m^2	2772		1900	360										512
8	Sales exhibition (transaction) market	m^2	4400		400							2000		1000		1000
9	Pumping well (water source well) project	piece	19		4	4	4		6					1		
10	Overflow bridge	buildin	19								8		11			

	project	**g**														
11	**Land improvement project (changing slope into terrace)**	**acre**	**1960**												**1100**	**860**
12	**Advancement and renovation project of apple orchards**	**acre**	**2878.8**			**805**	**957.8**		**450**	**666**						
13	**Morel(mushroom) production base**	**building**	**1**	**1**												
14	**Chili processing plant and packaging workshop**	**building**	**1**		**1**											
15	**Apple sorting workshop (machining line)**	**building**	**2**				**1**					**1**				
16	**Dried persimmon processing plant**	**building**	**1**					**1**								
17	**Jiami donkey meat packaging workshop**	**building**	**1**												**1**	
18	**Feedlots(cooperative concentrated breeding production area)**	**building**	**2**									**1**		**1**		
19	**Bed protection project**	**m^3**	**800**										**800**			
20	**rain water collection cistern (agricultural irrigation project)**	**piece**	**800**								**300**	**185**		**295**	**20**	

Table 1.3-2 Summary of the Main Construction Project (Changfeng Community of Linyou County)

Serial number	Subprojects activities	Construction content
1	Pipe network project of irrigation system	As for new irrigation system pipe network, the water is from Changfeng water works. The starting point of pipeline is located in Changfeng water works, and the end point is located in Changfeng village, Changle village and Sujia village. The length of water pipe is 2.5 km, using the pipe of Φ90PVC, setting up 5 valve chambers. It is used mainly for morchella (mushroom) irrigation.
2	Greenhouse	30 new greenhouses cover an area of 50 mu, and the construction site is located in Changfeng village, adjacent to Shichang road, arranged along the road and the route. The supporting construction of 30 sets of drip irrigation system cover a drip irrigation area of 15 acres, mainly used for planting watermelon. The present situation of land use is agricultural land.
3	Village road project	Village road project includes six single projects. The total length of the road is 19.0 km and the whole road is the reconstruction of original old roads. The six single projects include: (1)the road project from Changfeng town to Wushen village with the total length of 6.0 km, and the mountain road is about 2.5 km;(2)the road project from Changfeng town to Zhujiayuan with the total length of 3.8 km, and the mountain road is about 3.3 km;(3)Sujia village's first, second and fourth village road project with the total length of 2.2 km, paving the original village road;(4)Changfeng town Aoli village road project the total length of 2.3 km; (5)Guanzhuang village to Zhujiayuan road project with the total length of 3.0 km, and the whole road is plain section;(6)Shenjia to Xizhuang with the total length of 1.7 km, and the whole road is plain section. The width of pavement is 4 m, using cement concrete pavement. Before the road reconstruction, all of the above roads are stone roads.
4	Production road	The reconstruction of mud stone country production road of 7.54 km, with the width of 3.0 m. The construction sites are located in Changfeng village (4.24 km), Changle village (3.3 km). At present, all the present production road are dirt roads.
5	Morel(mushroom) production base	1 new morel(mushroom) production base, construction site being located in Changfeng village, construction area being 4000 m^2, with incoming settings of glass garden, workbench, industrial humidification machine, disinfecting machine, mainly used for the artificial cutilvation of morchella (mushroom) and the production of mother culture, mother seed and cultivated species. The present situation of land use is rural construction land.

Table 1.3-3 Summary of the Main Construction Project (Liangquan Community of Long County)

Serial number	Subprojects activities	Construction content
1	Office building of cooperative	A new office building of cooperative, building area being 200 m^2, the construction site being located in upper Liangquan village, the present situation of land use being rural construction land.
2	Chili cold storage	A new chili cold storage, cold storage scale being 500 tons, the construction site being located in upper Liangquan village, building area being 1300 m^2, using steel frame structure, the present situation of land use being rural construction land.
3	Agricultural product processing and transit warehouse	A new agricultural product processing and transit warehouse, the construction site being located in upper Liangquan village, building area being 1900 m2, mainly used for storing and transfering chili, the present situation of land use being rural construction land.
4	Chili processing plant and packaging workshop	A new chili processing plant and packaging workshop, the construction site being located in upper Liangquan village, building area being 600 m^2, annually producing chilli sauce and capsicum products of 6250 tons, the present situation of land use being rural construction land.

5	Agricultural products exhibition and farmers training places	A new agricultural products exhibition and farmers training places, the construction site being located in upper Liangquan village, building area being 400 m^2, the present situation of land use being rural construction land.
6	Production road and bridge and culvert	The reconstruction of mud stone county production road of 7.41 km, with the width of 3.0 m. The construction site is located in Liujiaju village (1.08km), Sanjiaodian village (1.83km), upper Liangquan village（3.4km）, down Liangquan village（1.1km）. At present, all the production roads are dirt roads.
7	Pumping well and auxiliary irrigation canals project	4 new pumping well projects, the construction site being located in shigouyuan, upper Liangquan village, new supporting irrigation channels being 4.5 km, yield of single well being designed as 32m^3/h, well depth 40m, inter-well distance 300m. The pumping well project includes well lid, wellbay, casing pipe and filter layer. The model of submersible pumps for deep well is 200QJ32-195/15. The new irrigation area is 34 hectares.
8	Chili base irrigation pipe network	New chili base irrigation pipe network, the construction site being located in upper Liangquan village. The water is from the new pumping well, upper Liangquan village and down Liangquan village of Liangpu river with the total length of 7.023 km.

Table 1.3-4 Summary of the Main Construction Project (Shiguan Community of Baishui County)

Serial number	Subprojects activities	Construction content
1	Advancement and renovation project of apple orchards	To improve and transform the existing apple orchards of 805 mu through the method of "renewal and replacement by intermediate cuttings" (including 190 mu of Sunjiashan village, 215 mu of Guojiashan village, 200 mu of Shijiashan village and Duanjiashan village), and newly build 805 mu anti-hail net for the above orchards.
2	Office complex building and agricultural material and machine warehouse	A new office complex, the construction site being located in Sunjiashan village building area being 540 m^2 with 2-layer frame structures. A new agricultural material and machine warehouse, building area being 360 m^2, the present situation of land use being rural construction land.
3	Pumping well and water-saving irrigation project	3 new pumping well projects (Sunjiashan village, Guojiashan village, Duanjiashan village), 1 reconstruction (Shijiashan village), well depth being 180m, yield of single well being 40m^3/h, single well controlled area being 202mu. New irrigation canals of 12 km, water being from 4 new and reconstructed pumping well, including 3km of Sunjiashan village, 3km of Guojiashan village, 3km of Shijiashan village, and 3km of Duanjiashan village. The channel structure is precast concrete u-shaped slot.
4	Community road	The reconstruction of village road of 6.5 km on the basis of the current community road, with 4-meter wide cement concrete pavement (including 1.8km of Sunjiashan village, 1.5km of Guojiashan village, 1.7km of Shijiashan village, and 1.5km of Duanjiashan village). The village paved streets alleys of 10.5km, with 3-meter wide cement concrete pavement (including 2.5km of Sunjiashan village, 2.6km of Guojiashan village, 2.6km of Shijiashan village, and 2.8km of Duanjiashan village). Before the road reconstruction, the present situation of the above roads being gravel road, cement road and dirt road.
5	Production road	The reconstruction of mud stone village production road of 13.5km, with the width of 3.5m. The construction site is located in Sunjiashan village (3.3km), Guojiashan village (3.5km), Shijiashan village (3.6km), and Duanjiashan village (3.1km). Before the road reconstruction, all the present production roads are dirt roads.

Table 1.3-5 Summary of the Main Construction Project Components (**Lingao Community of Baishui County**)

Serial number	Subprojects activities	Construction content
1	Advancement and renovation project of apple orchards	To conduct standardization transformation of the existing apple orchards in Lingao community, the transformation area being 957.8mu, new anti-hail net being 957.8mu, pipe network construction, the construction sites being located in Pujun village, Wuyao village, Taowa village, Zhaoyao village and Lingao village.
2	Fruit tree potted plant protected greenhouses and miniascape exhibition hall	10 new fruit tree potted plant facility greenhouses, each building area being 600 m2, the construction site being located in the Wujiayao village. A new miniascape exhibition hall, building area being 200 m^2, adjacent to the facility greenhouses, the present situation of land use being agricultural land.
3	Apple cold storage	1 new apple cold storage with storage capacity of 1000 tons, the construction site being located in Wujiayao Village, building area being 1000m^2, the present situation of land use being rural construction land.
4	Apple sorting workshop and preparation station	A new apple sorting workshop, building area being 1200m^2, the construction site being located in Wujiayao village. A new preparation station, building area being 200m^2, the construction site being located in Wujiayao village, the present situation of land use being rural construction land.
5	Pumping well project	3 new pumping well, 1 repaired pumping well, new pumping wel respectively being located in the sixth group of Wuyao village, the second group of Zhaoyao village, the third group of Taowa village, repaired pumping well being located in the third group of Pujun village, yield of single well being 20m^3/h, well-type using tube well, well depth being 260m, sidewall being DN300 steel tube, single well irrigation area being 150mu, well spacing being 200m，to ensure the irrigation requirement of apple orchards.
6	Village road and community road	To reconstruct the village road of 1.5 km and reconstruct residential road of 10.83km into Wuyao village, reconstructing all the original roads into cement roads with the width of 3.0m, including Zhaoyao village (3.2 km), Wuyao village (4.22 km), Taowa village (2.68 km), Gaoxi village (0.73 km). Before the road reconstruction, all the above roads are dirt roads.
7	Production road	The reconstruction of mud stone country production road of 11.63km, with the width of 3.5m. The construction site is located in Lingao village (5.25km), Wuyao village (3.38km), Taowa village (2.1km), and Pujun village (0.9km). At present, all the production roads are dirt roads.

Table 1.3-6 Summary of the Main Construction Project (**Caocun Community of Fuping County**)

Serial number	Subprojects activities	Construction content
1	Office complex	A new office complex, the construction site being located in Taibai village, building area being 240m^2, the present situation of land use being rural construction land with 2-layer frame structure. The present situation of land use is rural construction land.
2	Persimmon cold storage	A new persimmon cold storage, the construction site being located in Taibai village, storage capacity being 1000 tons, building area being 1000m^2, the body using steel structure, the present situation of land use being rural construction land with the main function to store persimmon. The present situation of land use is rural construction land.
3	Dried persimmon processing plant	A new dried persimmon processing plant, using masonry-concrete structure, the construction site being located in Taibai village, building area being 450m^2, the present situation of land use being rural construction land. The built-in equipment mainly includes 7 automatic tuck stitch and peeling machines, 4 drying machines, 2 automatic packaging machines, stainless steel workbench of 30m^2, and 4 sealing machine. The present situation of

		land use is rural construction land.
4	Community road	The reconstruction of residential trunk road project of 3.3 km (from Caocun town hospital to Mapo cross), width being 6m, residential outgoing road project being 3.65km (from Zhoujia to Baofengxincun is 1.5km, from Zhoujia to Baofeng fourth group is 1.1km, from Zhoujia to Taibai primary school is 0.5km, from Jiapo connecting Mapo third group is 0.55km), width being 4m, residential internal road being 5.38km, the construction site being located in Taibai village and Xitou village, width being 3m, all reconstructing the original roads into cement roads. Before the road reconstruction, the above roads are gravel road, cement road and dirt road.
5	Production road	The reconstruction of mud stone country production road of 14.1km, with the width of 3.5 m. The construction site is located in Tupo village (4.6km), Xitou village (1.6km), Zhoujia village (0.9km) and Taibai village (0.8km). Before the road reconstruction, all the present production roads are dirt roads.

Table 1.3-7 Summary of the Main Construction Project (**Ganjing Community of Heyang County**)

Serial number	Subprojects activities	Construction content
1	Apple orchard drip irrigation project	1050 mu of new apple orchard drip irrigation project, with the present 450mu apple orchard anti-hail net. The construction site is located in Diantou village and Cheng village.
2	Mushroom production base	50 new mushroom greenhouses. The single greenhouse planning dimensions is 40m long and 6m, covering an area of 18mu, within supporting constructions including greenhouse micro-irrigation facility, bagmaking handling room of 240m^2, aseptic handling room of 100m^2. The construction site is located in Xiyang village of Ganjing community. The present situation of land use is agricultural land.
3	Mushroom cold storage	A new supporting mushroom cold storage, storage capacity being 150 tons, capacity being 32 m^3. The construction site is located in the west side of Xiyang village, building area being 100 m^2, the present situation of land use being rural construction land.
4	Water source well project	6 New water source well project, namely, Xiyang village, Diantou village, Xiangong village, Cheng village, Xiao village and Meng village respectively having one, yield of single well being 20m^3/h, well-type using tube well, well depth being 170m, sidewall being DN300 steel tube, single well irrigation area being 210mu, well spacing being 500m，to ensure the irrigation requirement of 1050mu apple orchards and 50 greenhouses of Ganjing community.
5	Village road	To reconstruct the village road of 13.35km, reconstructing all the original roads into cement roads with the width of 4m, including 3 roads in Diantou village of 6.7km, 4 roads in Xiao village of 5.8km, 1 road in Xiangong village of 0.85km. Before the road reconstruction, all the above roads are dirt roads.
6	Production road	The reconstruction of mud stone country production road of 13.6km, with the width of 3m. The construction sites are located in Diantou village (6.06km), Xiao village (2.57km), and Xiangong village (4.97km). Before the road reconstruction, all the present production roads are dirt roads.

Table 1.3-8 Summary of the Main Construction Project (Tingkou Community of Changwu County)

Serial number	Subprojects activities	Construction content
1	Apple orchard drainage and irrigation system pipe network project	New waterline of 4500m, 5 valve chambers. 5 New water storage tanks(volume 100m^3,) the construction site being located in Santai village apple industrial park, to realize 1326mu water-saving irrigation of apple orchards.

2	Apple orchard plant rod support facilities	To implement 666acres plant rod support facilities of apple orchards, the construction site being located in Santai village apple industrial park.
3	Apple cold storage	A new preservation cold store of controlled atmosphere, storage capacity being 2000 tons, the construction site being located in Santai village, covering an area of 8000m^2, using steel frame structure, the present situation of land use being rural construction land.
4	Office building of cooperative and agricultural machinery room	A new office building of cooperative and agricultural machinery room of two layers, covering an area of 260m^2, the construction site being located in Santai village, the present situation of land use being rural construction land.
5	Community road	The reconstruction of community roads of 2.82km, all being cement roads, including 5 roads inside the village and 3 passing village roads, the construction site being located in Santai village and Fanluo village, width of pavement being 4.0m or 3.5m. Before the road reconstruction, all the present production roads are dirt roads.
6	Production road	The reconstruction of mud stone country production road of 9.5km, with the width of 3m. The construction site is located in Fanluo village and Santai village. Before the road reconstruction, all the present production roads are dirt roads.

Table 1.3-9 Summary of the Main Construction Project (**Shijiao Community of Yichuan County**)

Serial number	Subprojects activities	Construction content
1	Rain water collection cistern project	300 new Rain water collection cisternprojects, construction site being located in Shangtianjiachuan village, Shijiao village, Gaojiageda village, Moyigou village, Majiawan village, Fanjiachuan village, Gaojiagou village, Xiatianjiachuan village. The cellar address is settled in the position with stable geology, no landslide and no loose, easing topography, 6m long, 6m wide, 3m deep, mainly used for farm irrigation.
2	Overflow bridge project	8 new overflow bridges, the construction sites being located in Shangtianjiachuan village (1), Shijiao village (1), Gaojiageda village (1), Moyigou village (1), Majiawan village (1), Fanjiachuan village (1), Gaojiagou village (1), Xiatianjiachuan village (1), all 40m long and 5.35m wide.
3	Community road	The reconstruction of roads inside the village of 13.1km based on the present community roads, with cement concrete pavement 3.5m wide (including Shangtianjiachuan village of 1.0km, Shijiao village of 2.0km, Gaojiageda village of 1.0km, Moyigou village of 2.8km, Majiawan village of 1.5km, Fanjiachuan village of 1.0km, Gaojiagou village of 1.8km, Xiatianjiachuan village of 2.0km). Before the road reconstruction, all the present production roads are dirt roads.
4	Production road	The reconstruction of mud stone country production road of 31.6km, with the width of 4.0m. The construction sites are located in Shangtianjiachuan village of 1.6km, Shijiao village of 6.0km, Gaojiageda village of 3.2km, Moyigou village of 5.0km, Majiawan village of 4.8km, Fanjiachuan village of 6.5km, Gaojiagou village of 2.0km, Xiatianjiachuan village of 2.5km. Before the road reconstruction, all the present production roads are dirt roads.

Table 1.3-10 Summary of the Main Construction Project (**Leichi Community of Yanchang County**)

Serial number	Subprojects activities	Construction content
1	Rain water collection cisternproject	185 new Rain water collection cisternprojects, construction site being located in Lingshishan village(10), Qianhe village(10), Shentou village(15), Leiduo village(30), Kefeng village(10), Qiangjiayuan village(10), Chijiang village(10), Caibeiping village(10), Daya village(10), Defu village(15), Dalu village(10), Miaoliang village(15), Xianxi village(10), Dahua village(20). The cellar address is settled in the position with stable geology, no landslide and no loose, easing topography, 6m long, 6m wide, 3m deep, mainly used for the irrigation of apple trees.
2	Apple cold storage	A new preservation cold store of controlled atmosphere, storage capacity being 4000 tons, the construction site being located in Hejiahe village, covering an area of 30acres, using steel frame structure, the present situation of land use being rural construction land.
3	Apple commercializatio n processing line	A Apple commercialization processing line, building area being 1000 m^2, with incoming settings of apple packaging and cleaning equipment, the present situation of land use being rural construction land.
4	Apple Sale Outlet	A new apple unified collection spot, the construction site being located in Leichi town, covering an area of 2000m^2, the present situation of land use being rural construction land.
5	Production road	The reconstruction of mud stone country production road of 17.91km, with the width of 4.0m. The construction sites are located in Lingshishan village(2, 1.2km), Qianhe village(2, 1.6km), Shentou village(5, 1.9km), Leiduo village(5, 1.7km), Kefeng village(4, 0.6km), Qiangjiayuan village(3, 0.9km), Chijiang village(1, 0.3km), Caibeiping village(2, 0.9km), Daya village(5, 1.6km), Defu village(5, 1.5km), Dalu village(4, 1.9km), Miaoliang village(3, 0.81km), Xianxi village(1, 0.4km), Dahua village(6, 2.6km). Before the road reconstruction, all the present production roads are dirt roads.
6	Roads of residential area	The reconstruction of residential road of 1.3 kilometers, the construction site being located in the main street of Leichi town. Before the road reconstruction, all the present production roads are asphalt roads.
7	Cooperative office occupancy	8 new cooperative office occupancy, building area being 240m^2, brick-concrete structure, the construction site being located in Hejiahe village, the present situation of land use being rural construction land.
8	Thoroughbred pig feedlots	A new thoroughbred pig feedlots, the construction site being located in Wapengyaozi village, building area being 1200m^2, annual yield of little thoroughbred pigs being 500, the present situation of land use being rural construction land.

Table 1.3-11 Summary of the Main Construction Project (**He’er Chuan Community of Yichuan County**)

Serial number	Subprojects activities	Construction content
1	Overflow bridge project	11 new overflowbridges, the construction site being located in Yadi village(3), Shimengou village(1)，Liuchagou village(2), Shitaishi village(2), Machagou village(1), Shike village(1), 40m long and 5.5m wide.
2	Bed protection project	New He'erchuan river bed protection project of 800m^3, the construction site being located in Chenjiazhuang village, using M7.5 cement laid stone masonry, mainly used for flood control.
3	Agricultural irrigation canals	New agricultural irrigation canals of 600m, the construction site being located in Chenjiazhuang village, water being from He'erchuan river, mainly used for irrigation.
4	Community village road	The reconstruction of community road of 11.6 km, all being cement roads of 3.5m wide, the construction site being located in Yadi village, Shimengou village, Liuchagou village, Shitaishi village, Machagou village, Shike village, Hujiazhuang village and Chenjiazhuang village. Before the road

		reconstruction, the present roads are cement roads, gravel roads and dirt roads.
5	Production road	The reconstruction of dinas country production roads of 40.2km long and 3.5m wide, the construction site being located in Yadi village, Shimengou village, Liuchagou village, Shitaishi village, Machagou village, Shike village, Hujiazhuang village and Chenjiazhuang village. Before the road reconstruction, all the present roads are dirt roads.

Table 1.3-12 Summary of the Main Construction Project (**Yangjin Community of Dingbian County**)

Serial number	Subprojects activities	Construction content
1	Rain water collection cistern project	295 new Rain water collection cisternprojects, construction site being located in Yangjing village, Shenkouzi village, Wulijian village, Heyaoxian village, Qingwan village, Yangwan village, Gaotianliang village, Shangendi village, Sunkeyaoxian village. he cellar address is settled in the position with stable geology, no landslide and no loose, easing topography, 6m long, 6m wide, 3m deep, mainly used for farmers' drinking water storage supply for sheep feeding.
2	Pumping well	A new pumping well, construction site being located in Yangjing village, well depth being 300m, yield of single well being 18m3/h, mainly used as drinking water of rural livestock.
3	Village road project	The construction of passing village road of 12.0km, among which from Lijiagu to Tuwozi is 5.0km, from Shangendi to Zhangzhuang to Sunkeyaoxian is village is 7.0km, reconstructed into cement roads, the roadbed being 6m, the road width being 4.5 m. Before the road reconstruction, all the present roads are dirt roads.
4	Cooperative concentrated breeding production area	A new cooperative concentrated breeding production area, the construction site being located in Yangjing village, mainly used for breeding and fattening sheep, the breeding scale being 2950, building (color steel tent) area being 807m2, all the present production roads being construction land.
5	Livestock product transaction point	A new simple transaction point of livestock product, the construction site being located in Yangjing village, convering an area of 10acres, building (simple greenhouses) area being 1000m^2, the present situation of land use being rural construction land.
6	Cooperative office building	A new cooperative office building, the construction site being located in Yangjing village, building area being 100m^2, 2-layer brick-concrete structure, the present situation of land use being rural construction land.

Table 1.3-13 Summary of the Main Construction Project (**Longzhen Community of Mizhi County**)

Serial number	Subprojects activities	Construction content
1	Land improvement project (changing slope into terrace)	A new land improvement project (changing slope into terrace, wide terrace), the construction site being located in Heliuju village (50acres), Caoshan village (50acres), Aijiawa village, Longmao village, Fengzhuang village and Lixingzhuang village of 150acres, Zhaishan village (50acres), Zhaoxingzhuang village (80acres), Baijian village (80acres), Yayaogou village (60acres), Lishan village (100acres), Qianzhongzhuang village (80acres), Houzhongzhuang village (80acres), Shanjianleng village (110acres), Anzhai village (110acres), Xinyaogou village (100acres), used for planting apples after land improvement.
2	Community road	The reconstruction of community roads of 13km, all being cement roads, the construction site being located in Heliuju village (0.5km), Caoshan village (1km), Aijiawa village, Longmao village, Fengzhuang village and Lixingzhuang village (0.8km), Zhaishan village (0.9km), Zhaoxingzhuang

		village (0.8km), Baijian village (1km), Yayaogou village (0.9km), Lishan village (0.6km), Qianzhongzhuang village (0.8km), Houzhongzhuang village (0.9km), Shanjianleng village (1km), Anzhai village (0.9km), Xinyaogou village (0.4km), the width of pavement being 3.5-4.0m. Before the road reconstruction, all the present roads are dirt roads.
3	Cooperative office building	The renovation of cooperative office building, building area being 90 m^2, the construction site being located in the original site (obsolete) of Lugousha primary school.
4	Production road	The reconstruction of mud stone country production road of 20.0km km, with the width of 4.0m. The construction sites are located in Heliuju village (1km), Caoshan village (1km), Aijiawa village, Longmao village, Fengzhuang village and Lixingzhuang village (1.3km), Zhaishan village (1.1km), Zhaoxingzhuang village (1.6km), Baijian village (1.2km), Yayaogou village (1.4km), Lishan village (0.9km), Qianzhongzhuang village (1.3km), Houzhongzhuang village (2km), Shanjianleng village (1.8km), Anzhai village (1.5km), Xinyaogou village (1.8km). Before the road reconstruction, all the present roads are dirt roads.
5	Jiami donkey meat packaging workshop	A new Jiami donkey meat packaging workshop, the construction site being located in the original site (obsolete) of Lugousha primary school, constructing with the existing primary school schoolhouse, building area being 150 m^2, floor space being 700m^2, with the incoming setting of 1 Jiami donkey meat processing and packaging equipment, the present situation of land use being rural construction land.
6	Agricultural irrigation project	New agricultural irrigation project, including 10 new water storage tanks(each with volume 100m^3) and 10 irrigation bore holes, the construction site being located in Longmao village, Fengzhuang village, Lixingzhuang village, Zhaishan village, Zhaoxingzhuang village, Baijian village, Yayaogou village, Lishan village, Shanjianleng village and Xinyaogou village, mainly used for farm irrigation, the present situation of land use being agricultural land.

Table 1.3-14 Summary of the Main Construction Project (Yangjiagou Community of Mizhi County)

Serial number	Subprojects activities	Construction content
1	Land improvement project (changing slope into terrace)	A new land improvement project (changing slope into terrace, wide terrace) of 860acres, the construction site being located in Yangjiagou village (400acres), Houjiagou village (300acres), and the remaining area of land improvement being 160acres, used for planting apples and coarse grain after reconstruction.
2	Protected agriculture(green house)	15 New greenhouses, each covering an area of 667m^2, the construction site being located in Yangjiagou village (5), Xiaogou village (2), Yuecha village (3), Gongjiagou village (2), Shigou village (3), mainly used for planting vegetables and fruits and building sightseeing agriculture picking garden, the present situation of land use being agricultural land.
3	Local characteristic products sale outlet	New local characteristic products sale outlet, the construction site being located in Yangjiagou village, with a total of 20 small showrooms, the present situation of land use being rural construction land.
4	Village community road	The reconstruction of community roads within the village of 24km, the construction site being located in Yuecha village (4km), Xiaogou village (5km), Shji (4km), Yangjiagou village (8km), Gongjiagou village (1km), Licungelao village (2km), Baojiagou village (4km), reconstructed into brick roads with the width of pavement being 4~5m, all the present roads being dirt roads.
5	Village road	The reconstruction of 1 passing village road of 7km, the construction site being located in Licungelao village to Houjiagou village with the width of pavement being 4.0m, all the present roads being dirt roads.

6	Production road	The reconstruction of mud stone country production road of 36km, with the width of 4.0m. The construction sites are located in Yuecha village (8km), Xiaogou village (5km), Shigou village (4km), Yangjiagou village (6km), Gongjiagou village (3km), Licungelao village (2km), Houjiagou village (8km). At present, all the present production roads are dirt roads.
7	Apple storage vault	A new apple warehouse, the construction site being located in Yangjiagou village, building area being 512m^2, the present situation of land use being rural construction land.

The total investment of planned project is RMB 792.74 million, or $127.86 million. Among them, the applied loan of the World Bank is RMB 620 million, or $100 million, accounting for 78.21% of the total investment; the domestic supporting capital is RMB 172.73 million, or $27.86 million, accounting for 21.79% of the total investment.

For the geographic position of communities, see figure 1.3-1 - figure 1.3-13.

2.Establishment Principles and execution criteria

2.1.Establishment Principles

2.1.1.Relevant laws and regulations for environmental protection in China

2.1.1.1 Relevant national laws and regulations

（1）Law of Environmental Protection of the PRC (implemented in 01/01/2015);

（2）Prevention and Cure Law on Water Pollution of PRC (implemented in 06/01/2008);

（3）Air Pollution Prevention law of PRC (implemented in 09/01/2000);

（4）Environmental Noise Pollution Prevention Law of the PRC (implemented in 03/01/1997);

（5）Environmental Pollution Prevention and Control Law of Solid Wastes of the PRC (implemented in 04/01/2005);

（6）Environmental Impact Assessment law of the PRC (implemented in 09/01/2013);

（7）Soil and Water Conservation Law (implemented in 03/01/2011);

（8）Water Law of the People's Republic of PRC (implemented in 10/01/2002);

（9）Ordinance on administration for environmental protection of construction projects (implemented in 11/29/1998);

（10）Wild Animal Conservation Law of PRC (implemented in 08/28/2004);

（11）Law for the Preservation of Antiques of PRC (implemented in 12/19/2007);

（12）Flood control law of PRC (implemented in 08/29/1997);

（13）Land Administration Law of PRC (implemented in 08/28/2004);

（14）Regulations on the Nature Protection Regions of PRC (implemented in 10/09/1994);

（15）Wild Plants Protection Regulation of PRC (implemented in 09/30/1996);

（16）Program of Ecological and Environmental Protection(implemented in 04/10/2001);

（17）Notices about the Relevant Issues of Guideposts of Main Pollutant Discharge Total Amount Control of Approved Construction Projects, Files of the general office of SEPA, environmental protection office (2003) No. 25;

（18）Classification Management Directory of Environmental Impact Assessment of Construction Projects（Decree from Ministry of Environmental Protection of PRC, No. 33, 06/01/2015）;

（19）The Temporary Act of Environmental Impact Assessment of Public Participating（issued by SEPA [2006] No.28 file 02/14/2006）;

（20）Environmental and Health Standard of Construction Site（Building standard s [2004]No. 66）;

（21）Integrated Wastewater Discharge Standard of Yellow River Basin (Shaanxi section)（DB61224-2011）.

2.1.1.2 Relevant local laws and regulations

（1）Implementary Measures of Environmental Impact Assessment Law of Shaanxi Province（04/2007）;

（2）Ecological Function Zoning of Shaanxi Province（issued by Shaanxi government office [2004] No.105）（11/2004）;

（3）Water Function Zoning of Shaanxi Province（issued by Shaanxi government office [2004] No.100）（09/2004）;

（4）Environmental Protection Act of Urban Drinking Water Source Reserves of Shaanxi Province

（03/2002）

（5）Energy Saving regulations of Shaanxi Province（12/2006）;

（6）Water Conservation Measures of Shaanxi Province（09/2003） ;

（7）Industry Water use Quota of Shaanxi Province（issued by Shaanxi government office [2004] No.18）;

（8）Wild Plants Protection Regulation of Shaanxi Province（10/2010）;

（9）Rules of the Preservation and Administration of Cultural Relics of Shaanxi Province（revised in 2004） ;

（10）Air Pollution Control Regulation of Shaanxi Province（11/29/2013）;

（11）Work Program of Comprehensively Improving the Urban Environment Air Quality of Shaanxi Province（07/06/2012）;

（12）Five-year Action Plan of the Prevention of pollution and haze . save the air of Shaanxi Province（2013~2017）（12/30/2013）;

（13）Building Construction Dust Governance Action Plan of Shaanxi Province（issued by Shaanxi construction [2013] No.293）;

（14）Soil and Water Conservation Act of Shaanxi Province（07/26/2013）;

（15）Enforcement Regulation of Ordinance on Administration for Environmental Protection of Construction Projects of Shaanxi Province;

（16）Building Construction Dust Governance Action Plan of Shaanxi Province;

（17）16 Building Construction Dust Control Measures of Shaanxi Province。

2.1.2.The relevant provisions of the World Bank

For Operation policy and associated instructions of the World Bank, see table 2.1-1。

Table 2.1-1 Operation Policy and Associated instructions of the World Bank

Operation policy of the World Bank		**Yes/No**	**This project's impact assessment concerning the operation policy of the World Bank and associated instructions**
OP4.01	Environmental assessment	Yes	The construction and operation period of the project will affect the surrounding environment. This policy is applicable in this project.
OP4.04	Natural habitat	No	The project is located in the region seriously influenced by human activities. In the project scope, there will be no natural habitats that will be affected by the project.
OP4.09	Pest management	Yes	The project will adjust planting structure and cause certain influence to the pesticide use. This policy is applicable in this project.
OP4.10	Indigenous People	No	The proposed area of the project will not be built in areas inhabited by IP. This policy is not applicable in this project.
OP4.11	Physical culture resources	No	Project activities are conducted on the existing agricultural land and construction land. There will be no physical culture resources in the area to be affected by the project. This policy is not applicable in this project.
OP4.12	Involuntary resettlement	Yes	Project activity will affect immigration relocation. This policy is applicable in this project.
OP4.36	Forests	No	The project will not have any impact on the health and quality of the forests, nor have any impact on the

			interests of the masses owning the forests or their dependence on the forests. This policy is not applicable in this project.
OP4.37	Safety of Dams	No	The project will not affect support construction and dam repair, nor will it rely on any existing dam or dam in construction. This policy is not applicable in this project.
OP7.50	Projects in International waterways	No	The proposed project construction site will be in China, not involving international waters.
OP7.60	Project in disputed areas	No	All project construction sites are located in the province, and there will be no disputed area.
BP17.50	Information disclosure	Yes	The environmental impact assessment document of the project is subject to information disclosure and public consultation. The environmental impact assessment document is fully available to the public.
	IFC EHS General Guidelines, and Sector EHS Guidelines	Yes	Applicable to the project activities.

2.1.3Technical specification and guideline in industry, environment, health and safety

（1）Technical Guidelines for Environmental Impact General Principles（HJ 2.1-2011）;

（2）Technical Guidelines for Environmental Impact Ecological Impact（HJ19-2011）;

（3）Technical Guidelines for Environmental Impact Surface Water Environment（HJ/T2.3-93）;

（4）Technical Guidelines for Environmental Impact Atmospheric Environment（HJ/T2.2-2008）;

（5）Technical Guidelines for Environmental Impact Acoustic Environment（HJ2.4-2009）;

（6）Technical Guidelines for Environmental Impact Groundwater Environment（HJ 610-2011）;

（7）Guideline for Technical Review of Environment Impact Assessment on Construction Projects（HJ 616-2011）.

2.2.Assessment criterion

Table 2.2-1 The execution environmental criterion of the project

Execution criterion		Shaanxi Province
Environmental quality criterion	Environmental Quality Standards for Surface Water（GB3838-2002）	II, III,IV
	Quality Standard for Ground Water（GB/T14848-1993）	III
	Ambient Air Quality Standard（GB3095-2012）	Second level
	Environmental Quality Standard for Noise（GB3096-2008）	I, II
	Environmental Quality Standard for Soils（GB15618-1995）	II
	Water Quality Standard for Farm Irrigation（GB5084-2005）	
Pollution discharge criterion	Integrated Wastewater Discharge Standard of Yellow River Basin (Shaanxi section)（DB61224-2011）	Integrated Wastewater Discharge Standard（GB8978-1996）
	The Integrated Emission Standard of Air Pollutants（GB12697-1996）	
	Emission Standard of Environment Noise for Boundary of Construction Site（GB 12523-2011）	
	Emission Standard of Environment Noise for Boundary of Industrial Enterprise Factory（GB 12348-2008）	I, II

3.The main environmental impacts and mitigation measures

3.1.General project impact analysis and mitigation measures

The construction work of the project is mainly in rural areas, and the project category basically belongs to small rural production facilities, infrastructure and related supporting facilities. The project does not involve large water conservancy and irrigation projects, large construction work and large production base, thus the overall environmental impact is not significant. For the general environmental impact analysis and mitigation measures of the project in construction period, see annex I.

3.2.Typical project impact analysis and mitigation measures

Table 3.1-1: Typical Environmental and social impact analysis of the sub-project activities and its mitigation measures

Sub-project activities	period	Environmental impact	Pollution control and prevention measures
Roads Project	construction period	● Common environmental impacts during construction period, see detail in annex I.	● Common pollution control and prevention measures during construction period, see detail in annex I.
	Operation Period	● The road conditions and pavement situations are improved, which increase the safety and reduce the impact of noise and dust, and then improve the convenience of residents' production and life	● Null
Well(Water Source well) Project	construction period	● Common environmental impacts during construction period ,see detail in annex I. ● Tower, drill and other equipments and the mud pools will occupy the farmland and the process of digging well and drilling holes will produce mechanical noise.	● Common pollution control and prevention measures during construction period ,see detail in annex I. ● Well equipments should be checked whether there is an oil or water leakage prior to utilization. If the equipments have an oil leakage, it should far away from the drill hole. Before using the equipment, the monitor measure should be adopted. ● Arrange the construction schedule reasonability and avoid multiple high-noise mechanical equipments working at the same time in the same construction field, and when construction, the period of noise impact should be shorten. ● The period of the occupying the land temporarily should be shorten. The time of earthwork should be control to maintain stable digging and filling of the slope.
	operation period	● There are 29 water source wells involving in this	● The exploitation of well water should strictly follow the rule of permission document, extra

		project, and they are located in the Liangquan community in the Long county, Shiguan community and Lin Gao community in the Baishui county, Ganjing community in the Heyang county, Yangjing community in the Dingbian county and Longzhen community in Mizhi county respectively. The annual exploitation volume of groundwater is about 6,400m^3/a, accounting for 0.0018% to 0.009% of the available groundwater resources annually, and therefore it has limit impact on the groundwater resource. ● Meanwhile, each community has already received the Groundwater Exploitation Permission from the local Water Conservancy Bureau, in line with the requirement of the local water resources planning and the relevant policies.	exploitation is prohibited
(overflow bridge)bridge and culvert project	construction period	● Common environmental impacts during construction period, see detail in annex I. ● The leakage of the mud water and the water gushing of the piles and the water gushing will impact the water quality of the specific river crossed by the bridge. ● The waste slag (sediment) produced during the process of drilling construction of the bridge will impact the water quality of the specific river crossed by the bridge. ● The module and the mechanical oil used in the main bridge construction, if leaking or abandoned directly into the water, will increase the gasoline types	● Common pollution control and prevention measures during construction period, see detail in annex I. ● The mud water produced by the construction of the piles should be reused via the sedimentation tank. Upon the end of the piles construction, the stored mud water in the sedimentation tank is treated by the coagulation sedimentation process and then the supernatant is used by sprinkler in the construction site to reduce the dust. ● The period of the pier construction of bridges and culverts near the shore should selected in the dry season of the water body and use the steel sheet cofferdam to avoid the impact of the water quality of the specific water body. ● The slag of the construction

		of pollutants concentration.	should be discharged into sedimentation tank of the embankment by mud pump, and after treated by sedimentation tank, the supernatant is used by sprinkler in the construction site to reduce the dust. The slag (sediment) should be comprehensively handled by the local Environmental Sanitation Department. ● In the construction field, the management should be enhanced to regulate the construction. Both during the drilling holes operations structurally on the bottom of the bridge or during the on-site pouring on the top of the bridge, it is forbidden to abandon the construction materials and the waste oil into the local water body, avoiding the impact on the water quality.
	operation period	● The overflow bridge cross the seasonal or perennial river, in the runtime, could impact the water quality due to the pollutants produced by the passing vehicles, leakage of the mechanic oil and so on.	● Enhance the management of the passing vehicles, optimize the transportation routes and take corresponding measures on the vehicles which transport the dangerous items, the pesticides and flammable and explosive chemicals.
air condition (cold storage)base	construction period	● Common environmental impacts during construction period ,see detail in annex I.	● Common pollution control and prevention measures during construction period ,see detail in annex I.
	operation period	● The impact of the automobile exhaust on the environment ● A small amount of packaging, fruit and vegetable residue produced by the manual inspection and delivery of cargo from storage, a small amount of cleaning waste produced during the overhaul of the refrigeration units ● The influence of mechanical noise produced by the refrigeration compressor in the cold storage and of the traffic noise produced by the vehicles which transports the vegetables and fruits ●	● The exhaust of the automobile is fugitive emission. The transportation frequency of the automobile is lower and the surrounding barrier is less, with better air mobility, there is no need for the special control and prevention measures. ● The cleaning wastes such as the filter, coolant, refrigeration units should be maintained and repaired by the manufacturer regularly, and the waste generated during this period should be recycled by the manufactures directly. ● The waste package materials should be stockpiled in the designated place, and uniformly purchased by the wastes purchasing station for the other utilization. The fruit and

			vegetable residue should be uniformly removed and dealt by the local Environmental Sanitation Department. ● In the connected place of the compressor, it should be treated by vibration reduction. On top of the chassis, it should be treated by sound isolation with soundproof materials. Meanwhile, sound isolation and afforestion should be implemented on and around the workshop.
morchella (mushroom) planting factory	construction period	● Common environmental impacts during construction period ,see detail in annex I.	● Common pollution control and prevention measures during construction period , see detail in annex I.
	operation period	● The impact of the malodorous gases generated in the process of stockpiling of the medium, on the environmental air ● The solid wastes, such as the waste medium after harvest, the packages of the disinfectants ● The impact of mechanical noise during the operation of the production equipment	● the malodorous gases emissions generated by the stockpiling of medium is fugitive emission and it requires the stockpiling site to use the dry manure as much as possible as well as enhance the ventilation; ● the package bags of the disinfectants should be collected uniformly, and transported to the designated site by the Environmental Sanitation Department. ● The mechanical noise generated by the operation of refrigeration units, disinfectors and humidifiers should be reduced by selecting the low-noise equipments as well as by the measures of sound reduction and vibration reduction. At the same time, sound isolation and afforestion should be implemented on and around the workshop.
chili processing facilities and packaging workshop	construction period	● Common environmental impacts during construction period ,see detail in annex I.	● Common pollution control and prevention measures during construction period ,see detail in annex I.
	operation period	● The washing waste water generated during the process of washing the stainless steel containers, mixers, filling machines, heating kettles etc. ● The waste water generated in the process of washing the chili ● The waste water generated	● In the chili manufacture plant, the septic tanks and sewage treatment units should be set up to deal with the washing waste water, and after treatment, the water will meet the requirement of the " standards for irrigation water quality " (GB5084-2005) and will be used for irrigation on the surrounding farmland,

		in the process of washing the floor of the workshop ● The impact of the mechanical noise generated by the operation of the mixers, filling machines, heating kettles;	and could be discharge to the external. ● The soundproof enclosures should be installed in the location of noise source of the equipment and at the same the basic vibration reduction measure should be implemented. At the same time, sound isolation and afforestion should be implemented on and around the workshop. ● The gravel, sand, leaves and other debris should be collected uniformly, and they should be transported with the living garbage to the place designated by the Environmental Sanitation Department for disposal.
persimmon manufacture plant	construction period	● Common environmental impacts during construction period ,see detail in annex I.	● Common pollution control and prevention measures during construction period ,see detail in annex I.
	operation period	● The waste water of cleaning persimmon ● The vapor of Chlorine dioxide ·	● After precipitation treatment, the waste water of cleaning persimmon could be used to irrigate the surrounding farmland for comprehensive utilization. ● The vapor of Chlorine dioxide is corrosive, so the operators should be noted to be protected, and equipped with suitable protective devices.
apple sorting plant(apple commercializati on processing line)	construction period	● Common environmental impacts during construction period ,see detail in annex I.	● Common pollution control and prevention measures during construction period ,see detail in annex I.
	operation period	● Waste water of cleaning apples ● waste packages and other solid wastes	● After precipitation treatment, the waste water of cleaning apple could be used to irrigate the surrounding farmland for comprehensive utilization. ● The waste packages and the other solid wastes can be collected uniformly and then transported to the local wastes purchasing station for comprehensive utilization.
improvement of existing apple orchard and protected agriculture project	construction period	● Common environmental impacts during construction period ,see detail in annex I.	● Common pollution control and prevention measures during construction period ,see detail in annex I.
	operation period	● The impact of the pesticides, fertilizer on the air, soil and organism, see	● The control and prevention measures for the pesticide, fertilizer pollution, see the

		detail information in Section 3.2.3; ● The impact of agricultural films and other solid waste on the soil and agricultural production;	detailed information in Section 3.2.3; ● In this project, the storage of the agricultural products did not use the pesticides and chemicals; ● Selecting the agricultural film with high safety, serviceability, economy; ● optimizing the agricultural film covering technique, promoting side film cultivation techniques, discovering the film timely and reducing the number of years of continuous coverage; ● promoting the use of biodegradable agricultural film ● enhancing the work of recycling agricultural film, increasing the film recycling machinery and increasing the recycling rate of the agricultural film
feedlots project	construction period	● Common environmental impacts during construction period , see detail in annex I.	● Common pollution control and prevention measures during construction period ,see detail in annex I.
	operation period	● The malodorous gas pollution generated in the piggery, dry septic tanks and biogas slurry storage digesters. ● The dust pollution generated in the feed processing workshop ● biogas fermentation ● the impact on the water environment from the pig urine and flush wastewater of piggery ● the noise impact of pigs' howling and the operating mechanical equipment ● the solid wastes such as the excrement of the pigs, the sludge in the biogas digesters, the sick and death pigs during the breeding, the placenta that produced in the sows house and the medical waste in the veterinary chamber and so on.	● During the transportation of the pigs' feces, the stool should be covered with straws to prevent the spill and the volatilizing of the fecal odor. ● In the feed processing workshop, it should adopt the exhaust fans for ventilation and the dust in the workshop should be cleaned in time. ● The piggery should adopt the dry collection, increase the number of the ventilation, collect and stockpile the manure periodically into the dry septic tank. And the piggery should be cleaned regularly and the urine and feces of the pigs should be clear up, keeping the cleanliness and hygiene of the piggery. ● Increase the digestibility of the pig diet to reduce the excretion of the dry matter (especially protein). It not only reduces the generation of the stinking odor in the intestine, but also reduces the malodorous odor of the feces. This is the effective measure to reduce the source of stench. ● Use low-protein diets balanced by the amino acid and replace the intact proteins with the

			synthetic amino acids in the diets to reduce the nitrogen in the excrement. ● Select the efficient, safe, pollution-free "green" feed additives, such as microbial agents, enzymes and plant extracts and other active substances to reduce the pollutant emissions and generation of the malodorous gases. ● If applicable, use the masking deodorant and oxidizing agent to deodorize the stench of the manure in the dry septic tank. ● The piggery should separate the feces and urine. The pigs' manure should be picked manually, and the pigs' urine and the flushing waste water should be discharged into the sewage treatment system via drains. ● The sewage treatment facilities should be set up, and the biogas slurry after treatment should be transport to the storage tank via pipeline. The volume of the biogas storage tank should not less than 300m3. ● The accident risk tank should be set up and the volume should not less than 300m3, to accommodate the waste water that generated by the project when the equipment is failed, achieving the zero discharge of the project waste water. ● According to the mode II in the "Technical Specifications for Pollution Treatment Projects of Livestock and Poultry Farms" (HJ497-2009), each tanks in the sewage treatment system should be well prepared for anti-seepage. The living waste water and the pigs' urine should be discharged into and process in the biogas digester. ● Use vibration reduction and isolation measures to reduce the high-noise generated by the equipment such as the shredders, crushers and mixers and so on. ● The feed processing workshop in the project should adopt the soundproof doors and windows,

			and the materials used in the wall of the workshop should be sound-absorbing. During the production, close the doors and windows as much as possible. ● Around the piggery, afforestation should be enhanced to isolate the noise, so the boundary of the factory should be planted with tall trees. ● Two non-hazardous treatment landfills which are concrete construction should be set up to bury the dead pig and the placenta, after each burying, the body should be covered by a slaked lime layer of more than 10cm thickness to ensure that every body and placenta is destroy completely and a well bactericidal effect is achieved. ● In this project, the empty bottle of a variety of disease (bacteria) vaccine and antibiotic drugs, the bags etc. should be stored in the switch storage tank in the isolation room, and if the medical solid waste has reached a certain amount, it should submit into the qualified unit for disposal. ● Dry collection is used and after manually clearing the manure, all the manure together is stockpiled into the dry septic tank. According to the aerobic composting in "Technical Specifications for Pollution Treatment Projects of Livestock and Poultry Farms" (HJ497-2009), the manure should be the fertilizer for farmland after treatment. ● The biogas digester sludge and the pigs' manure should be composted together and after fermentation, it could use as organic fertilizer.
Biogas project	construction period	● Common environmental impacts during construction period ,see detail in annex I.	● Common pollution control and prevention measures during construction period ,see detail in annex I.
	operation period	● The impact of malodorous and harmful gas that generated in the process of biogas fermentation ● The impact of the flue and gas that generated by the biogas boiler on the	● The hygiene and protection distance of the malodorous gas pollution: it should be set at a distance of 100m away from the biogas digester, and during the site selection, within this hygiene and protection distance,

		atmospheric environment ● The impact of the waste water generated by the boiler ● The noise impact generated during in the operation of the production equipment (such as paddle mixer, lift pumps, etc.) ● The solid wastes generated in the biogas digester, such as biogas slurry and slag and so on.	there should not be guaranteed that there is no sensitive point, such as residents and so on. ● According to the requirement of "Emission standard of air pollutants for boiler" (GB13271-2014), the boiler flue and gas should be exhausted by the exhaust tube which is more than 8 meters length. ● This project should guarantee that the waste water of the boiler should be discharged into the biogas digester, not the external. ● This project should guarantee that the enterprises noise at boundary can meet the level 2 requirement of "Emission standard for industrial enterprises noise at boundary", by the measures such as installing silencer, damping mats as well as by assisting measures, such as noise reduction through distance and insulation of plant noise. ● The biogas slurry and slag the generated in the biogas digesters can be comprehensively utilized as the fertilizer for the surrounding vegetable greenhouses, orchards and farmlands, and could not be discharged to the external.
Biological compost pit	construction period	● Common environmental impacts during construction period , see detail in annex I.	● Common pollution control and prevention measures during construction period ,see detail in annex I.
	operation period	● During the process of biological composting, due to the drawback in the aspects of anti-seepage and anti-rainwater, it would affect the environment of surface water and groundwater.	● For the biological composting pit that built by the poor farmers themselves, it should take some measures for anti-seepage such as constructed by brick structure and the bottom sealed by cement , to prevent the compost infiltration to contaminate the groundwater. ● The top of biological composting pit should be configured with roof to prevent the injection of the rainwater overflowing to the surrounding environment contaminating the surface water. ● On top of the biological composting pit, anti-mosquito

			or fly devices should be set.
garbage collection pool	construction period	● Common environmental impacts during construction period ,see detail in annex I.	● Common pollution control and prevention measures during construction period ,see detail in annex I.
	operation period	● Due to the drawback in the aspects of anti-seepage and anti-rainwater in the garbage collection pools, it would affect the environment of surface water and groundwater. ● During the process of transportation and collection of garbage, the garbage might be scattered and cause the impact on the surrounding environment.	● The garbage collection pool should take some measures for anti-seepage such as constructed by brick structure and the bottom sealed by cement , to prevent the garbage leachate contaminate the groundwater ● The garbage collection pool should be configured with roof. After collection, the pool should be covered by the lid, in order to avoid the entering of rainwater, resulting in the leachate leaking to external. ● The garbage should be gathered by the dedicated fully enclosed garbage transfer vehicle to prevent the impact of the scattered garbage during the transfer process on the surrounding environment. ● Garbage collection pool should be cleaned regularly. The garbage, after gathering, should be transferred to the township garbage transfer station regularly, and then transferred to county garbage landfill for disposal.
Sale outlet	construction period	● Common environmental impacts during construction period ,see detail in annex I.	● Common pollution control and prevention measures during construction period ,see detail in annex I.
	operation period	● automobile and mechanic exhaust; ● the malodorous gases generated by poultry, meat markets and garbage collection sites ● impact of traffic noise and operation and life noise ● impact of solid wastes, such as garbage, rotting and waste agricultural products, packaging materials and so on	● Reasonable guide for all kinds of vehicles in-and-out, avoid congestion and reduce the idling driving of the vehicle; and require the vehicles which enters into the project region should turn off immediately in order to reduce exhaust emissions. The road conditions in the project region should be well-maintained, and the pavement should be cleared and washed regularly in order to reduce the dust in the road and prevent or reduce the secondary dust in the road. ● If the Sale Outlet is in the form of indoor market, it should be

			washed every day, and use the combination approach of natural ventilation and mechanical ventilation to exhaust. The air vents should avoid the sensitive sites. The collected all types of wastes in the garbage collection should be collected by sealing bags and prevent the random abandonment. ● In the entrance and exit location and the appropriate location in the Sale Outlet, it should set a deceleration zone and speed limit sign and forbid whistle for no reason. When the vehicles enter into the underground parking site, it should control the speed and reduce the intensity of the vehicle noise source. ● Enhance the management of the agricultural product loading and unloading activities to reduce the man-made loading and unloading equipment noise because of improper operation. ● The waste package bags and boxes that produced during the logistics and transport period should be collected and piled together, and then sell to the waste recycling station. The waste, rotting and waste agricultural product etc. should be clean by the management department of Sale Outlet every day. In the Sale Outlet, the trash bin should be reasonable configured and the waste should be categorized and all the garbage should be collected and stored with bags and then the local sanitation department is assigned to remove and process them collectively, ensuring the garbage produced and processed within one day.

3.3.Specific analysis of pollution stage and mitigation measures during the operation period of a typical project

According to the construction components and category in section 1.3.2, the environmental impact and mitigation measures during the operation period of typical projects are determined. Besides the environmental impact, this kind of projects will produce particular pollutants and typical characteristics of environmental impact during the operation period. The specific analysis is as follows.

3.3.1Air-conditioned cold storage project

The air-conditioned cold storage projects involved in this project include Liangquan community in Long County, Lingao community in Baishui County, Caocun community in Fuping County, Ganjing community in Heyang County, Tingkou community in Changwu County, Leichi community in Yancheng County, storage size being 150 tons - 4000 tons, mainly used for the storage and preservation of apple, mushroom and persimmon.

（1）Impact analysis

The main particular pollutants and environmental impacts during the operation period of air-conditioned cold store (cold storage) include:

①Automobile exhaust: the vehicles transporting fruits and vegetables will produce a small amount of automobile exhaust.

②Solid waste: mainly including a small amount of packaging, fruit and vegetable residue during the artificial test and outbound process, as well as a small amount of clean waste from refrigeration units and repair process.

③Noise: mainly the mechanical noise of cold storage compressors and vehicles transporting fruits and vegetables.

（2）Control measures

①Automobile exhaust produced by vehicles transporting fruits and vegetables is unorganized emissions, considering this project involves low motor carrier frequency, and less surrounding obstacles, better air flow, less discharge of pollutants and easy to spread. Therefore, it has little impact on the environment and does not need to take special control measures.

②A small amount of waste packaging materials will be produced in the process of artificial testing and outbound process, mainly waste wrapping paper, cartons, fruit and vegetable scraps. After fixed-point stack, the waste packing material will be uniformly collected purchased by salvage station for comprehensive utilization. Fruit and vegetable scraps will be uniformly cleared and disposed by the local sanitation departments.

There will be a small amount of clean waste in the process of the maintenance of refrigerating unit, mainly used filter element and waste refrigerating fluid. The refrigerating unit will regularly maintained by the manufacturer, and the waste will be recycled directly by the manufacturer.

③As for the mechanical noise of compressors, it is required to conduct vibration reduction treatments for compressors. Conduct sound insulation treatment with sound insulation materials for the top of crate. Meanwhile, reduce the impact on the surrounding sensitive targets thorough plant sound insulation and greening measures.

As for the traffic noise of vehicles, it is required to use qualified vehicles satisfying the current environmental protection requirements, strengthening the parking and passing management of vehicles, reducing the idle time of vehicles, no tooting, optimizing the transportation lines and trying to avoid passing noise-critical area.

3.3.2.Agricultural products processing and packaging workshop project

The project areas involved in the agricultural products processing and packaging workshop project include Changfeng community in Linyou County, Liangquan community in Long County (chili processing and packaging workshop), Lingao community in Baishui County (apple sorting workshop), Caocun community in Fuping County (dried persimmon processing plant), Leichi community in Yanchang County, mainly used for the cultivation of morchella (mushroom) inoculum, as well as the sorting, washing, processing and packing of apples, chili and dried persimmon.

3.3.2.1 Morchella (mushroom) production base

The project plans to set up a morchella (mushroom) production base in Changfeng community of Linyou County, supplying 1500 mu of morchella (mushroom) planting.

（1）Process route

The process route of morchella (mushroom) cultivation is:

Collect wild or planted provenance of morchella (mushroom)→mother culture preparation→mother seed preparation → cultivated species preparation → indoor/field/underwood planting → plantation management→recovery→sun drying/drying and selling

The process route of production of morchella (mushroom) seeds of is:

（mother culture）medium preparation→test tube slant /glass garden preparation→dry heat sterilization→pre cooling→sterile inoculation→cultivation→purification and demise→cultivation→storage for use

（mother seed, cultivated species）sorting→mixing→bottling（bagging）→autoclave sterilization→pre cooling→inoculation→cultivation→storage for use

（2）Pollution stage and impact analysis

The pollution stage of the productive technology of morchella (mushroom) is:

①Exhaust: the foul gas in the stack of medium;

②Solid waste: the packing of waste medium and disinfectant after plating;

③Noise: the mechanical noise during the operation of production equipment.

Sterilization cultivation and storage immediately after the production of morchella (mushroom) seeds, no cleaning and processing technology, no waste water produced.

（3）Control measures

①The foul gas produced in the stack of medium belongs to unorganized emissions. The stack site is required to use medium such as dried dung and strengthen ventilated, to avoid the stench pollutants;

②The main ingredients of waste medium are dried dung, straw and soil which contains rich beneficial bacteria, organic matter and nitrogen, phosphorus and other nutrients with good ventilated permeability, can be used in soil and fertility improvement. It is suggested to use waste medium for fertilization and tree planting for comprehensive utilization, which will not cause secondary pollution. The packaging bag of disinfectant shall be collected uniformly and transported regularly to the designated place of sanitation department for disposal;

③The operation of refrigeration units, sterilizer and humidifier will produce mechanical noise. It is required to select in preference low noise equipment and to take noise elimination and seismic resistance measure, meanwhile to realize sound insulation and strengthen greening through plant.

3.3.2.2 Chili processing and packaging workshop project

This project intends to set up a chili processing and packaging workshop project in Liangquan community of Long County, mainly producing chili sauce of the annual output of 4600 tons.

（1）Process route

Fresh pimiento→Ground into a paste after the pickle salting process→hot water + spices thickener + spices + fat spices + sweeteners + colorant→boiling→cooling→fresh aid + acidulant + preservative→packaging→finished product→inspection

（2）Pollution stage and impact analysis

① waste water：

Wastewater from cleaning equipment , the main equipment of plant includes stainless steel container, mixing machine, filling machine, heating pot. There will be some raw and auxiliary materials after using equipment. In order to avoid the raw and auxiliary materials from organic degradation and metamorphism, the equipment residue needs to be cleaned with water. According to the requirements of "food enterprise general health standards" (GB14881-1994), production equipment, tools, containers, and sites should be cleaned thoroughly before, during and after the use. The project ueses single shift, 8 hours per shift, cleaning frequency being 1 times/day, water consumption being 100 l/d, annual water consumption being 30 m3/a. Sewage quantity is calculated according to 80% of the total water consumption, the cleaning wastewater being 24 m3/a, pollutants and concentration being COD respectively: 400 mg/L, BOD5:250 mg/L, SS: 160 mg/L, NH3 - N: 20 mg/L, animal and plant oil 25

mg/L.

Chilli washing wastewater: fresh pimiento needs to be cleaned before salting, to remove the dirt and impurities on the chili, cleaning frequency being 1 times/day, water consumption being 300 l/d, annual water consumption being 90 m3/a. The sewage quantity shall be calculated at 80% of the total water quantity, washing wastewater being 72 m3/a, main pollutants are mainly SS and its concentration is about SS: 80 mg/L.

Workshop floor cleaning waste water: the project workshop area being 600 m2, ground cleaning frequency being 1 time/day, water consumption being about 500 L/d, the annual water consumption being 150 m3/a, discharge waste water being about 120 m3/a, pollutants and concentration being COD respectively: 200 mg/L, BOD5:80 mg/L, NH3 - N: 150 mg/L.

To sum up, the cleaning wastewater emissions of project equipment, hot chili and ground is 216 m3/a.

② Noise：

The noise of the project is mainly the mechanical noise of production equipment operation, including mixing machine, filling machine, heating pot, noise level being between 75 ~ 80 dB(A).

③ Solid waste：

The solid waste of the project mainly includes the stone sand and branches and leaves from the artificial purification of pimiento, quantity being about 0.08 t/a.

（3）Control measures

①Cleaning waste water: required to set up septic tank and integrated sewage treatment instrument in chili processing plant to dispose cleaning waste water, satisfying "the irrigation water quality standard" (GB5084-2005) after treatment, later used to the irrigation of surrounding farmland, no excretion.

②Noise: required to install sound insulation cover at equipment noise source with strong equipment noise and take basic glissando, meanwhile to realize sound insulation and strengthen greening through plant, satisfying the requirements of "environmental noise emission standards of industrial enterprise factory boundary"(GB12348-2008).

③Solid waste: stone sand and branches and leaves shall be collected uniformly and transported with household refuse to the designated place of sanitation departments for disposal.

3.3.2.3 Dried persimmon processing plant

This project intends to set up a dried persimmon processing plant in Caocun community of Fuping County.

（1）Process route

The process route of dried persimmon os as follows:

Picking→fruit sorting→rinsing and peeling→hanging→firstly knead heart→secondly knead block→thirdly malaxation→color-protecting and mould proof→training→typing→packaging

（2）Oollution node and impact analysis

Most dried persimmon processing technology uses the method of artificial processing, picking, sorting, washing, peeling, kneading and training process all by manual operation of farmers. Therefore, the pollution stages of the project are as follows:

① Persimmon cleaning waste water: fresh persimmon needs to be washed before hanging, to remove the dirt and impurities on the persimmon, main pollutants being SS and its concentration being about 80 mg/L.

②Chlorine dioxide steam: after hanging persimmon, use 1% citric acid and 1% vitamin C compound liquid for spraying color, in order to prevent the browning and guarantee the red appearance of dried persimmon. At the same time, when the air humidity is more than 60%, use 2% mother liquor of chlorine dioxide for airtight fumigation processing, in order to prevent mildew. The process of airtight fumigation may produce a small amount of chlorine dioxide steam.

（3）Control measures

① Cleaning waste water: in addition to a small amount of SS, there is no special pollutant in persimmon cleaning wastewater. After precipitation treatment, it can be used for the comprehensive utilization of surrounding farmland irrigation;

②Chlorine dioxide steam: the chlorine dioxide mother liquor of fumigation is made of chlorine dioxide powder mixed with water, which is internationally recognized as a new generation of sanitizer and a food preservative widely used in food sterilization. After use it does not produce harmful substances, no residue, colorless, tasteless, not causing changes in food color and flavor. Fumigation is to use airtight operation with small impact on the surrounding environment, but it has certain corrosion resistance, thus operators need to pay attention to the protection and be provided with suitable protective equipment.。

3.3.2.4 Apple sorting workshop（Apple commercialization processing line）

This project intends to set up an apple sorting workshop (Apple commercialization processing line) in Lingao community of Baishui County, Leichi community of Yanchang County.

（1）Process route

Picking→fruit sorting→classification→fruit washing→waxing→packaging→probe inspection→be put in storage

Brief description of the process：

Classification: use artificial classification method, and the fruit size shall be determined with grading board or classifier;

Fruit washing: use water and acid bath washing method, using 1% hydrochloric acid solution for cleaning and using 1% sodium carbonate for neutralization;

Waxing: to cover fruit surface with a layer of fruit wax to maintain freshness;

Packaging decoration: use special apple packing chest for packaging, convenient for the storage and transport of fruits;

Sampling inspection: including sampling inspection, variety identification and weight identification, etc.

（2）Pollution stage and impact analysis

①Cleaning waste water: fresh apples need to be washed before waxing, to remove the dirt and impurities on the apples, main pollutants being SS and its concentration being about 80 mg/L.

②Solid waste: there will be a certain amount of waste packing box in the process of packaging of apples.

（3）Control measures:

①Cleaning waste water: in addition to a small amount of SS, there is no special pollutant in apple cleaning wastewater. After precipitation treatment, it can be used for the comprehensive utilization of surrounding farmland irrigation;

②Solid waste: waste packing box can be uniformly collected and transported to the local salvage station for comprehensive utilization.

3.3.3.Apple orchards reconstruction project and agricultural facility project

According to the file data of the project's "pest management plan", the main types of crops planted of the project is agricultural facilities (greenhouse planting vegetables and fruits), apple, mushroom and small grains, planting area being 6021.8 mu. Among them, the new plant covers an area of 183.0 mu, and the new area is mainly for the field planting of crops such as corn, wheat changing to agricultural facilities and edible fungus cultivation, changing 183.0 acres of planting structure. Apple and small grains are the modification of the existing planting base, neither increasing planting area nor changing planting structure.

The project implementation has expanded the planting area of protected agriculture (planting vegetables and fruits), edible fungus (morchella (mushroom) and mushrooms), and other economic crops. At the same time, it reduces planting area of field planting corn and wheat, changing planting

structure. If continue to apply pest control measures instead of (IPM) method, it will cause change in pesticide, fertilizer types and usage, which will result in an increase in pesticide and fertilizer use in different degree. Among them, the pesticides will increase about 0.25 tons, and the fertilizer usage will increase for about 4.96 tons. Therefore, to solve the problem of potential pesticide chemical fertilizer pollution, the project must use IPM strategies for pest control. At the same time, change fertilizer technology and improve the utilization rate of fertilizer.

3.3.3.1 Pesticide impact and its control measures

（1）Impact analysis

Once the pesticide enters environment, its high toxicity and residue will set off a chemical reaction in the environment, resulting in the atmosphere, water, and soil pollution.

The environmental impact and environmental risks possibly caused by pesticides and other chemicals include:

（1）Impact on the atmosphere: in general, when spraying pesticide, part of the pesticide will be floating in the air as particles, decomposing through photolysis, so as to affect the atmosphere;

（2）Impact on soil: the pesticide residues in soil and derivatives will increase. The pesticide is difficult to decompose by microorganism, stable to acid and heat, less volatile and difficult to soluble in water. Therefore, the longer the residual in the soil, the bigger the clay and organic soil persistence;

（3）Impact on biological and human’s body: most of the pesticide will fall into the soil and the environment, being harmful to aquatic organisms, terrestrial creatures, people and livestock, destroying the ecological balance. Part of the pesticide can gather within the living body, resulting in excessive pesticide residues through biological enrichment and amplification.

The harm of pesticide to human body is divided into direct and indirect hazards. Direct intake will kill people instantly, while indirect harm mainly enters into the body through crops with pesticide residual. Long-term consumption of foods with pesticide residual will result in constant accumulation and chronic intoxication, including cancer, reproductive system and nervous system diseases, etc.

This project has made integrated pest management systems, widely using the integrated pest management technology, combining the promotion of disease-resistant varieties with the application of pesticides and biopesticide with high efficiency, low toxicity and low residue to replace the original highly toxic pesticide, effectively improving the field ecological environment of the project area.

After taking mitigation measures and management measures of pesticide pollution, the pesticide will have less impact on the environment.

（2）Control measures

1）Strengthen the prediction of diseases and pests

Each municipal and county plant protection and inspection station shall provide the forecasting information as well as prevention and cure of diseases and pests to farmers in a timely manner 7 to 10 days in advance, including control objects, optimum control period, prevention and control technology, drug varieties of prevention and treatment, etc, so as to improve the effect of prevention and control and reduce pesticide use.

2）Agricultural control

Adjust measures to local conditions according to the actual circumstances of the 11 project counties, and take the following pointed agricultural control measures:

①Select resistant varieties: choose excellent resistant varieties, giving play to genetic resistance potential of biology and varieties, establishing biodiversity, which is the most economical important measure to reduce the use of chemical pesticide.

②Crop rotation: crop rotation is mainly to prevent continuous cropping from aggravating plant diseases and insect pests.

③The rational intercropping and replanting

④Adjust the date of seeding: advance or delay the date of seeding, making the vulnerable period of

crops to avoid the peak of diseases and insect pests, so as to avoid or reduce the occurrence of pests and diseases.

⑤Cultivation measures: deep ploughing, burying the residues and weed in the soil to avoid eggs breeding; immediate ploughing after the harvest of the crops to reduce the occurrence of rice moth.

⑥Cultivate disease-free strong seedling: do a good job in the disinfection treatment of seed and soil, removing bad seedling and cultivating strong seedling.

⑦Balanced fertilization, water-saving irrigation: sufficient base fertilizer, controlling nitrogenous fertilizer, moderating phosphatic fertilizer, increasing potash fertilizer, so as to enhance the ability to resist diseases and pests of crops. Implement the water-saving irrigation technique focusing on drip irrigation under mulch, alternative irrigation and unsaturated irrigation, reducing the humidity of greenhouse vegetables, reducing, preventing and controlling the occurrence of plant diseases and insect pests.

⑧Grafting: promote the grafting technique of cucumber and eggplant in greenhouse, the overall control effect against fusarium wilt, epidemic disease and verticillium wilt being above 90%.

⑨Clean fields and gardens: clear the leaves, twigs, or sick body with diseases and pests, to reduce the source of diseases and pests.

（3）Physical control.

①Set up fly net: applied in the vegetables and fruit cultivation, used for the prevention of insects, disease, rain and wind, as well as shading and moisture retention.

②Traps: use yellow glue board to lure whitefly, aphids, etc.

③Insecticidal lamp: use frequency vibration insecticidal lamp to traps moth, beetles, plant pests of adult orthoptera, etc.

④Sweet and sour traps in liquid: trap and kill moth with sweet and sour liquid.

Supported by physical prevention and control technology, 1500 new frequency-vibrancy pest-killing lamp in fruit tree and vegetable growing areas in 11 project counties, 5000 new yellow glue boards, 190 sets of insect nets.

（4）Biological control.

①Use biological agents, such as Bt emulsion, Polynactin, nucleopolyhedrosis virus, beauveria bassiana, kasugamycin, validamycin, etc.

②Use natural enemy of plant pests, such as trichogramma

③Use applied attractants to trap and kill plant pests, such as striped rice borer, diamondback moth, European corn borer.

To promote bio-control technology of crops diseases and insect pests of 401.5 hectares in 11 project counties.

（5）Chemical control

The integrated application of chemical control and other control measures is an economical and effective measure to improve the prevention and control benefits and safeguard good harvests. It is required to use pesticide with high quality, good control effect for pest, non-toxic or low toxic to people and animals, and safety to crops.

The main chemical control measures include:

①It is prohibited to use highly toxic, high toxicity or high residual pesticide. in the project area. The pesticide classification is on the basis of the WHO's "Suggestions of classification of pesticides according to the guidebook of classification and perniciousness".

②using different kinds of pesticides for the control efficiency of different diseases, insect pests and weeds, and suiting the remedy to the case

③using drug timely on the basis of the emergence period of plant diseases and insect pests

④Proper medication

⑤Reasonable mixing and using alternative of pesticides

⑥ strictly implementing the safety harvest interval.

（6）The storage link of agricultural products of the project shall ensure not to use pesticides.

3.3.3.2 Fertilizer impact and control measures

（1）Impact analysis

The environmental impact and environmental risks possibly caused by fertilizer include:

（1）Eutrophication of rivers and lakes. The increasing content of the nitrogen and phosphorus in water makes the algae and other aquatic plants grow too much, then leading to the eutrophication of waters.

（2）Pollution of soil and deterioration of soil physical property. The soil acidification is the result of the long-term utilization of pure chemical fertilizers excessively. The ammonium ion in organic and inorganic complex of soil solution and soil micelle will increase and replace the position of Ca2+, Mg2+, etc., making the soil colloid dispersed, destroying soil structure, hardening soil , and directly affecting the cost of agricultural production and crop yield and quality.；

（3）The toxic ingredients in food, feed and drinking water will increase. The biological toxicity of nitrite is 5 to 10 times larger than nitrate. The N-nitroso-compounds formed by nitrite and amine are strong carcinogen. The nitrogen compound in well water or river water of fertilizer use area will increase and even exceed drinking water standard. The soil with too much chemical fertilizer will increase the nitrate content in vegetables and forage crops. Too much nitrite in food and feed caused poisoning accidents of children and livestock before.

（4）The nitric oxide in the atmosphere will increase. As for the nitrogen fertilizer applied in farmland, a substantial part of fertilizer will be directly evaporated into atmosphere from soil surface. Another substantial part will enter soil as organic or inorganic nitrogen. Under the effect of soil microorganisms, it will transfer from insoluble, adsorbed and water-soluble nitrogen compound into nitrogen and nitrogen oxides, then entering the atmosphere.

（2）Control measures

①Optimize the structure of fertilization, choose suitable fertilization period, implement the soil testing and fertilizer recommendation for fertilization. Use the balanced fertilization technology of soil testing and fertilizer recommendation, master the soil fertility status in a timely manner by testing the soil, to accomplish the balanced use of appropriate fertility ratio of organic fertilizer and chemical fertilizer, nitrogen fertilizer and phosphate fertilizer, potash fertilizer and microelement, according to the characteristics and fertilizer requirement law of different crops, to achieve the balanced fertilization.

②Advocate to use organic fertilizer, returning straw, using the livestock and poultry manure and food waste after fermentation, which can not only reduce the non-point source pollution caused by livestock and poultry dung, but also can reduce the use amount of chemical fertilizer.

③ Improve the methods of fertilization, pay attention to seasonal fertilization. Promote the use of soil testing fertilization technology. Guide farmers in the fertilization according to the crop growth rule and fertilizer requirement, reasonably controlling the applying amount of fertilizer, improving fertilizer technology and the utilization rate of effective ingredients of fertilizer.

④Adopts domestic advanced index of applying fertilizer, it is suggested that the intensity of agricultural fertilizer (kg/ha, net) 2≤280.

⑤Persons should monitor the quality of the project area soil, discover problems timely and find out the reason, to adopt corresponding protection measures.

3.3.3.3 Agricultural solid waste impact and control measures

（1）Impact analysis

Agricultural residues in soil will impact the decomposition of soil humus and the ventilation and permeability of the soil, damaging the soil structure, reducing the content of nutrient elements,

decreasing the retention of fertilizer ability, the greater the residual amount, the stronger the destructibility. Because of the influence of residual film and the destruction of soil physical and chemical properties, it inevitably causes difficulties in crop seed germination, root growth, crop growth. At the same time, the residual membrane separation affects the normal crops in absorbing nutrients, affecting the fertilizer utilization efficiency, leading to the decline in output.

（2）Control measures

①Choose agricultural films with safety, applicability and economy;

②To improve filming technology, promote lateral film cultivation technology, timely film uncovering technology, and reduce continuous covering age limit;

③To promote the use of biodegradable agricultural film;

④Strengthen agricultural film recycling efforts and constantly improve the level of recovery technology, increasing the residual film recycling machinery and improving the recovery rate of agricultural film.

3.3.4Feedlots project

This project areas involved in the feedlots project of the project include thoroughbred pig feedlots project in Leichi community of Yanchang County and cooperative sheep breeding production in Yangjing community of Dingbian County.

3.3.4.1 Thoroughbred pig feedlots

A new thoroughbred pig feedlots in Wayaopengzi village, Leichi town, Yanchang County, building area being 1200m2, annual output of improved varieties of piglet being 500.

（1）Process route and pollution stage

For the process route and pollution stage of pig feedlots, see figure 3.2-2.

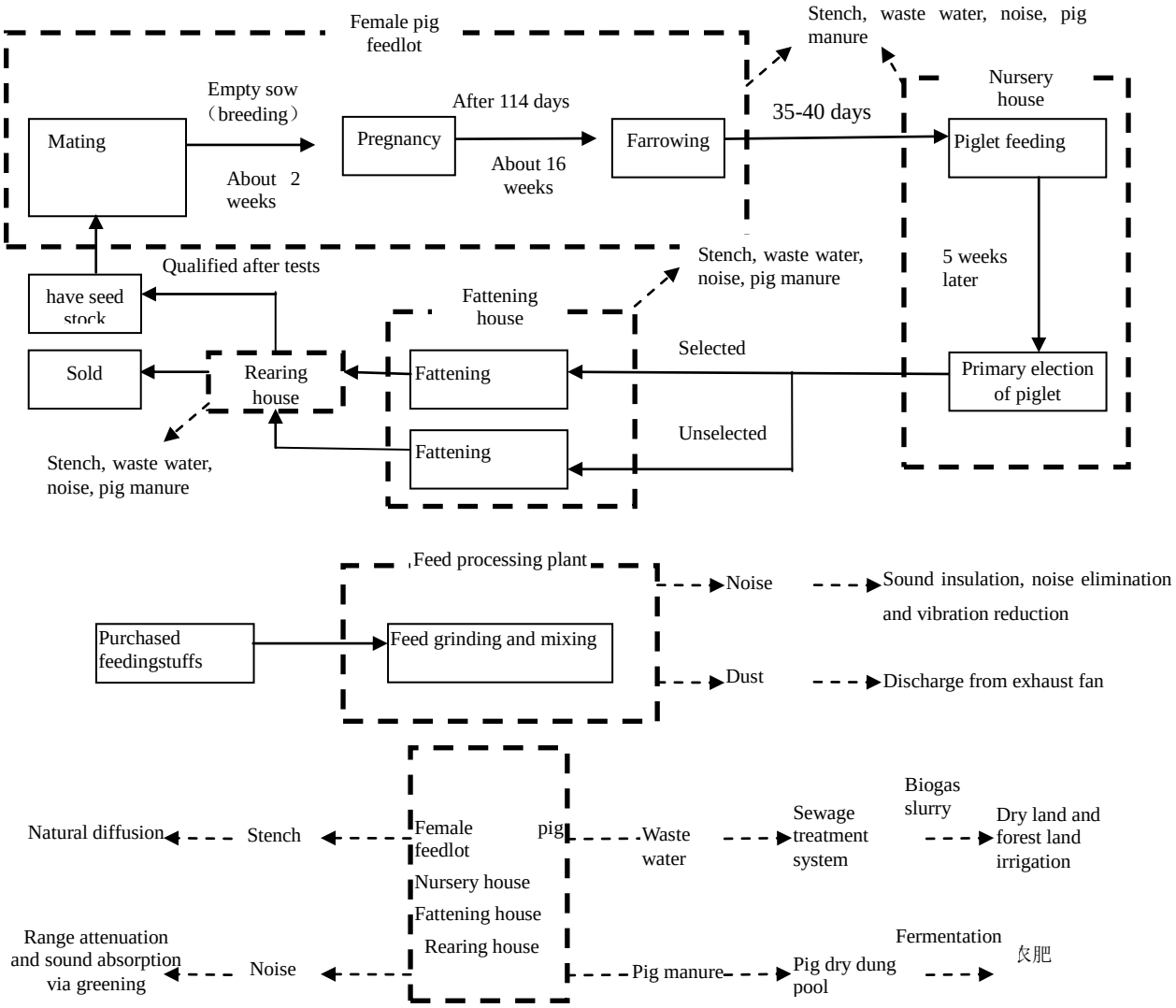


Figure 3.3-2 The process route and pollution stage of pig feedlots

（2）The main polluting process and control measures

I Exhaust gas

1）Primary pollution source

The air pollutants of project operation period are mainly stench (pig feedlot, dry dung pool, biogas slurry pool), dust of feed processing workshop, fermentation biogas.

①Fermentation biogas

The operation of biogas digester produces about 20 m3 biogas every day. After collection, the biogas can be used for the worker's residential energy resources and redundant combustion. Biogas is clean energy, producing carbon dioxide and water after burning, and does not pollute the environment.

②Stench (pig feedlot, dry dung pool, biogas slurry pool)

The stench of the project is mainly from pig feedlot, coming from the ammonia gas arising in the decay of organic matter, and hydrogen sulfide arising in the decay of protein in animal organism. For strong pollution source, see table 3.2 3.

Table 3.2-3 The Emission of $NH_3$and H_2S of pig feedlot in aquiculture area

Name	Quantity (capita)	NH_3			H_2S		
		Emission intensity（g/ capita ·d）	Daily emission （kg/d）	Annual emission （t/a）	Emission intensity（g/ capita ·d）	Daily emission （kg/d）	Annual emission （t/a）
Sow	215	5.3	1.13	0.164	0.8	0.17	0.0621
Boar	5	5.3	0.0265	0.00968	0.5	0.003	0.000913
Piglet	500	0.7	0.35	0.128	0.2	0.1	0.0365
Total	720	/	1.5065	0.3017	/	0.273	0.099513

Note: the emission intensity NH3 and H2S is from "the quantitative analysis and control countermeasures study of the pig feedlot stench effect" (Tianjin environmental impact assessment center, Sun Yanqing, etc.)

③The dust of feed processing plant

The pigs in different growth stage of the project need different amount of nutrients in order to ensure the normal growth. The breeding house has its own feed production workshop. According to the design information, the pig feed need fresh supply, so feed production workshop needs production operation every day. According to the emission coefficient of "1320 feed processing industry" in the second volume data of "first national pollution census handbook of generation and discharge coefficient of industrial pollution sources", the feed processing size is less than 100000 t/a, the terminal treatment technology being direct discharging, then the generation and discharge coefficient of dust is 0.043 kg/ton. The annual feed processing of the project is 584t/a, thus the dust capacity of feed being 25.11kg/a while rate of emission being 0.0029kg/h. According to the GB16297-1996 secondary standard of "atmospheric pollutant comprehensive discharge standard", the unorganized emitting concentration of particulate matter is 1.0 mg/m3, thus the blast capacity of exhaust fan being 3000 m3/h.

2）Control measures

①Cover the pig waste with straw in the process of transportation, to prevent waste leakage and stench volatilization;

②The feed processing plant uses exhaust fan for ventilation, timely cleaning the dust of processing room;

③Use dry collection, increase the ventilation number of pig feedlot, regularly collecting pig manure, uniformly stored to fry dung pool; regularly clean the pig feedlot and pig slurry to keep the floor clean;

④Raise digestibility of pigs diet and reduce the excretion of dry matter (especially protein), both to reduce intestinal smell and reduce the odor after its droppings, which is an effective measure to reduce the stench sources;

⑤Use low protein diet with the balance of amino acid and use synthetic amino acid to replace complete protein in the diet can effectively reduce the waste of nitrogen;

⑥Choose efficient, safe, pollution-free green feed additives, active substances such as microbial agents, enzymes and plant extracts, to reduce emissions and fetor produced;

⑦Use deodorant and oxidizing agent to conduct odor treatment for the waste in dry dung pool if possible.

II Waste water

1）Primary pollution source

The waste water of the project is mainly pig urine and washing wastewater of pig feedlot.

①Pig urine

According to the recommended value of poultry industry administrative department, the emission of pig urine is 2.9×10-3m3/(capita •d). The annual inventory of pig and boar is 720, thus the emission of

pig urine is 762.1m3/a.。

②Washing wastewater

To avoid the occurrence of infectious pig disease, pigs need a good growth environment and the pig feedlot needs to keep dry and clean. The piggery appliances need regular washing and disinfection. 2 times cleaning of the fecal-oral every day and 1 time full cleaning and disinfection of pig feedlot each week.

Comparing to similar farms and calculating by the number of pigs, the discharge amount of washing wastewater is about 10 10mL/capita•d. The annual inventory of the project is 720, thus the washing wastewater is about 7.2m3/d and 2628m3/a.

To sum up, the swine urine and washing wastewater of pigs and pig feedlot of the project is totally 3390.1m3/a. According to "the technical specification for livestock husbandry pollution control project"(HJ497-2009), swine urine and washing wastewater of pigs and pig feedlot are high concentration organic wastewater, the major pollutants concentration being COD: 2640 mg/L, BOD5:800 mg/L, NH3 - N: 261 mg/L, SS: 400 mg/L, TP: 43.5 mg/L.

2）Control measures

①Separate dry space from moist space in pig feedlot, picking out pig manure by artificial methods, discharging pig urine and washing wastewater into the sewage treatment system through drain;

②This project shall set up sewage treatment facility, and processed biogas slurry shall be transported to biogas slurry storage pool with pipelines, the capacity of biogas slurry storage pool being not less than 300m3.

③The plant of the project shall set up risk accident pool, volume being not less than 300 m3, used to guarantee the accommodation of the project waste water in case of equipment failure, to achieve zero discharge of project wastewater.

④The sewage treatment system uses the model 11 of "the technical specification for livestock husbandry pollution control project"(HJ497-2009). All treating ponds need good anti-seepage processing; sewage and swine urine shall be discharged into biogas digester for treatment.

III Noise

1）Primary pollution source

The noises of the project are mainly from grunt and the operation of mechanical equipment;

①Grunt

Pigs living in groups, especially piglets often have sharp cry with larger randomness, general noise being around 75～85dB(A).

②The noise from the operation of mechanical equipment

The noise from the operation of mechanical equipment such as feed grinder, mixing machine， ventilation fan and the water pump of sewage treatment system of feed processing plant, noise being around 75～88dB(A).

2）Control measures

①Take vibration attenuation and sound insulation measures against strong noise equipment such as pulverizer, crusher and agitator.

②The feed processing workshop of the project shall use soundproof doors and Windows and set up absorption materials on the inner wall of the workshop. Close the doors and Windows as far as possible in production.

③Strengthen greening around the pig feedlot plant tall trees around the factory boundary, strengthening noise insulation through greening.

IV Solid waste

1）Primary pollution source

The solid waste of the project is mainly pig manure in pig feedlot, sludge in biogas digester, death pigs in breeding, maza in female pig feedlot, and medical waste in veterinarian office.

①Pig manure

According to "the technical specification for livestock husbandry pollution control project" (HJ497-2009), the emission of the pig manure in table A2 will be calculated with 2kg/head. The emission of pig manure of the project is about 526 ton/year.

②Sludge of biogas digester

The project uses dry collection. Swine farm wastewater will be processed by grating pool and sedimentation tank and discharged into the multistage gas pool, the solid content of waste water being low, the sludge output of biogas digester being smaller, about 2.27 t/a. The sludge does not contain metal ions such as heavy metals which does not belong to the hazardous waste and contains a lot of organic matter, can be used as organic fertilizer after fermentation with pig manure.

③Death pigs

Pig mortality is generally about 2% of the breeding stock, mainly the piglets. The annual breeding stock of the project is 720, thus the annual death pigs of the project is about 15.

④ Maza

The breeding cycle of sow is 2.1 births/a, 3kg/maza, thus the annual emission of maza in pig feedlot is 0.54t. The maza and dead pigs will receive harmless treatment.

⑤ Medical waste

All kinds of empty bottles and bags of vaccine and antibiotic drug in the veterinarian office of the project is totally about 18kg/a. This kind of medical waste will be temporarily stored in the diversion storage of isolating rooms. After reaching a certain amount, it will be disposed by the qualified unit.

2）Control measures

①The maza and dead pigs of the project will receive harmless treatment of landfill. The project shall set up at least 2 harmless landfill wells of concrete structure. After each input of dead pig body and maza, cover it with a layer of slaked lime thicker than 10 cm, so as to ensure complete disposal of dead pigs and maza and achieve better sterilization effect.

② All kinds of empty bottles and bags of vaccine and antibiotic drug in the veterinarian office of the project will be temporarily stored in the diversion storage of isolating rooms. After reaching a certain amount, it will be disposed by the qualified unit.

③To use dry collection in manure collection, storing the waste in dry manure pool after manual clearing, and use the aerobic composting process of "the technical specification of livestock breeding pollution control project in manure disposal", used as farming fertilizer for fertilization after treatment;

④After fermentation, the sludge of biogas digester and pig manure will be used as organic fertilizer.

3.3.4.2 Cooperatives sheep breeding concentrated production area

The process route, pollution stage and pollution control measures of cooperatives sheep breeding concentrated production area is basically the same with thoroughbred pig feedlot project, see section 3.2.5.1.

In conclusion, for the generalization and summarization of environmental impact and the prevention and control measures of typical projects, see table 3.2 and table 3.2-5-4.

3.3.5. Household garbage collection facilities

This project intends to set up 70 household garbage collection pools in Leichi community of Yanchang County. The garbage collection pool will use brick structure, and each garbage collection pool will cover an area of 15 m2, planning to set up in Lingshishan village, Leiduo village, Daya village and Kefeng village around Leichi town.

The technological process of collection, transport and disposal of household garbage is as follows:

Household garbage of residents of different villages of Leichi town→waste collection pool→household

garbage transfer station of Leichi town→household garbage landfill of Yanchang County

Through field investigation, there are currently two household garbage transfer stations of Leichi town, which are located at Leichi town streets and have been put into operation. At the same time, the household garbage landfill of Yanchang County has been completed and put into use. The household garbage landfill of Yanchang County is located at Sanzhongtaigou at the southeast of Zhangjiatan Town, the total capacity being 140000 m3, designed service time being 25 years, the total area being 1.604 hectares. The project has obtained the environmental impact assessment from Yanan environmental protection agency in July 2014 and was put into operation in September 2015. As a result, the new household garbage collection facilities will operate in household garbage collection, transfer and final disposal.

4.Environment management system

4.1The social impact of the project

4.1.1.The positive impact of the project

1. To improve the economic level of the project area

This project is dominated by agricultural pillar industry restructuring and modernization, supported by the implementation of projects such as infrastructure and ability training. It has great significance in promoting the project area industrial structure adjustment and strengthening county economy. The implementation of the project will give play to the resource advantage of characteristic agriculture and promote the development of food and beverage industry as well as transportation and service industry, promoting the adjustment and optimization of industrial structure and economic structure of the project area, thus promoting the county economy to grow stronger. At the same time, the industry management model with the cooperative as platform will gather the scattering farmers into the same industry chain, forming scientific production, operation and management methods, thus promoting the development of agricultural industrialization and improving the efficiency of agriculture, rural development and farmers' income.

2. Promote industrial upgrading and help poor farmers to increase income.

Due to capital, technology and infrastructure, the chain has not been formed in the project area. The farmers can only produce and sell primary agricultural products with low product added value and technology content. The project will in accordance with the principle of giving priority to the poverty and paying attention to resource endowment and industrial foundation, as well as the local resource conditions, existing industry development basis and the future development potential, adjust measures to local conditions in developing characteristic advantaged industries. Choose the industry conducive to increase the farmers' income in project area and with development interests of farmers. Optimize the regional layout and develop competitive industries, integrating project construction with superiority agriculture and characteristic industries, continuously cultivating and strengthening advantaged industries. Through large-scale industrialized operation, steadily and continuously increase in income of poverty population. Meanwhile, the project will emphasize particularly on the participation of farmers in selecting implementation model, actively guiding more low income families to be involved in the project construction, to create value for the society. It will create more jobs for the rural poor households and provide employment opportunities for rural spare labor and low-skilled workers.

3. Perfect the infrastructure and improve farmers' production and living conditions

The implementation of the project will largely improve the backward infrastructure of the project area, enabling the poor to obtain the basic condition of developing characteristic advantaged industries. Especially the improvement of improving, processing and other related facilities of farming infrastructure can improve the local production and living conditions, make the poor have more development opportunities. At the same time, the project's construction of industrial Facilities such as traditional agri-product market, processing and preserving of farm products, are conducive to improve the conditions of industrial development and promote the development of industry of the project area, increasing farmers' income, realizing rural sustainable development goals, and fundamentally solve the problems of marketing difficulty, high cost and low price. In addition, the project implementation will also gradually establish and perfect the supporting social service system for the project area industry development, including the agricultural technology promotion system, information service system, supply and marketing service system, providing a full range of services to farmers and other production operators, transferring decentralized production and business operation into cooperative production and joint venture of mutual connection and mutual action to realize the effective docking of small business and big market, so as to reduce market risk and natural risk and improve agricultural benefits.

4. Improve the organization degree of farmers

Currently the farmers in the project area mostly use decentralized production management, mainly producing and selling primary agricultural products, lack of scientific system of industrialization, low product yield, low technology content and low value-added products. In addition, because of the reasons such as poor infrastructure, information asymmetry, the existing farmers are difficult to open up an outlet. The project will be guided by the industry, fully developing all kinds of farmers' professional co-operatives mainly for farmer households, thus improving the organization degree of farmers, improving the efficiency of agricultural production, reducing costs, reducing risk, increasing

their income and making the poor farmer households rich. At the same time, through the role of farmers organization, interests binding and coordination mechanism will be established between enterprises and farmers, forming stable relations of cooperation, to let farmers share the interests of processing and circulation.

5. Improve the farmers' labor skills and production management ability

Compared with the ordinary farmers, low income families have insufficient productive and managing technology in cultivation industry. The project will develop the agricultural natural resources as well as the human resources at the same time. The training of practical technology and professional poverty alleviation technical will help low income families to get scientific farming skills, management concept and market consciousness, improving the whole cultural quality of the project area's farmers. At the same time, it will improve their ability to participate in the industry development and cooperative, raising their ability of growing rich.

6. Raise the status of vulnerable groups including women, the elderly and the disabled and improve their living standard.

Through employment, cooperative stocks and cooperative part-time jobs, the project will increase the income of women, the elderly, the disabled and other vulnerable groups, raising their education level and strengthen their economic status of independence, which will directly or indirectly improve the social status of this group. At the same time, Industrial projects focusing on cooperative will attract women, the elderly and disabled people to join the cooperative production activities, to allow the above groups to benefit from working in cooperative and increase income on the condition of not affecting housework and short distance from home, effectively improving their living standards.

4.1.2.The adverse impact of the project

1. Market risk in agricultural and industrial development

Most project areas are blocked in information and undeveloped in transportation. Project area farmers, especially the rural poor households, is limited in the judgment and grasp of the market information, lack of necessary information ability, limited in the ability to respond to market risk, facing the risks of price fall at any time, which may seriously affect the enthusiasm of farmers engaged in cultivation industry, affecting the sustainability of the project development. At the same time, after the adjustment of industrial structure in project areas, part of the project villages are vulnerable to overall impact of market volatility due to single industrial structure and lack of stability in answering market risk.

2. Farmer's livelihood level may be affected

The livelihood pattern of farmers in project areas is mainly traditional cultivation industry, limited in source of income, relatively low in income level. As for the implementation of the project, especially some special industries (such as goats, cows, etc.), the initial cost is higher, and the poor farmer households are lack of start-up capital. The level of input costs will directly affect the economic benefits and enthusiasm of participating in project. In addition, some of the industries are long in period length and slow in effects. As for low income families in project areas, especially those single in source of livelihood or dependent on rural minimum living guarantee to maintain the basic life, the prior-period investment and production cycle of projects will bring challenges to the livelihood models and affect the enthusiasm and confidence of low income families to participate in the project.

3. Vulnerable farmers might be treated unfairly in benefits

Due to the complexity and lengthy of the project implementation, the rights and interests of vulnerable groups of project villages, especially low income families, old men and women, are susceptible to harm. (1) For the poor themselves, they don't like to talk in front of people because of poverty and feel nobody will even comply with their words, thus they will lose confidence gradually, thereby deepening the marginalization of poor. The project implementation can ease the poverty of low income families. But due to their limit in knowledge level and other factors, their rights and interests are susceptible to harm and unfair treatment, which to a certain extent will increase the gap between rich and poor between villagers. (2) Affected by traditional culture and regional conditions, compared with men, women in the poor areas are relatively low in ideological level and cultural level. They are not comfortable to speak in public. Especially at the presence of male, they would choose to be silent. Therefore, women's voices and participation may not be guaranteed, and their demand is likely to get no attention. (3) Because of the physical and cultural level, needs and opinions of the older are also easy to ignore in the village. Therefore, in the process of project implementation, we must face and

solve the problems of taking care of the vulnerable groups, promoting their participation and common prosperity.

4. Lack of labor in project construction

Because most young people tend to go out to work, the project area is mainly maintained by older people and children. The lack of young labor force has caused the industry aging and adverse impact on the development of the project, including access to information, construction of the project facilities, product sales, market development and the reference of new technology and so on. In addition, in the early construction and operation of the project, the income is not obvious, thus less attractive to the young man. Less participation of young people will cause more young people to go out to work, resulting in the phenomenon of lack of labor.

4.2.Project proposal measures

4.2.1. Gain measures

1. To improve infrastructure construction and speed up the suitability of farmers of the new facilities

Firstly, summon villager representative conference and village group meeting to discuss the needed infrastructure for villager’s production and livelihood development, to determine the specific items of program construction. Secondly, the infrastructure construction is bound to lead to farmers' changes in means of production, production technology and lifestyle, in order to ensure that the farmer's production and living security as well as timely corresponding safety education and technical education, to prevent the appearance and worsening of all kinds of bad consequences. Thirdly, the built public infrastructure such as village roads, production service roads, irrigation and drainage facilities will be owned by village collective for supervision, management and maintenance. The facilities and equipment involving industrial value chain such as storage, processing and marketing will be owned by cooperative collective for supervision, management and maintenance.

2. Strengthen the technical training and enhance the farmer's self development ability

Firstly, organize farmers to participate in all kinds of cooperative technical training, cultivating their subject consciousness. In particular: (1) According to villagers' urgency degree to all kinds of training, carry out the technical training related to industrial development, as well as the operation and management of cooperative, satisfying the characteristics and needs of the farming activities as far as possible; (2) The choice of project training time shall avoid national holidays, busy season and women housework time, fully considering all the year round schedules; (3) The training place shall be villagers settlements or somewhere convenient, paying special attention to individual farmers from remote places.; (4) The training methods shall be adjusted according to different regions and people, using the local language and oral readable expression as far as possible, supplemented by videos, posters, brochures and other ways; (5) Carry out selective examination on the propaganda and training, 2 times per year during the early stage of the project, 1 time/year for the remaining years. Secondly, arouse the enthusiasm of farmers to participate in the project, forming interactive public participation integrating "top-down" and "bottom-up" methods, including: (1) Through multiple propaganda and participation methods such as to summon villager representative conference and village group meeting, electing the members of cooperatives council and the board of supervisors. On the basis of the villagers being informed and voluntary, elect cooperative members, paying special attention to the needs and ideas of women, the elderly, the disabled and low income families; (2) establish joint-stock cooperative of extensive participation and democratic management, mainly solving the problem of insufficient funds when low income families participated in cooperatives. Thirdly, on the basis of respecting the will of vulnerable groups such as women, the elderly, the disabled and low income families, the publicity of project and cooperative information shall ensure that 80% of the households (100% of low income families with cards) be informed, and ensure that 30% of women and 80% of low income families will participate in the project training. Thirdly, cultivate a group of farmer technical backbone and rich models to conduct various forms of training, so as to play a leading role model.

3. Promote the employment of villagers and increase the income of farmers in project areas

Firstly, combining the will and needs of project village industry and the villagers, carry out training of industrial value chain link in cultivation, field management, efficient agricultural science and technology, product processing and sales, to ensure that 30% of women and 80% of low income families will participate in the training. Secondly, increase the villagers' human capital and improve the unit value of labor force. Thirdly, organize villagers to participate in infrastructure construction. On the

basis of respecting the will of the villagers, provide 30% of the employment opportunities in the first place to low income families, women, the elderly, the disabled and other vulnerable groups.

4. Perfect organization order and improve the degree of organizational degree of farmers.

Stick to community-driven development mode (CDD), broaden the scope of local residents to participate in development activities, and endow communities with certain direct control. The local residents shall determine the development focus, fund-managing and project implementation. Firstly, establish stock cooperative with mutual interests and mutual responsibilities, to ensure that 80% of low income families with cards to participate in the cooperative. Secondly, use the door to door propaganda, informing the farmers of the project benefits of participating in the cooperative project. Thirdly, mobilize the organization ability of village committee, giving play to the organization ability and the benefit of basic-level organization. Fourthly, give play to the "wise men" role model effect of the administrative villages and natural villages of the project, forming good demonstration effect, inspiring more farmers. Fifthly, organize farmers to extensively participate in industry development through conducting production base or model household demonstration guidance. Sixthly, strengthen the construction of organization through carrying out technical and management training for cooperative members. Seventhly, establish an open and transparent revenue sharing mechanism, improving farmers' sense of belonging to the cooperative.

5. Transform ideas and promote the benign development of the cooperative

The current cooperative modes in project areas mainly include "cooperative + base + farmers", "cooperative + farmer" and "company + cooperative + farmer household". Due to the heterogeneity between farmers, a few core members or enterprises actually have the main residual control and residual claims of cooperatives. The external embodiment is that this group has the most cooperative property ownership, which has caused many problems. To achieve the legal "identification of owners and patronages" of cooperatives, it is necessary to provide support to the vulnerable members of the existing cooperatives such as equity. In fact, observing from the development practice of cooperatives in different countries, many places have provided external support to cooperatives. In addition, it is a viable option to take similar groups with homogeneity such as ordinary and poor farmer households as main members and support them, even from the beginning of establishment. Besides, only when "farmer households independently organize cooperatives and cooperatives independently organize processing enterprises", can farmer households establish the whole independent supply chain, so as to realize the vertical integration taking farmer households as the main body. It shall be the ultimate goal of the cooperative development to maximize the space of farmers' welfare improvement. At last, observing from the feedback information of investigation, most farmers are interested in the dividend of cooperatives. They would rather bring productive resources such as land into the cooperative and enjoy the resulting real interests including production material purchase, technical guidance and stable sale price. The above aspects should be given full consideration upon the establishment of cooperative benefit mechanism.

6. Set up the risk awareness, and improve the ability to resist market risk

Firstly, comprehensively assess the current status and needs of project village agricultural public infrastructure, and construct on-demand service road and irrigation facilities, to avoid repeated use of funds and improve the development of the industry infrastructure conditions. Secondly, adjust measures to local conditions, and determine the leading products and main services of cooperative according to the advantage of project area. Thirdly, build a risk sharing mechanism between competitive industries and cooperatives, when facing risks, to determine the sharing proportion of farmers and cooperatives, so as to ensure the normal operation of the cooperative. Fourthly, establish cooperatives with extensive participation of farmers, mutual benefits and mutual responsibilities, to ensure 80% of the low income families with cards to participate in the cooperative. Fifthly, strengthen the training of cooperative management and industrial development and improve the ability of sustainable development of cooperatives, providing training on a regular basis for the organization and management ability of managers, standardized production, efficient agricultural technology, agricultural products processing and marketing skills. Sixthly, purposely establish agricultural products collection spot, storage and nodal point, agricultural products Sale Outlet, agricultural market information publishing platform, agricultural product traceability and other supporting facilities and institutions required for marketing development of industries. Seventhly, carry out seed-breeding base construction if feasible in technology and funds, and carry out standardization construction including unified seedlings (breeding stock), unified training, unified field management, unified sales or processing, etc.

7. Improve the cognition of women, the elderly and the disabled of the project, promote the participation of vulnerable groups in the project.

Firstly, strengthen the propaganda and training, to ensure information disclosure during the whole process of the project and at least 30% of the women, the elderly and the disabled to be able to attend it. At the same time, concerning the selection of training time and place, give priority to the time and convenience of the above groups, and use the local language as far as possible. Secondly, give play to the advantage of the Women's Federation and Disabled Persons Federation in information publicity and training, to jointly carry out information publicity and training work. Thirdly, in the process of establishing cooperatives and developing industries, pay attention to needs and thoughts of this group. Fourthly, ensure that there are at least one women and one elderly in the cooperative preparation group and purchase team. In conferences for the establishment of cooperative and industrial planning, ensure a certain percentage of the above groups to participate in the meetings.

4.2.2. Measures to reduce adverse impact

1. To avoid the risk of vulnerable farmers being treated unfairly

Firstly, summon general meeting of commune members, through full discussion and consultation of the cooperative, make the income assignment mechanism of cooperative and publicize it. Be sure to determine the proportion and sequence of each income distribution and sequence, and guarantee the fair benefit of farmers. Secondly, improve the internal organizational structure of cooperatives and appoint a specially-assigned person for the management and use of cooperative funds. Publish funds usage and earnings distribution results on a regular basis, the financial affairs of cooperative shall be archived to receive supervision and query from members. Thirdly, lawfully establish cooperatives, to ensure that 80% of rural poor households with cards to participate in and improve the proportion of rural poor households. Fourthly, determine the proportion of public accumulation in income distribution, including retained common reserve fund, public welfare fund, relief fund, risk funds and development funds, then determine the specific ways of cooperative profit distribution. Fifthly, establish perfect and easy channels and mechanisms for complaints.

2. Reduce market risk

Firstly, in the choice of industry, adjust measures to local conditions, and extend the industrial chain according to the industry characteristics. Secondly, strengthen the market knowledge training, to ensure the farmers to timely grasp the market information and handle with market risk. Thirdly, develop the construction of industrial supporting facilities, using this industry to promote the development of other industries.

3. Reduce the risk of land expropriation and land management

Firstly, reduce or avoid land requisition and demolishing in the process of project implementation as far as possible. If inevitable, it is necessary to carry out land requisition and demolishing activities strictly according to "resettlement policy framework". Secondly, ensure the supported cooperative to follow the principle of allowing farmers to voluntarily participate in projects, receiving fair land management and equity arrangement. Thirdly, ensure the farmers' rights to choose whether to join the production base, not affected by the adjacent production base. Fourthly, during the project implementation, when the existence of cooperative needs to build a production base by integrating lands, it is required to inspect all the land leasing and management plans in advance.

4. Reduce the risk in infrastructure management and maintenance

Firstly, include the property right, operation and management responsibilities of built rural infrastructure into the project implementation manual for clarification. Secondly, make village-level public infrastructure operation and management measures. Thirdly, strengthen the supervision and management ability of the county, township and village levels in accordance with the principle of "who benefits, who manages, who maintains".

5. Reduce the risk of lacking young workers in project construction

Firstly, support the young workers on the policy, strengthening the propaganda, attracting young workers to return home, and supporting the project construction. Secondly, use the improved new planting and breeding technology to improve the cultivation efficiency of the project. Thirdly, constantly update equipment, improving the mechanization degree, improving the efficiency of project construction and, to a certain extent, making up for the disadvantages of the shortage of young labor.

For social management plan and the measures, see Annex 7

5.Monitoring plan of environmental protection

5.1.Monitoring objectives

Environment protection monitoring includes construction period and operation period, and its purpose is to fully and timely grasp the pollution of proposed projects, understanding the environment quality change degree, scope of influence, and dynamic environmental quality during the operation period of project construction to its areas, providing timely feedback to the competent authority and providing a scientific basis for the environmental management of the project.

5.2.Conducting monitoring

According to prediction results of environmental impact, take the sensitive spots with more obvious pollution as monitoring points. According to the pollution situation of construction and operation period, select monitoring content affecting environment more obviously, including environment air, surface water, groundwater environment, soil environment and sound environment. The monitoring factors shall be determined by the characteristic contaminant of engineering analysis. The monitoring and analyzing methods shall use the same of corresponding projects in "environmental monitoring code" issued by Ministry of Environmental Protection. The assessment criterion shall be the national standard confirmed by environment assessment. The monitoring organization shall be local environmental monitoring stations or social environment monitoring institutions with qualification. The organization in charge shall be Shaanxi provincial project management center of foreign capital poverty alleviation. The supervisory organization shall be the county environmental protection bureau of each project.

5.3.Monitoring scheme

1. The monitoring of the exploitation quantity of ground water

Monitoring points: the monitoring report of the exploitation quantity of ground water shall be provided by the hydrographic and water resources survey bureau of Shaanxi Province

Monitoring time: once a year

2. For the monitoring plan of the exploitation quantity of ground water, see table 4.3-1

Table 4.3-1 the Monitoring Plan of the Exploitation Quantity of Ground Water

Category	Monitoring program	Monitoring parameter	Monitoring frequency	Exploiting work unit	Responsible department
The exploitation quantity of ground water	The exploitation quantity of ground water	Quantity of water intake for irrigation,groundwater level	Once a year	Water administrative department of Long County, Baishui County, Heyang County and Dingbian County	Shaanxi provincial project management center of foreign capital poverty alleviation

2. Soil fertility monitoring

Monitoring points: mainly the project counties and communities using biogas slurry and biogas residue(e.g., Longzhen community of Mizhi County, Yangjing community of Dingbian County and Leichi community of Yanchang County). Each community has at least a spot, and the spot shall reflect the combination of the typical soil types and planting crops of project areas. The soil fertility monitoring is entrusted to Shaanxi Province soil and fertilizer sector.

Monitoring program: see table 4.3-2.

Table 4.3-2 Soil Fertility Monitoring Plan

Category	Monitoring program	Monitoring parameter	Monitoring frequency	Exploiting work unit	Responsible department
Soil fertility	Soil fertility	PH value, organic matter, total nitrogen, available nitrogen, rapid available phosphorus, rapidly available potassium, slowly available potassium, total salt content.	Once in the 1st, 3rd and 5th year	Shaanxi Province soil and fertilizer sector	Shaanxi provincial project management center of foreign capital poverty alleviation
		Trace elements such as copper, zinc, manganese, molybdenum, boron	Once in the 1st and 5th year	Shaanxi Province soil and fertilizer sector	Shaanxi provincial project management center of foreign capital poverty alleviation
		Total phosphorus and 、 total potassium	Once in the 1st and 5th year	Shaanxi Province soil and fertilizer sector	Shaanxi provincial project management center of foreign capital poverty alleviation

3. Environmental monitoring

The environmental monitoring can be entrusted to local environmental monitoring stations or social environment monitoring institutions with qualification.各 Subprojects activities

For environmental monitoring plan, see table 4.3-3。

Table 4.3-3 Environmental Monitoring Plan

Subprojects activities	Time frame	The prevention and control measures for environmental pollution	Monitoring and management solution
Road project	Construction period	● For the general environmental pollution control measures, see annex I.	● Project supervision and environmental supervision ● Environmental management plan
	Operation period	● No.	● Traffic noise monitoring: set up traffic noise monitoring spots at roads across community settlement, monitoring frequency being once every half a year, monitoring for two days, one time each day and night.
Pumping well (water source well) project	Construction period	● For the general environmental pollution control measures, see annex I; ● Before using pumping well equipment, inspecting oil or water leak. Stay away from the drill hole in case of oil leak. Take monitoring measures before the use;	● Project supervision and environmental supervision ● Environmental management plan

		● Reasonably arrange the schedule to avoid the simultaneous operation of many large and strong noise machines to work at the same time in the same construction plant, and the the noise impact time should be shortened during the construction; ● Try best to shorten the time of temporary occupation of land, controlling the construction time of earthwork and maintaining the stability of excavating and filling slope.	
	Operation period	● The exploitation of pumping well shall strictly enforce the rules of water drawing permit, prohibited to exceed the prescribed scale.	● For the monitoring plan of the exploitation quantity of ground water,groundwater level, see table 4.3-1.
Bridge and culvert (overflow bridge) project	Construction period	● For general control measures of environmental pollution during construction period, see section 3.1. ● The muddy water of pile foundation construction shall be reused after the sediment in settling pond. After the pile foundation construction, the muddy water stored in the settling pond shall be processed by coagulating sedimentation. The supernatant shall be reused in watering and lowering dust in construction site; ● The construction time of land pier shall be during the dry season of the water body of bridge and culvert, cofferdaming with steel sheet pile to avoid the impact to water quality; ● Construction waste slag shall be discharged into settling pond through slurry pump. After being processed by settling pond, the supernatant shall be reused in watering and lowering dust in construction site, and the waste slag (bottom mud) shall received joint disposal from local sanitation departments;; ● The construction site management shall be strengthened with standard construction. No matter during the drilling machinery	● Project supervision and environmental supervision ● Environmental management plan

		operation in substructure of bridge or cast-in-place in superstructure, material of construction and waste oil shall be prohibited to be discharged into the local water body, in order to avoid impacting the water quality.	
	Operation period	● To strengthen bridge vehicle management, to optimize the transport routes, and to take corresponding measures against vehicles transporting dangerous goods, pesticides, inflammable and explosive goods.	● No.
Air-conditioned cold storage project	Construction period	● For general control measures of environmental pollution during construction period, see section 3.1.	● Project supervision and environmental supervision ● Environmental management plan
	Operation period	● Vehicles exhaust are unorganized emissions, low in motor transport frequency, few in obstacles, better in air flow, requiring no special controlling measures; ● Waste clean of used filter element, used refrigerating fluid and refrigerating unit shall be regularly maintained by the manufacturer, and the waste shall be recycled directly by the manufacturer; ● After fixed-point stack all waste packing material shall receive the acquisition and comprehensive utilization of salvage station, while all fruit and vegetable scraps shall receive the clearance and treatment of local sanitation departments; ● Conduct vibration reduction treatments for the joint of compressor and sound-insulating treatment with sound insulating material for the top of crate. Meanwhile, conduct plant sound insulation and greening measures.	● Factory boundary noise monitoring: set up 4 noise monitoring spots at the factory boundary of air-conditioned cold store, monitoring equivalent continuous a-weighted sound pressure level, monitoring frequency being once a month, monitoring for two days, one time each day and night.
Morel(mushroom) production base	Construction period	● For general control measures of environmental pollution during construction period, see section 3.1.	● Project supervision and environmental supervision ● Environmental management plan
	Operation period	● The foul gas of medium stack belongs to unorganized emissions, and the stack site is required to use medium such as	● Factory boundary noise monitoring: set up 4 noise monitoring spots at the factory boundary of morchella

		dry manure and strengthen ventilation; ● Used medium will receive comprehensive utilization for fertilization or seedling cultivation; ● The packing bag of disinfectant, etc., should be collected uniformly and regularly transported to the designated place of sanitation departments for disposal; ● The operation of refrigeration units, sterilizer and humidifier will produce mechanical noise. It is required to select in preference low noise equipment and to take noise elimination and seismic resistance measure, meanwhile to realize sound insulation and strengthen greening through plant.	(mushroom) inoculum plant, monitoring equivalent continuous a-weighted sound pressure level, monitoring frequency being once a month, monitoring for two days, one time each day and night. ● Odor monitoring
Chili processing and packaging workshop	Construction period	● For general control measures of environmental pollution during construction period, see section 3.1.	● Project supervision and environmental supervision ● Environmental management plan
	Operation period	● Chili processing plant use septic-tank and integrated sewage treatment unit to dispose washing wastewater, satisfying water quality standard for farm irrigation (GB5084-200) after treatment, used for surrounding farmland irrigation instead of excretion; ● To install acoustic shield at the noise source of equipment and take basic glissando, meanwhile to realize sound insulation and strengthen greening through plant; ● Stone sand and branches and leaves shall be collected uniformly and transported with household refuse to the designated place of sanitation departments for disposal.	● Wastewater monitoring: the discharge outlet of integrated sewage treatment instrument, the monitoring frequency being once each season, monitoring programs being COD, BOD5, NH3 - N, animal and vegetable oil. ● Factory boundary noise monitoring: set up 4 noise monitoring spots at the factory boundary of chili processing and packaging workshop, monitoring equivalent continuous a-weighted sound pressure level, monitoring frequencybeing once a month, monitoring for two days, one time each day and night.
Dried persimmon processing plant	Construction period	● For general control measures of environmental pollution during construction period, see section 3.1.	● Project supervision and environmental supervision ● Environmental management plan
	Operation period	● The washing wastewater of persimmon shall be used for the comprehensive utilization of surrounding farmland irrigation after sedimentation treatment; ● Chlorine dioxide steam has	● No.

		certain corrosivity. The operator shall pay attention to the protection and be supported with suitable protective equipment.	
Apple sorting workshop (apple commercialization processing line)	Construction period	● For general control measures of environmental pollution during construction period, see section 3.1.	● Project supervision and environmental supervision ● Environmental management plan
	Operation period	● Washing wastewater of apples shall be used for the comprehensive utilization of surrounding farmland irrigation after sedimentation treatment; ● Used packing box shall receive the acquisition and comprehensive utilization of local salvage station after unified collection.	● No.
Apple orchards reconstruction project and agricultural facility	Construction period	● For general control measures of environmental pollution during construction period, see section 3.1.	● Project supervision and environmental supervision ● Environmental management plan
	Operation period	● For the prevention measures of pesticide and chemical fertilizer pollution, see section 3.2.3. ● The agricultural product storage of the project does not use pesticides; ● Use the agricultural film with safety, applicability and economy; ● To improve filming technology, promote lateral film cultivation technology, timely film uncovering technology, and reduce continuous covering age limit; ● To promote the use of biodegradable agricultural film; ● To strengthen agricultural recycling efforts, increase the plastic film residue recycling machinery, and improve the recovery of agricultural film.	● For soil fertility monitoring, see table 4.3-2。
Feedlots project	Construction period	● For general control measures of environmental pollution during construction period, see section 3.1.	● Project supervision and environmental supervision ● Environmental management plan
	Operation period	● To cover the waste with straw during the transport of pig slurries, to avoid manure leakage and volatilization of odor; ● To ventilate with exhaust fan in feed processing plant and clean the dust of processing room	● Waste gas monitoring: the monitoring locations are project factory boundary and exhaust funnel of biogas combustion emission, and the monitoring programs are odour concentration of factory boundary, HN3, H2S and SO2

		timely; ● To use dry collection, increase the frequency of piggery ventilation, regularly collect pig manure, uniformly store in dry manure pool; regularly clean pig feedlot and pig slurry to keep the house clean; ● To raise the digestibility of pig feed, reduce the discharge rate of dry matter (especially protein), so as to reduce the intestinal smell and the odor of droppings, which is an effective measure to reduce the stench sources; ● To use low protein diet balanced by amino acid, and use synthetic amino acid to replace the intact protein in ration can effectively reduce the nitrogen in waste; ● To use efficient, safe, pollution-free green feed additives, active substances such as microbial agents, enzymes and plant extracts, reducing emissions and produced fetor; ● To use deodorant and oxidant for the odor treatment of the manure of dry manure pool if possible; ● To separating dry space from moist space in pig feedlot, pick out pig manure by artificial methods, and discharge swine urine and washing wastewater to the sewage treatment system; ● To set up sewage treatment facilities. The processed biogas slurry shall be transported to the storage pool of biogas slurry and the volume of storage pool shall be no less than 300 m3; ● Set up risk accident pool with the volume no less than 300 m3, so as to store the waste water of the project during the failure of security equipment, realizing the zero release of project wastewater; ● Sewage treatment system shall use the mode II (HJ497-2009) of the technical specification of livestock breeding pollution control project. Conduct	and NOX of exhaust funnel. ● Wastewater monitoring: the monitoring location is discharge outlet of wastewater treatment plant, and the monitoring programs are pH, CODCr, BOD5, suspended solids, ammonia nitrogen, animal and vegetable oil, total coli form, the monitoring frequency is once a month, continuous monitoring for two days, sampling 3 times a day; ● Noise monitoring: set up 4 noise monitoring spots at the factory boundary of feedlots project, monitoring equivalent continuous a-weighted sound pressure level, monitoring frequency being once a month, monitoring for two days, one time each day and night.

		anti-seepage treatment for each treating pond; sewage and swine urine shall be discharged into biogas digester for disposal. ● To use vibration attenuation and sound insulation measures against the noises of pulverizer, crusher and agitator; ● To use soundproofing windows and doors in feed processing workshops, set sound absorption materials on the inner wall of the workshop, and close the doors and Windows as far as possible in production; ● To strengthen greening around the pig feedlot, plant tall trees around the plant boundary, and strengthen the noise insulation through greening; ● Set up at least 2 harmless landfill wells with concrete construction. Whenever input dead pig body and maza, cover it with slaked lime thicker than 10 cm, so as to ensure the thorough destruction of pig body and maza and achieve better sterilizing effect; ● The temporary storage of all kinds of empty bottles of vaccine and antibiotic drug of the veterinarian office of the project in private memory of booth, to be disposed by qualified units as medical solid waste after reaching a certain amount; ● To use dry collection in manure collection, storing the waste in dry manure pool after manual clearing, and use the aerobic composting process of the technical specification of livestock breeding pollution control project in manure disposal (HJ497-2009), used as farming fertilizer for fertilization after treatment; ● To use the sludge of biogas digester and pig manure as organic manure after composting fermentation.	
Biological compost pit	Construction period	● For the general environmental pollution control measures, see annex I.	● Project supervision and environmental supervision ● Environmental management plan

	Operation period	● Take anti-seepage measures such as brick-concrete structure and cement floor for farmers' self-built biological manure pool, so as to avoid compost from infiltrating and polluting groundwater; ● To set up head cover over the biological manure pool, so as to avoid the pollution of surrounding surface water environment from the overbank flow caused by rainwater; ● Biological manure pool shall be equipped with devices against flies.	● Groundwater monitoring: monitor the groundwater of centralized village civil wells at biological compost pit. The monitoring programs include pH, permanganate index, ammonia nitrogen, total hardness and the anion synthetic detergent, etc. The monitoring frequency is once each quarter, continuously monitoring for three days.
Waste collection pool	Construction period	● For the general environmental pollution control measures, see annex I.	● Project supervision and environmental supervision ● Environmental management plan
	Operation period	● Waste collection pool shall use anti-seepage measures such as brick-concrete structure and cement floor to avoid waste from infiltrating and polluting groundwater; ● Waste collection pool shall be supported with head cover, closing the head cover timely after collection, so as to avoid rainwater from causing the leakage of landfill leachate.; ● Using special totally-enclosed waste transfer truck to collect waste, so as to avoid household garbage from falling and impacting the surrounding environment in transit; ● Waste collection pool shall be cleaned regularly, and the waste shall be regularly collected and transported to the town refuse transfer station, and regularly transported to the county's municipal solid waste landfill for disposal.	● Groundwater monitoring: monitor the groundwater of centralized village civil wells at waste collection pool. The monitoring programs include pH, permanganate index, ammonia nitrogen, total hardness and the anion synthetic detergent, etc.. The monitoring frequency is once each quarter, continuously monitoring for three days.
Sale Outlets	Construction period	● For the general environmental pollution control measures, see annex I.	● Project supervision and environmental supervision ● Environmental management plan
	Operation period	● To reasonably guide all kinds of vehicles, so as to avoid congestion and reduce automobile idle speed; the motor vehicles entering the project are required to stall in time in order to reduce vehicle emissions. To keep good road	● Noise monitoring: set up 4 noise monitoring spots at the factory boundary of Sale Outlet, monitoring equivalent continuous a-weighted sound pressure level, monitoring frequency being once a month, monitoring for two days, one

		condition within the project, regularly cleaning and flushing road surface to reduce the road dust, preventing and reducing road reentrainment; ● If the Sale Outlet uses indoor forms, wash the ground every day; venting through natural ventilation and mechanical ventilation; the air outlet shall stay away from sensitive outlets; collect all kinds of waste at refuse collecting station with sealing bags to avoid random falling. ● Set up deceleration strip and speed limit sign at the entrance of the Sale Outlet and proper internal positions, to prohibit horns without cause or reason and control the speed of vehicles entering the underground parking, so as to reduce the noise source of motor vehicles. ● To strengthen the management of the loading and unloading activities of agricultural products, so sa to reduce the equipment loading and unloading noise because of improper manual operation. ● The waste bags and waste packing in the process of logistics transport shall be collected and stacked together and sold to reclamation depot. The household garbage and rotting waste agricultural products shall be cleaned daily by the management department of Sale Outlet. The dustbin in the Sale Outlet will be cleaned by local sanitation departments regularly for centralized treatment after solid waste classification, bagging collection, storage. To realize daily disposal.	time each day and night.

Monitoring costs

For the environment monitoring cost estimation of the first batch of 13 communities, see table 4.4-1.

Table 4.4-1 the Environment Monitoring Cost Estimation of the First Batch of 13 Communities

Serial number	Project	Cost unit 10,000 (RMB)
1	Monitoring of amount of groundwater mining	40
2	Soil fertility monitoring	60
3	Environmental monitoring	60
Total		160

5.Institutional arrangement

5.1The settings of environmental management system

In accordance with the relevant provisions and the actual engineering needs, this project should appoint special personnel to coordinate the management of project environment, environmental monitoring and environmental supervision. For the environmental management system of provincial project management office and all levels of institutions and units during the construction and operation periods, see figure 4.4.1 and figure 4.1-2.

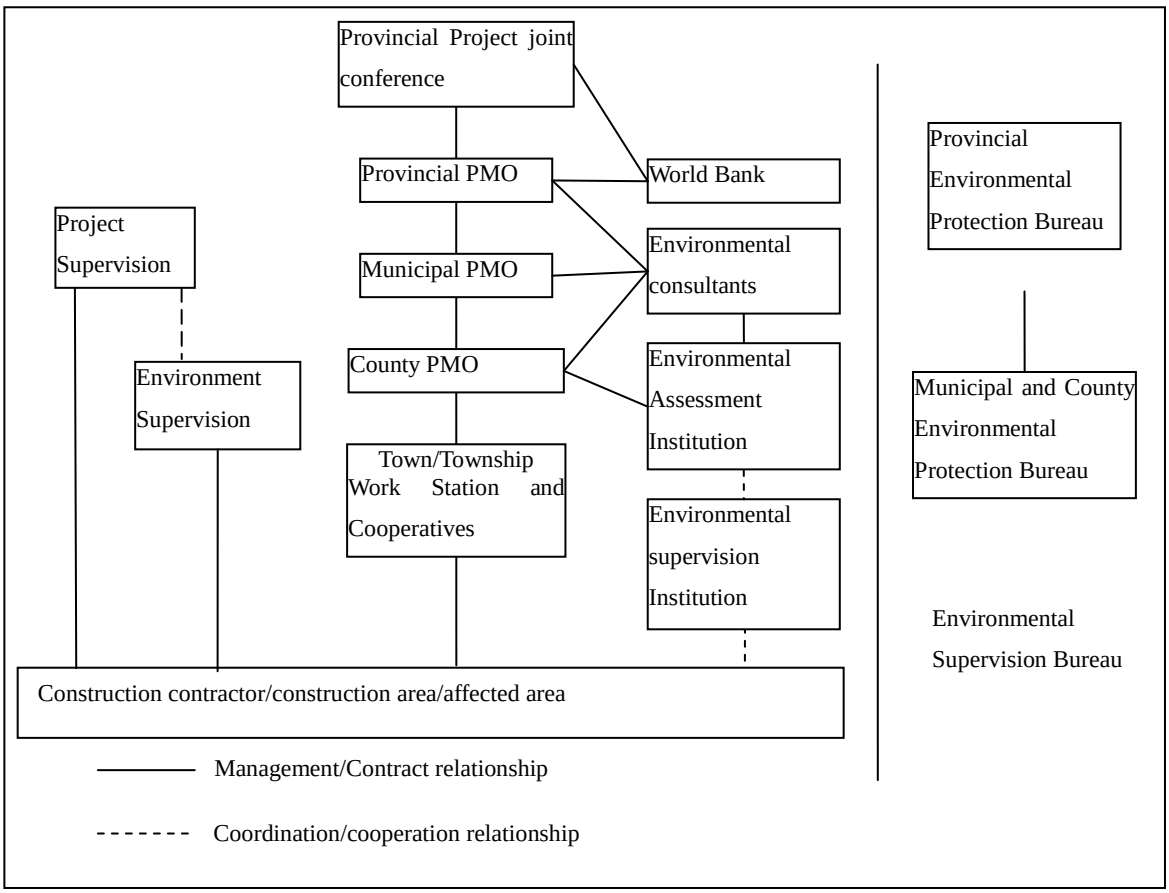


Figure 4.1-1 Environmental Management System in the Construction Period

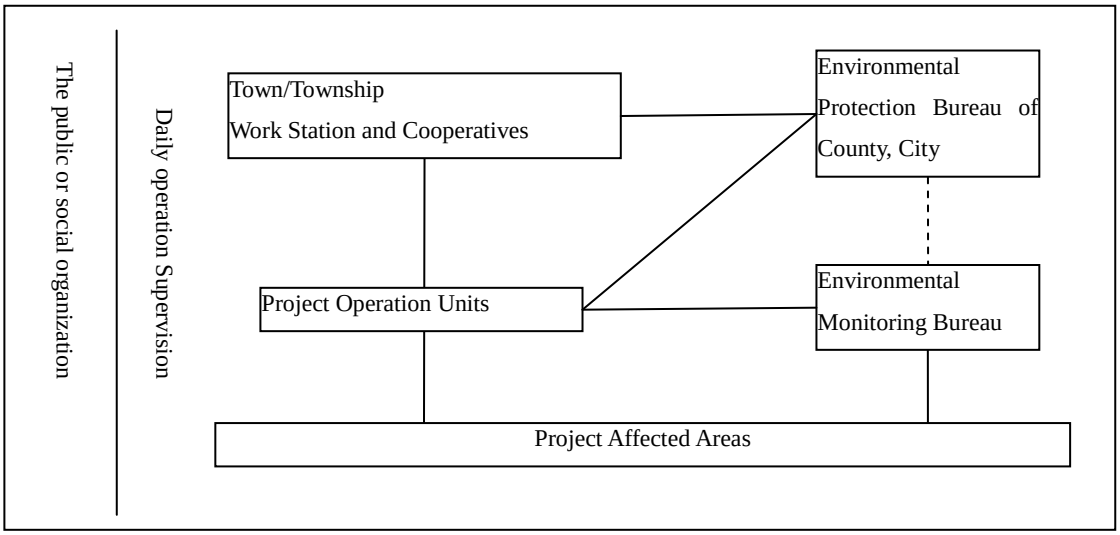


Figure 4.1-2 Environmental Management System in the Operation Period

5.2. Responsibilities and Personnel Allocation of all institutions in environmental management system and

The proposed project is coordinated by Provincial Poverty Alleviation and Development Office (PPADO), which has rich experience with Bank supported projects. A Provincial Steering Committee (PSC), led by a Vice Governor of the Government of Shaanxi with representatives from the PDRC, PDOF, Provincial Department of Construction (PDOC), PPADO and Provincial Statistics Bureau, will be organized to oversee the preparation and implementation of the project. At the provincial level, the PPADO takes the lead in project management. This arrangement helps assure the proper preparation and implementation of safeguard policies. The Shaanxi PPAO has previously executed similar Bank poverty reduction projects, and is therefore experienced in safeguard requirements. At municipal level, a PMO has been established to coordinate project preparation and implementation among participating counties within its jurisdiction and between these counties and relevant municipal government agencies. At county level, each county of the eleven counties has set up a Project Implementation Unit. Four County PIUs have experience with the WB financed projects. But seven of the eleven county level authorities are new to Bank-supported project procedures and will need guidance from the provincial PMOs. Experienced safeguards consultants will be hired to assist with the implementation of safeguards instruments.

In the environmental management system of this project, some are internal institutions of the project, some are the consulting services of the project and others are external organizations. These institutions compose a complete environmental management system, but undertaking different job content with different responsibilities. For the environmental management system institutions, environmental management components and personnel allocation in different stages, see table 4.2-1.

Table 4.2-1 Environmental Management System Institutions and Components and Personnel Allocation in Different Stages

Stage	Organization	Main environmental management content	Personnel allocation
Design and preparation	World Bank	Supervise and inspect the environmental management plan	Unlimited
	Provincial, municipal and county environmental protection bureau	Government administrative supervision and administration institution, in accordance with the law, conduct the whole process of environmental supervision and management of the project, including: the environmental supervision and management of the approval of environmental impact assessment report, engineering construction, completion acceptance and operation of environment protection engineering.	Unlimited
	Provincial PMO	Responsible for the contact with all levels of environment agencies of government in the coordination and implementation of the environmental management issues.	2
	Municipal PMO	The implementation and management of each municipal subproject, including project environmental management, environmental monitoring and environmental supervision work, and supervise, inspect and report the implementation of the environmental management plan.	1 person each city
	County PMO	1.Responsible for a series of environmental protection management work in project design and preparation; 2.Carry out the environmental protection funds; 3.Responsible for coordinating with the government environment agencies to carry out the environmental management; 4. Hire supervision unit and collect records.	2 persons each county
	Design organization	1. Include the environmental protection measures into the design plan and budget; 2. Include the mitigation measures of environmental management plan into the tender's technical specification.	2
	Environmental assessment organization	1. Provide technical support for the environmental protection work of engineering design; 2. Compile environmental impact assessment documents;	6

		3. Make environmental management plan.	
Construction period	Village and town workstation	1. Responsible for a series of environmental protection management during project construction, and the implementation of the environmental protection work; 2. Carry out the management and supervision of environmental protection work during the construction period, investigating and handling with nuisance or pollution problems in the process of construction; 3. Responsible for coordinating with the government environment agencies to carry out the environmental management; 4. Track the implementation of environmental management plan, and regularly report to the competent department at the same level, provincial PMO, county PMO and the World Bank. 5. Accept and handle the public complaints.	2 persons each township and village (community)
	Contractor	1. Carry out the implementation of environmental protection measures and work during construction period according to the bidding documents, contracts and this environmental management plan; 2. Accept the guidance and supervision of county PMO, environment managers of community service center, environment supervision engineers and the relevant government functional departments; 3. Accept the technical support of environmental protection advisory bodies; 4. Take safety measures, such as to set up indication marks on construction site, carrying on the protection of the factory boundary of construction site, establishing the communication channel with the public, to guarantee the construction security; 5. Carry out environmental management plan.	2persons each project
	Project/environment supervision	1. Supervise the implementation of environmental management plan of contractors and implement the environmental mitigation measures in the work contract; 2. Conduct on-site supervision of the implementation of the contractor; 3. Cooperate with construction unit in environmental management; 4. To keep a record of the implementation of environmental management plan as reports and report regularly to the operating units.	5
	Environmental monitoring unit	Complete the monitoring work in accordance with the delegation of project operating unit and the environmental monitoring plan of the evaluation.	5
	Municipal and county environmental protection bureau	1. Conduct supervision and inspection of the environmental protection measures of operating units and construction units; 2. Receive the implementation report of environmental management plan submitted by the operating units and PMO, and conduct administrative management according to the reports. 3. In case of abnormal environment condition in the construction, arrange emergency measures; 4. Accept public complaints and coordinate in processing.	1
	Technical assistance/consulting	1. Provide technical support for the environmental protection work during construction period, in accordance with the delegation of project operating units, this environmental impact statement and environmental protection design results; 2. Provide the contractor with technical guidance in environmental protection work, and complete the environmental protection training during construction period.	Unlimited

Operation period	Cooperative or operating units	1. Responsible for the environmental protection management after the operation, and the implementation of mitigation measures and monitoring during the operation period of environmental management plan; 2. Responsible for the contact with competent government department in the coordination and implementation of the environmental management issues; 3. The emergency treatment of environment accident; 4. Regularly train the staff to improve their ability, at the same time actively carry out exchange activities in environmental protection technology and experience, to further improve the environmental management work.	2
	Environmental monitoring unit	1. Complete the environmental monitoring during project operating period according to the delegation of project cooperative or operating unit and environmental monitoring plan; 2. Conduct routine surveillance related to the project.	Depending on the task
	Municipal and county environmental protection bureau	1. Conduct environmental engineering acceptance; 2. Conduct management and supervision of the environmental protection standard during operation period; 3. Conduct supervision and inspection of the running condition of completed environmental protection facilities.	2
	Social public or private organizations	Social supervision	Unlimited

5.3.Environmental management training

1. Training objective

The purpose of environmental management training is to ensure the smooth and effective work of environmental management, to make relevant personnel be familiar with the contents of the environmental management and process, and to improve the environmental management ability of environment managers, so as to ensure the effective implementation of all environmental protection measures. Training objects

Training objects: staff of environmental management office personnel, staff of environmental supervision, representatives of environmental monitoring organization, representatives of project management office, representatives of village and town workstations, assistants of cooperatives, main representatives of contractors, representatives of farmers, etc.

3. Training content

（1）Master and apply the World Bank's environmental policy and the domestic environmental protection laws and regulations and environmental standards;

（2）The environmental management pattern of the World Bank loan project and the environmental clauses in the loan agreement;

（3）The project's environmental impact assessment report and environmental management plan;

（4）The provisions of this project environmental management (mainly the environmental management regulations during construction period);

（5）Environment managers, environmental monitoring and environmental supervision personnel, and the contractor's responsibility and the mutual relationship;

（6）The compilation of environmental management work report, environmental supervision work report, environmental monitoring report and contractor monthly;

（7）The control measures after the operation of projects including pest management plans, the recycling of agricultural film and the use of chemical fertilizer.

4. Training cost

Environmental management training expenses include: training experts' cost of traffic, subsidies, accommodation, meals, training materials, meeting room, estimated to be RMB 200,000.

6.Estimation of Implementation Charges of Environmental Management Plan

6.1.The description of implementation items

The execution cost estimation of the project environmental management includes three parts:

(1) The contractor carries out the regulation of construction environmental management and implements the cost of all environmental protection measures of construction

(2) The environmental engineering (measures) costs during the operation period of subprojects activities;

(3) Environmental management costs, including environmental monitoring, environmental management training and consulting fees.

Among them, the cost of the contractor's carrying out the regulation of construction environmental management and implementing all environmental protection measures of construction has been included in the contractor's total project price, and this specific cost will not be repeatedly listed in this plan.

6.2.The estimation of implementation cost

This plan lists only the environmental engineering (measures) and environmental management expenses during the operation period of all subprojects activities of the first 13 communities. For the expenses details, see table 6.2-1, table 6.2-2 and table 6.2-3.

Table 6.2-1 Details of the Cost Estimation of the Environmental Engineering (Measures) during the Operation Period of All Subprojects Activities of the First 13 Communities

Subprojects activities	The prevention and control measures for environmental pollution	Environmental engineering (measures)	Cost (10,000 Yuan)
Air-conditioned cold store (cold storage) project	● Vehicles exhaust are unorganized emissions, low in motor transport frequency, few in obstacles, better in air flow, requiring no special controlling measures; ● Waste clean of used filter element, used refrigerating fluid and refrigerating unit shall be regularly maintained by the manufacturer, and the waste shall be recycled directly by the manufacturer; ● After fixed-point stack all waste packing material shall receive the acquisition and comprehensive utilization of salvage station, while all fruit and vegetable scraps shall receive the clearance and treatment of local sanitation departments; ● Conduct vibration reduction treatments for the joint of compressor and sound-insulating treatment with sound insulating material for the top of crate. Meanwhile, conduct plant sound insulation and greening measures.	● The recycling fee of waste filter element, waste refrigerating fluid and refrigerating unit;	2.0
		● The cleaning fee of sanitation department;	0.3
		● The cost of cushion and the purchase, installation and greening of sound insulating material.	3.5
		● Subtotal	5.8
Morel(mushroom) production base	● The foul gas of medium stack belongs to unorganized emissions, and the stack site is required to use medium such as dry manure and strengthen ventilation; ● Used medium will receive comprehensive utilization for fertilization or seedling cultivation; ● The packing bag of disinfectant, etc., should be collected uniformly and regularly transported to the designated place of sanitation departments for disposal; ● The operation of refrigeration units, sterilizer	● The cleaning fee of sanitation department;	0.5
		● The cost of cushion, silencer and the purchase, installation and greening of sound insulating material.	8.5
		● Subtotal	9.0

	and humidifier will produce mechanical noise. It is required to select in preference low noise equipment and to take noise elimination and seismic resistance measure, meanwhile to realize sound insulation and strengthen greening through plant.		
Chili processing and packaging workshop	● Chili processing plant use septic-tank and integrated sewage treatment unit to dispose washing wastewater, satisfying water quality standard for farm irrigation (GB5084-200) after treatment, used for surrounding farmland irrigation instead of excretion; ● To install acoustic shield at the noise source of equipment and take basic glissando, meanwhile to realize sound insulation and strengthen greening through plant; ● Stone sand and branches and leaves shall be collected uniformly and transported with household refuse to the designated place of sanitation departments for disposal.	● The construction cost of septic tank	5.0
		● The cost of sewage treatment unit structure construction, equipment purchase and installation;	20.0
		● The cleaning fee of sanitation department;	0.5
		● The cost of cushion and the purchase, installation and greening of sound insulating material.	5.0
		● Subtotal	30.5
Dried persimmon processing plant	● The washing wastewater of persimmon shall be used for the comprehensive utilization of surrounding farmland irrigation after sedimentation treatment; ● Chlorine dioxide steam has certain corrosivity. The operator shall pay attention to the protection and be supported with suitable protective equipment.	● The construction cost of settling tank.	2.0
Apple sorting workshop (apple commercialization processing line)	● Washing wastewater of apples shall be used for the comprehensive utilization of surrounding farmland irrigation after sedimentation treatment; ● Used packing box shall receive the acquisition and comprehensive utilization of local salvage station after unified collection.	● The construction cost of settling tank.	2.0
Apple orchards reconstruction project and agricultural facility	● For the prevention measures of pesticide and chemical fertilizer pollution, see section 3.2.3. ● Use the agricultural film with safety, applicability and economy; ● To improve filming technology, promote lateral film cultivation technology, timely film uncovering technology, and reduce continuous covering age limit; ● To promote the use of biodegradable agricultural film; ● To strengthen agricultural recycling efforts, increase the plastic film residue recycling machinery, and improve the recovery of agricultural film.	● The recycling fee of agricultural film.	30.0
Feedlots	● To cover the waste with straw during the	● The	1.5

project	transport of pig slurries, to avoid manure leakage and volatilization of odor; ● To ventilate with exhaust fan in feed processing plant and clean the dust of processing room timely; ● To use dry collection, increase the frequency of piggery ventilation, regularly collect pig manure, uniformly store in dry manure pool; regularly clean pig feedlot and pig slurry to keep the house clean; ● To raise the digestibility of pig feed, reduce the discharge rate of dry matter (especially protein), so as to reduce the intestinal smell and the odor of droppings, which is an effective measure to reduce the stench sources; ● To use low protein diet balanced by amino acid, and use synthetic amino acid to replace the intact protein in ration can effectively reduce the nitrogen in waste; ● To use efficient, safe, pollution-free green feed additives, active substances such as microbial agents, enzymes and plant extracts, reducing emissions and produced fetor; ● To use deodorant and oxidant for the odor treatment of the manure of dry manure pool if possible; ● To separating dry space from moist space in pig feedlot, pick out pig manure by artificial methods, and discharge swine urine and washing wastewater to the sewage treatment system; ● To set up sewage treatment facilities. The processed biogas slurry shall be transported to the storage pool of biogas slurry and the volume of storage pool shall be no less than 300 m3; ● Set up risk accident pool with the volume no less than 300 m3, so as to store the waste water of the project during the failure of security equipment, realizing the zero release of project wastewater; ● Sewage treatment system shall use the mode II (HJ497-2009) of the technical specification of livestock breeding pollution control project. Conduct anti-seepage treatment for each treating pond; sewage and swine urine shall be discharged into biogas digester for disposal. ● To use vibration attenuation and sound insulation measures against the noises of pulverizer, crusher and agitator; ● To use soundproofing windows and doors in feed processing workshops, set sound absorption materials on the inner wall of the workshop, and close the doors and Windows as far as possible in production; ● To strengthen greening around the pig feedlot, plant tall trees around the plant boundary, and	transportation cost of pig manure; ● The purchase and installation expenses of the exhaust system of feed processing plant and pig feedlot; ● The purchase expenses of deodorant and oxidant; ● The cost of sewage treatment unit structure construction, equipment purchase and installation; ● The construction cost of biogas slurry storage pool and risk accident pool; ● The construction cost of harmless landfill well; ● The cost of the purchase and installation of sound insulation cover, muffler, shock pad, acoustic board, flexible connection; ● The disposal expenses of medical waste. ● Subtotal	 5.5 0.3 35.0 4.0 3.0 5.5 0.2 55.0

	strengthen the noise insulation through greening; ● Set up at least 2 harmless landfill wells with concrete construction. Whenever input dead pig body and maza, cover it with slaked lime thicker than 10 cm, so as to ensure the thorough destruction of pig body and maza and achieve better sterilizing effect; ● The temporary storage of all kinds of empty bottles of vaccine and antibiotic drug of the veterinarian office of the project in private memory of booth, to be disposed by qualified units as medical solid waste after reaching a certain amount; ● To use dry collection in manure collection, storing the waste in dry manure pool after manual clearing, and use the aerobic composting process of the technical specification of livestock breeding pollution control project in manure disposal (HJ497-2009), used as farming fertilizer for fertilization after treatment; ● To use the sludge of biogas digester and pig manure as organic manure after composting fermentation.		
Sale Outlet	● To reasonably guide all kinds of vehicles, so as to avoid congestion and reduce automobile idle speed; the motor vehicles entering the project are required to stall in time in order to reduce vehicle emissions. To keep good road condition within the project, regularly cleaning and flushing road surface to reduce the road dust, preventing and reducing road reentrainment; ● If the Sale Outlet uses indoor forms, wash the ground every day; venting through natural ventilation and mechanical ventilation; the air outlet shall stay away from sensitive outlets; collect all kinds of waste at refuse collecting station with sealing bags to avoid random falling. ● Set up deceleration strip and speed limit sign at the entrance of the Sale Outlet and proper internal positions, to prohibit horns without cause or reason and control the speed of vehicles entering the underground parking, so as to reduce the noise source of motor vehicles. ● To strengthen the management of the loading and unloading activities of agricultural products, so as to reduce the equipment loading and unloading noise because of improper manual operation. ● The waste bags and waste packing in the process of logistics transport shall be collected and stacked together and sold to reclamation depot. The household garbage and rotting waste agricultural products shall be cleaned daily by the management department of Sale Outlet. The dustbin in the Sale	● The cost of the purchase and installation of mechanical ventilation;	1.0
		● The cost of the purchase and installation of the sign of limit speed and deceleration strip;	2.0
		● The purchase cost of household garbage collection box;	2.0
		● The cleaning fee of household garbage.	0.5
		● Subtotal	5.5

	Outlet will be cleaned by local sanitation departments regularly for centralized treatment after solid waste classification, bagging collection, storage. To		
Fee in total		--	139.8

Table 6.1-1 Estimation of Implementation Cost of the Environmental Management Plan of All Subprojects Activities of the First 13 Communities

Serial number	Project	Cost unit: 10,000Yuan (RMB)
1	Environmental monitoring	160
2	Environmental management training	20
3	Environmental engineering (measures)	139.8
4	Environmental consulting	30
5	Environmental management facilities/Daily environmental management	20
Total	--	369.8

Note: the cost of the contractor's carrying out the regulation of construction environmental management and implementing all environmental protection measures of construction has been included in the contractor's total project price, and this specific cost will not be repeatedly listed in this plan.

Table 6.1-1 Estimation of Implementation Cost of the Environmental Management Plan of All Subprojects Activities of All 29 Communities

Serial number	Project	Cost unit: 10,000Yuan (RMB)
1	Environmental monitoring	356.9
2	Environmental management training	44.6
3	Environmental engineering (measures)	311.9
4	Environmental consulting	66.9
5	Environmental management facilities/Daily environmental management	44.6
Total	--	824.9

Note: the cost of the contractor's carrying out the regulation of construction environmental management and implementing all environmental protection measures of construction has been included in the contractor's total project price, and this specific cost will not be repeatedly listed in this plan.

7. Information management of environmental management plan

7.1. Information exchange

Environmental management requires necessary information exchange between different departments and different jobs inside the organization. Meanwhile, PMO shall also report the relevant information to the (related parties, social public, etc.)

Internal information exchange can be conducted in a variety of ways such as conference and internal presentation, but one formal meeting every month is required, and all information shall be recorded and archived.

External information exchange shall be once every six months or a year, and the information exchange with cooperative units shall form a summary and be archived.

7.2.Record mechanism

In order to make the environmental management system operate effectively, it is necessary to establish a perfect system of record and keep the records of the following several aspects:

（1）Statutory and regulatory requirements;

（2）Permission;

（3）Environmental factors and the related environmental impact;

（4）Training;

（5）Check, review and maintain activities;

（6）Monitoring data;

（7）The effectiveness of corrective and preventive measures;

（8）The related party**'s** information；

（9）Check;

（10）Review.

In addition, necessary control is required for the above all kinds of records, including: record identification, collection, cataloging, filing, storage, management, maintenance, query, retention time and disposition.

7.3.Report mechanism

During project implementation, the contractor, monitoring unit and PMO shall record the project progress, the operation of environmental management plan, and environmental quality monitoring results, and report to the relevant authorities. The content mainly includes the following three parts:

（1）The monitoring unit and contractor shall make detail records for the operation of environmental management plan, and report to the PMO promptly;

（2）The project progress report of PMO (such as monthly, quarterly, annual reports, etc.) must include the content of the EMP progress, such as the implementation schedule and implementation effect of EMP;

（3）Environmental management plan implementation report shall be submitted every year before March 10th to the Shaanxi provincial office of poverty alleviation and development. The report consists of two parts, namely Environmental Management Plan Implementation Summary Report and three professional monitoring reports, namely, Groundwater Monitoring Report, Soil Fertility Monitoring Report, and Environmental Quality Monitoring Report.

（4）Shaanxi Provincial Office Of Poverty Alleviation and Development must complete and submit the annual EMP performance report to the World Bank before March 31 of the second year.

EMP performance report can include the following main content:

①Project status;

②EMP plan implementation;

③Training plan implementation;

④Presence of public complaints, in case of complaints, record the main content of the complaints, solutions and public satisfaction;

⑤ EMP performance report of the second year

7.4.Complaint mechanism

In order to maintain good environment quality conditions and the interests of the local villagers, the project has set up a convenient and quick, open and effective complaints mechanism to enable the affected person to lodge a complaint at any time concerning any issues in the environmental management plan.

（1）Complaint accepting institution

All levels of PMOs shall assign special personnel to be responsible for villagers' complaints, public complaints, and to accept the public consultation and complaints.

（2）Complaint procedure

①First stage

If the project area residents are not satisfied with the environmental management plan, or in case that the project's construction and operation has impacted the local environmental quality, they can lodge an oral or written complaint to the county PMO. The county PMO shall handle with the complaint and make written records. Any reasonable suggestion or advice is generally soloved within 2 weeks after receiving the complaint.

②Second stage

If the county PMO's handling decision is not satisfactory, the plaintiff can complain to the provincial PMO after receiving the decision. The provincial PMO shall make a handling decision within 2 weeks after receipt of the complaint.

③Third stage

If still not satisfied with the handling decision of the provincial PMO, the plaintiff can raise a report or a complaint to the local environmental protection department.

（3）Complaint feedback mechanism

Complaint feedback mechanisms include normalized recording, tracking and regular reporting system.

Normalized recording: a complaint record mainly includes: the basic condition of the plaintiff, the basic situation of the complaints, the basic situation of the replyer, the solution, and the results achieved.

Tracking: pay a return visit to the plaintiff to check if the complaint is dealt with, and if the plaintiff is satisfied with the results of treatment, etc

Regularly report: for the complaints, regularly submit written reports to the next higher level management office, and include it into the next year's plan, in order to avoid the occurrence of similar incidents.

8. Public Consultation and Information Disclosure

According to article XXI of *"Environmental Impact Assessment Law People's Republic of China"* and article XV of *"Environmental Protection Management Regulations for Construction Project"*:"When construction units prepare an environmental impact report, they should accord with provisions of the law, and seek opinions from the relevant units and residents where construction project is located", public participation investigation has been carried out for environmental impact assessment of the project.

Public participation constitutes an important part of environmental impact assessment, which makes a variety of public comments, suggestions and requests on the proposed project carry through the entire environmental impact assessment process, so that environmental impact assessment of construction projects is more democratized and public. In this investigation of public participation in environmental impact assessment, the general public, groups directly or indirectly related to the construction project are involved in environmental impact assessment. Through communication with them, we enable them to understand the nature of the project and its possible impact on the environment quality, so that from their vital interests, they can express opinions and views on the project, particularly the idea of environmental issues, and make reasonable suggestions, provide the basis for preliminary project design and implementation of environmental protection measures. As a result, the project con give play to integrated, long-term interests, EIA prediction and analysis are more complete, and effectiveness of environmental impact assessment can be improved.

8.1.Respondents

To enable public participation to objectively reflect the public's views on this project, so that there is adequate representation and focus in public participation, the field of investigation of the EIA public participation covers the potentially affected area where the project is located, with nearby farmers, cooperative members, government workers and so on as the main respondents.

8.2.Public Participation Form

8.2.1.Project publicity

The project conducted online publicity twice.

(1) The first online publicity

On April 7, 2016, the construction unit made publicity on website of Shaanxi Provincial Office of Poverty Alleviation and Development. The main contents of the publicity included presentation of project summary, environmental impact assessment procedures and the main contents, main circumstances for seeking public opinions and the main methods for the public to bring forward opinions, with construction unit and EIA unit information published.

Publicity site for:

http://www.shaanxifpb.gov.cn/admin/pub_newsshow.asp?id=29014039&chid=100234

No public feedback was received during the publicity period.

(2) The second online publicity

On May 9, 2016, after completion of environmental management plan and pest management plan, this project made second publicity of the above-mentioned documents on website of Shaanxi Provincial Office of Poverty Alleviation and Development and "Sanqin News" respectively, to further seek the public opinion on this project. The main contents of the publicity included construction project summary, the main points of policies and measures to prevent or mitigate adverse environmental impacts, the main points of environmental impact assessment conclusion proposed by environmental impact report, range, major issues, specific forms and duration of public opinion solicitation, construction unit and EIA unit information, and all links of EMP,ESMF and PMP etc.

Publicity site for:

http://www.shaanxifpb.gov.cn/admin/pub_newsshow.asp?id=29014068&chid=100234

No public feedback was received during the publicity period.

See Annex 3 for screenshots of online project publicity.

8.2.2.Forums

Public participation forums were held in Fuping County, Long County, Mizhi County, Baishui County, Yichuan County and Changwu County where the project is located, with the participation of farmers, cooperatives and government workers in the project area. See Annex 5 for forum scene photos. On the forums, PMO, town workstation staff of the counties introduced the project. The participants held forums on this project- related environmental protection, pest control, put forward their own questions on the project start-up time and construction period and other issues. PMO, town workstation staff of the counties answered the related issues one by one. Participants conscientiously filled out public opinion survey, who expressed support for the project, considering that construction of the project is beneficial to the local economic development as social benefiting project which will not cause a big impact on the environment. They hope that the project can guarantee quality and start as soon as possible.

Six counties held a total of six forums. Venue, participants, comments and other statistics of the forums are shown in Table 8.2-1.

Table 8.2-1 Public Participation Forum Summary

Time	Venue	Materials	Participants, units	Main opinions	How does the project consider these recommendations
29/04/2016	Dafu persimmon cultivation professional cooperative in Caocun Town, Fuping County	*"Environmental Management Plan", "Environmental and Social Framework," "Pest Management Plan"*	Caocun Town Taibai Village, Daqu Village farmers, Dafu persimmon cultivation professional cooperative members, a total of 57 people	1, Dust and construction waste during farmland leveling and channel and road construction, destruction of vegetation by construction machinery, construction waste disposal. 2, In terms of environment, excavated, backfilled soil waste treatment and waste water management have insufficient degree of adaptation to the environment. It is hoped that the project will be carried out as soon as possible. 3, Agriculture will cause a certain impact on the land, with hazards on water pollution, people and animals. 4, Mulching film also causes relatively large land destruction.	For the problems set forth above, the World Bank project has corresponding measures during the preparation phase. While measures are undertaken, environmental pollution will be well solved or mitigated accordingly. For example: For solid waste and emissions of related waste water, channels will be designed according to local conditions, simple and practical, to reduce the occupied farmland while also ensuring farm irrigation. Spoil will be used for leveling and backfill. During construction, cut-and-transportation will be done to ensure protection for each section of construction so that soil erosion during construction can be reduced. In terms of vegetation destruction, construction machinery and transport vehicles will minimize vegetation damage of operational areas as far as possible. Rainy season and flood season will be avoided as far as possible to realize agricultural climate-adaptation.

27/04/2016	Government office of Liangquan Town, Long County		County PMO, Liangquan Village, Liu Jiazui Village, Hu Jiazhuang Village, Sanjiaodian farmers, a total of 50 people	1, Pay attention to dust prevention in pipeline excavation during construction. 2, Pay attention to individual residue treatment after the installation of PVC pipe. 3, Noise control and security issues of construction machinery during construction.	Proceed in strict accordance with design requirements and construction organizations
28/04/2016	Government office of Long Town, Mizhi County		Longlaigou ecological agriculture cooperative members, villagers of the villages where the project locates, a total of 56 people	1, Soil and Water Conservation. 2, The World Bank loan agricultural project needs linkage with the relevant involved departments, to actively promote public participation.	1, Soil and water conservation needs communication with water conservancy departments to jointly carry out eco-environmental protection. 2, Through online publicity, forums, questionnaire issuance and other forms, make more people aware of the project and participate in public participation.
29/04/2016	Guojia Village of Shiguan Town, Baishui County		County Poverty Relife Office, Shiguan Town cadres, project facilitators, cooperatives and project area farmers, a total of 55 people	How to solve these problems? 1, Increasing cost of crop planting 2, Resurgence of pest resistance to drugs 3, Chemical residues harm 4, Harm to the ecological environment	1, Agricultural control 2, Biological control 3, Physical control 4, Herbicide control of major diseases , insect pests and weeds
03/05/2016	Fuyuan cultivation professional cooperative		County PMO, Jiyi Town cadres, project facilitators, farmers of cooperatives and project area, a total of 56 people	Pest control level in the project area is relatively low, with over-reliance on chemical pesticides but less on agricultural control, biological control, physical control. As farmers of the most basic agricultural production units, their knowledge on pest control basically stays in use of chemical pesticides.	1 Agricultural control 2 Biological Control 3 Physical control 4 Herbicide control of major diseases , insect pests and weeds
28/04/2016	Changwu County Tingkou Town		Town PMO, Tingkou Town, Santai	1, Pay close attention to engineering quality; 2, Project design should	World Bank projects have strict engineering control requirements, which will apply strict quality

	office		Village Committee, Fanluo Village Committee, Xiyuan Village Commitee staff, Langrun fruit industry cooperative members and farmers, a total of 57 people	fully solicit opinions of the masses; 3, The project implementation process should minimize damage to the environment; 4, Land leveling should reduce the damage to arable land.	assurance and reduce the adverse effects on the environment and farmland in accordance with relevant regulations and plans during construction and operation of the project.

8.2.3.Questionnaire

To further understand the attitude of the masses for the project itself and ambient environment quality, a combination of forums and questionnaire was conducted for public participation to investigate residents and groups in the project and the surrounding area that may be directly or indirectly affected. The respondents are mainly project involved rural households and communities. See details of survey sample form in Table 8.2-1.

Table 8.2-1 Public Opinion Survey Sample Form for Shaanxi Poor Rural Areas Community Development Project (individual questionnaire)

Respondent's basic information	Name:_____ Gender: Male□ Female□ Age:18～30 years□ 31～50 years□ over 50 years□ Occupation: Cadre□ Worker□ Farmer□ Other_____ Degree of education: college or above□ Technical secondary□ high school□ junior high school or below□ Address or work unit:_____ Phone:_____			
General situation of the project	World Bank loan to Shaanxi Poor Rural Areas Community Development Project is poverty alleviation projects jointly launched by Shaanxi Provincial Office of Poverty Alleviation and Development and the World Bank. The project implementation scope covers Linyou County, Long County of Baoji City, Changwu County in Xianyang City, Fuping County, Baishui County, Heyang County in Weinan City, Dingbian County, Mizhi County in Yulin City, Yichuan County, Yanchang County, Yanchuan County in Yan'an City, a total of five cities and 11 counties, from which, 13 residential areas of poverty groups of modest size were selected as the first batch of project implementation communities. Main construction contents of the project include production infrastructure and settlement infrastructure. Industrial production infrastructure include: Apple orchard transformation (increase irrigation facilities, install anti-hail nets) protected agriculture(greenhouse cultivation), breeding sheds, motor-pumped well, agricultural water-saving irrigation facilities and pipeline projects, morchella (mushroom) inoculum plants, persimmon processing plants, chili processing plants, apple sorting plants, farm production roads, land consolidation (slope - to - terrace) projects, controlled atmosphere cold storage base, agricultural cooperatives office and agricultural housing; settlement infrastructure includes: overflow bridges, slope protection works (embankment repair), settlement roads, garbage transfer vehicle and garbage collection boxes/ stations, rainwater harvesting pits and the like. Planned total investment of the project is 792.74 million yuan.			
Investigation content	1	Are you satisfied with local environmental quality conditions?		
		①Satisfied □	②General □	③Dissatisfied □
	2	What do you think are the main areas for major local environmental problems?		
		①Ambient air pollution □	②Surface water pollution □	③Groundwater pollution □
		④Ambient noise □	⑤Solid waste □	⑥Ecological damage□

	3	What do you think is impact of the project construction on local economic development?			
		①Positive effect □	②Adverse effect □	③No effect □	
	4	What do you think is the biggest impact of the project construction on the local environment?			
		①Water environment □	②Ambient air □	③ Acoustic environment □	④ Ecological environment □
	5	What's your basic attitude for the project construction?			
		①Very supportive □	②General supportive □	③Does not matter □	④Not supportive □
	6	Your other comments and recommendations for the project construction:			

Table 8.2-2 Public Opinion Survey Sample Form for Shaanxi Poor Rural Areas Community Development Project (group questionnaire)

Respondent's basic situation	Unit Name:_____(official seal) Unit Address:_____ Preparer name:_____Post:_____Phone:_____			
General situation of the project	World Bank loan to Shaanxi Poor Rural Areas Community Development Project is poverty alleviation projects jointly launched by Shaanxi Provincial Office of Poverty Alleviation and Development and the World Bank. The project implementation scope covers Linyou County, Long County of Baoji City, Changwu County in Xianyang City, Fuping County, Baishui County, Heyang County in Weinan City, Dingbian County, Mizhi County in Yulin City, Yichuan County, Yanchang County, Yanchuan County in Yan'an City, a total of five cities and 11 counties, from which, 13 residential areas of poverty groups of modest size are selected as the first batch of project implementation communities. Main construction contents of the project include production infrastructure and settlement infrastructure. Industrial production infrastructure include: Apple orchard transformation (increase irrigation facilities, install anti-hail nets) protected agriculture(greenhouse cultivation), breeding sheds, motor-pumped well, agricultural water-saving irrigation facilities and pipeline projects, morchella (mushroom) inoculum plants, persimmon processing plants, chili processing plants, apple sorting plants, farm production roads, land consolidation (slope - to - terrace) projects, controlled atmosphere cold storage base, agricultural cooperatives office and agricultural housing; settlement infrastructure includes: overflow bridges, slope protection works (embankment repair), settlement roads, garbage transfer vehicle and garbage collection boxes/ stations, rainwater harvesting pits and the like. Planned total investment of the project is 792.74 million yuan.			
Investigation content	1	Are you satisfied with local environmental quality conditions?		
		①Satisfied □	②General □	③Dissatisfied □
	2	What do you think are the main areas for major local environmental problems?		
		①Ambient air pollution□	②Surface water pollution □	③Groundwater pollution □
		④Ambient noise □	⑤Solid waste □	⑥Ecological damage □
	3	What do you think is impact of the project construction on local economic development?		
		①Positive effect □	②Adverse effect □	③No effect □
	4	What do you think is the biggest impact of the project construction on the local environment?		

		①Water environment □	②Ambient air □	③Acoustic environment □	④Ecological environment □
	5	What's your basic attitude for the project construction?			
		①Very supportive □	②General supportive □	③Does not matter □	④Not supportive □
	6	Your other comments and recommendations for the project construction:			

8.3.Public Participation Survey Results

Table 8.3-1 Public Participation Respondent Statistics

Category	Project	Fuping County	Long County	Mizhi County	Baishui County	Yichuan County	Changwu County	Total	Proportion (%)
Gender	Female	13	5	9	2	5	9	43	13.1
	Male	44	45	41	46	65	41	282	86.9
Occupation	Farmer	46	46	39	49	70	45	295	89.9
	Worker	0	1	2	0	0	0	3	0.9
	Cadre	11	3	9	2	0	2	27	9.2
	Other	0	0	0	0	0	0	0	0
Degree of education	college or above	5	0	6	0	0	0	11	3.4
	Technical secondary	3	2	2	5	2	1	15	4.6
	high school	32	6	8	11	1	10	68	21.6
	junior high school or below	20	44	34	32	69	32	231	70.4
Age	18～30	1	1	5	0	1	0	8	2.4
	31～50	31	26	24	29	40	21	171	53.0
	Over 50	25	23	21	22	26	29	146	44.6

Table 8.3-2 Public Participation Survey Result

Serial number	Question	Options	Individual		Group	
			Number of	Proportion	Number of	Proportion

			people	(%)	units	(%)
1	Are you satisfied with local environmental quality conditions?	①Satisfied	273	83.2	18	90.0
		②General	25	7.6	2	10.0
		③Dissatisfied	10	3.0	0	0.0
		④Unselected	20	6.1	0	0.0
2	What do you think are the main areas for major local environmental problems?	①Ambient air pollution	113	34.5	3	15.0
		②Surface water pollution	26	7.9	5	25.0
		③Groundwater pollution	2	0.6	5	25.0
		④Ambient noise	13	4.0	1	5.0
		⑤Solid waste	122	37.2	4	20.0
		⑥Ecological damage	48	14.6	2	10.0
		⑦Unselected	4	1.2	0	0.0
3	What do you think is impact of the project construction on local economic development?	①Positive effect	297	90.5	10	50.0
		②Adverse effect	21	6.4	6	30.0
		③No effect	4	1.2	1	5.0
		④Unselected	6	1.8	3	15.0
4	What do you think is the biggest impact of the project construction on the local environment?	①Water environment	34	10.4	10	50.0
		②Air environment	64	19.5	4	20.0
		③Ecological environment	137	41.8	3	15.0
		④Acoustic environment	42	12.8	3	15.0
		⑤Unselected	51	15.5	0	0.0
5	What's your basic attitude for the project construction?	①Very supportive	304	92.7	20	100.0
		②General supportive	14	4.3	0	0.0
		③Does not matter	9	2.7	0	0.0
		④Not supportive	0	0.0	0	0.0
		⑤Unselected	1	0.3	0	0.0

The project recovered 325 copies of questionnaires, including 289 copies of individuals and 36 copies of groups.

According to statistics, 83.2% of respondents in the project area expressed satisfaction with quality of the local environment; 34.5% of respondents believed that uppermost local environmental issue is ambient air pollution, 37.2% of respondents believed that it is solid waste pollution, 14.6 of respondents held that ecological destruction is the main local environmental problem; 90.5% of respondents believed that the project construction is beneficial to local economic development, 41.8% of respondents believed that the biggest impact of the project construction on the local environment is ecological environment; 92.7% of respondents were very supportive of the project, 4.3% of respondents generally supported this project, 2.7% of respondents said it does not matter, and the surveyed masses expressed no objections.

In summary, the investigated masses and units in the project area support construction of this project, and hope that funds are available as soon as possible and that the project will be implemented as early as possible with both quality and quantity guaranteed.

9.ANNEX

Annex 1 Common environmental management regulations for construction activities

1, Ambient Air

(1) Impact Analysis

During construction period, project impact on ambient air is concentrated, and ambient air pollution comes mainly from dust and construction waste gas produced in construction.

During infrastructural project construction, road building and pipeline construction, dust will be generated in road excavation, pipe transport and handling as well as site finishing and construction, etc. According to analogy investigation, dust is mainly construction site road dust, with main scope of influence reaching 50m of both sides of the road. In addition, scope of influence of dust generated when mixing concrete during pavement hardening is generally about 50m around the mixing shed. Dust size has a certain relationship with wind power and weather, as most adversely affected period of dust occurs mainly in windy weather. Such effect is more obvious in more arid areas in the territory of Shaanxi Province, and its scope of influence can be extended to 50 ~ 150m.

Construction waste gas mainly refers to fuel gas produced by fuel machinery, such as waste gas emissions from wheel loader, dump truck, excavator, etc. and exhaust emissions from transport vehicles. The main pollutants produced by fuel machinery include: NO_X, CO and HC (hydrocarbons), etc. These pollutant emissions are small and usually have limited impact on construction workers, with small impact on the regional environment.

(2) Control Measures

1) Dust Control Measures

①Earthwork excavated from trenches, channels, foundations, etc, are mainly backfilled for land leveling, ridge construction; production road and community road are generally close to the local farmland, with all earthwork for farm cultivation. It should be noted that excavated earthwork should be sealed in strong wind weather;

②Stacking and storage of powdery construction materials used in the project, such as cement, lime, sand, etc., should be strictly managed with surface coverage. If necessary, take watering measure;

③ Engineering construction should be undertaken in divided section and block to reduce dust range; watering and other measures should be employed to reduce dust pollution;

④Closure management measures should be taken for concrete mixing station.

2) Construction Waste Gas Control Measures

①Construction machinery and vehicles of favorable operating conditions should be selected;

② Fuel construction machinery and vehicles must be used under normal state, and up-to- standard waste gas emission should be ensured;

③Overhauling and maintenance of construction vehicle should be strengthened, and use of vehicles of extended service and with excessive exhaust is prohibited. Construction vehicles with low fuel consumption and low exhaust should be used as far as possible. The same goes to selection of high quality fuel and reduction of harmful emissions from machinery and vehicles.

2, Water Environment

(1) Impact Analysis

Waste water during construction period mainly includes industrial wastewater and domestic sewage.

Industrial wastewater mainly includes concrete curing wastewater, aggregate washing wastewater. Though small in quantity generated, this part of wastewater contains a certain amount of oil and sediment. If not properly prepared, arbitrary emission will cause a certain degree of pollution to soil and surface water, groundwater. Especially in the event of rain weather, greater impact will be caused on surface water environment.

Accommodation of project construction workers depends on nearby villages or residential communities,

almost without domestic sewage discharge.

(2) Control Measures

①Concrete curing wastewater, aggregate washing wastewater at construction site should be collected with gutter channel, mixed and diluted to be treated in temporary sedimentation tank. The size of temporary sedimentation tank should ensure wastewater residence time of over 12h as a standard. The treated wastewater should be reused for construction site cleaning, building material cleaning, concrete curing, and aggregate re-washing;

②Temporary pit toilet should be set within construction site. According to the actual living conditions in rural areas, excrement should be regularly removed to be used as agricultural fertilizer;

③Construction management should be strengthened, and evaporating, emitting, dripping or leaking of liquid or gas of construction machine should be strictly controlled; temporary mound area drainage system and water conservation measures should be taken to prevent waste area soil erosion impact on the water environment;

④ All construction units should implement treatment measures for industrial wastewater, domestic sewage, to ensure proper treatment and disposal of wastewater;

⑤Environmental education among construction workers should be strengthened, environmental awareness of construction workers should be raised, and construction workers should not throw, dump waste and sewage.

3, Acoustic Environment

(1) Impact Analysis

Main noise during construction period includes construction site noise and traffic noise of material transport. Wherein, construction site noise is mainly construction machinery and equipment noise, material collision noise during handling and life noise of construction personnel. As construction noise is emitted by a variety of construction machinery and equipment and transport vehicles, and operation of general equipment is intermittent, noise generated in the construction process is intermittent and transient. During different stages of construction period, various noise sources will produce effects in varying degrees on acoustic environment of the project area. By strengthening management and taking appropriate environmental control measures, its impact can be reduced to a minimum.

(2) Control Measures

①Advanced and reliable low-noise equipment should be selected;

②Reasonable arrangements for construction time should be made, and lunch time and night construction should be prohibited. Construction at night should be limited, and publicity to nearby villagers should be made during strong noise operation;

③ Reasonable arrangements for construction period should be made to avoid simultaneous operation of multiple high noise machinery at the same construction site and at the same time. The construction should hurry with close attention paid to progress to shorten noise effect time;

④ For machinery and equipment with greater noise, basis damping should be done or binding with vibration attenuation support set and damping material;

⑤ Vehicle transport noise may exert some impact on acoustic environment sensitive point along the route. Therefore, the construction unit should reasonably arrange transport time, try to limit number of cars and traffic density in the construction area, take speed limit, horn-blowing control and other measures for construction machinery;

⑥ It is recommended that construction unit makes reasonable arrangement of construction workers, reduce operating time of high noise machinery operators, provide construction workers with earmuffs to minimize the impact on workers;

⑦Regular and effective maintenance and repair should be done for all mechanical equipment, so that equipment is maintained in good condition, to achieve the purpose of noise reduction and extended use of equipment;

⑧ There should be strict requirements for construction strength, machinery and vehicle operators, operating instruction, etc.

4, Solid Waste

(1) Impact Analysis

Solid waste during construction mainly comes from construction waste generated during construction, foundation excavation, spoil (slag) after backfill and household garbage generated by construction workers.

Construction waste refers to any substance generated from and discarded by removal and construction activities of infrastructural project, roadbed, pipeline or channel. In complex components, it mainly includes: abandoned gravel, brick, waste concrete, scrap metal, packaging materials. Household garbage mainly includes plastics, waste paper and the like. If not dealt with in time, construction waste generated during construction not only affects landscape, but also generates dust in case of high wind, dry weather; If not dealt with in time, household garbage generated by construction workers will breed mosquitoes, bad odors and spread disease under suitable temperature conditions, causing adverse effects on the surrounding environment.

(2) Control Measures

①Closed vehicles should be selected for construction waste removal, and arbitrary dispersion is prohibited. Construction waste should be recycled as much as possible and dealt with timely in accordance with relevant provisions of garbage systematic management;

②Household garbage should be transported to township solid waste landfill where the project locates for disposal after collected in garbage can on construction site;

③On the one hand, spoil (slag) can be used for land leveling and backfilling, on the other hand, it can be used for nearby road subgrade bedding. Spoil area should not be set separately to reduce land occupation;

④Incineration of toxic and hazardous substances at the construction site is not allowed. Disposal of hazardous substances should follow relevant regulations.

5, Ecological Environment

(1) Impact Analysis

Effect of construction on vegetation is mainly manifested in surface excavation, transport and stacking of construction materials and production equipment which disturbs the surface, destructs vegetation and soil structure, reduces soil fertility, increases amount of water and wind erosion in the project area and exert some impact on local soil erosion.

Vegetation destruction in the operational area caused by grinding of construction machinery and transport vehicles and trampling of operating personnel will decrease vegetation coverage and biomass in the region. As construction areas are located in rural areas, all crops are artificially cultivated, and there is little natural vegetation; destruction of artificial vegetation is mainly temporary and in smaller range which generally terminates with completion of construction.

Construction machinery noise and human activity noise mainly affect wild animals. All kinds of construction machinery, such as transport vehicle, bulldozer, excavator, concrete mixer, vibrator, etc. can produce strong noise. Although the construction machinery makes non-continuous intermittent noise, as noise source is relatively concentrated and bare, noise radiation range and impact are large. According to the site survey, project implementation areas are located in the artificial ecosystem where there are no large wild animals and sometimes small birds, rats, etc. appear.

The community road projects occupy a small amount of arable land. The PMO provides corresponding compensation for land occupation according to related policies, so the engineering construction will not cause a greater impact on the local farm income.

(2) Control Measures

①Construction time should be properly arranged, and rainy season and flood season should be avoided; when it cannot be avoided, rainy season protection and drainage work should be undertaken to ensure smooth drainage during the construction period so that water immersion of working face will not

appear.

②Timely protection should be provided to earthwork. Cut and transport, fill and tamper so that no loosened soil is left to reduce exposed time of loose ground. Construction and protection per section should be undertaken to reduce new soil erosion.

③Layout of construction site should be reasonably optimized and scope of construction activities should be minimized to reduce damage of project implementation to vegetation. During construction, construction machinery and construction workers should operate in accordance with planed construction plane position and channel, without unlawful appropriation of land. Construction machinery, earth and other building materials should not parked improperly to prevent destruction of vegetation and increased soil erosion;

④Building materials required to be purchased for construction, such as brick, stone, sand, cement, wood, etc., should be transported and used. Try to occupy less land, damage less vegetation as far as possible; after completion of the project, the construction site should be cleaned timely, and the construction site should be afforested to maximally recover destroyed vegetation;

⑤Construction should be carried out in strict accordance with design to minimize damage to farmland vegetation in the project area and protect vegetation surrounding the construction area. After construction is completed, immediate ecological restoration should be implemented for temporary venues with land reclamation and crop vegetation cropping.

6, Human Health

(1) Impact Analysis

Construction workers' concentrated living area will have a certain amount of sewage, solid waste and other garbage. If not handled properly, it will pollute the water, impact surrounding environment of living area. Water pollution will be generated under poor sanitary conditions, causing breeding of abundant flies, mosquitoes. As a result, infectious diseases can be easily caused and health of construction workers will be affected.

Field work, rest results in increased opportunities to contact with wild mice and excreta and increased chances of mosquito bites. Field personnel are susceptible to mice, mosquito borne infectious diseases, which impacts their physical health.

During construction peak, the construction area is densely populated. Place with high-density population is more prone to disease prevalence. Therefore, we should pay attention to epidemic prevention and other population health work.

(2) Control Measures

① Contraction unit shall be capable of emergency rescue that meet the requirements. The construction site shall be equipped with appropriate first aid equipment; remote locations should have written emergency procedures until patient can be transferred to appropriate medical institutions;

②Occupational health and safety training should be carried out for all construction workers, which should describe basic working rules of construction site, personal protection rules and how to prevent injuries to other employees;

③Correct signs should be hanged for hazardous area (distribution room, compressor room, etc.), equipment, materials, safety measures;

④ If workers' hands and arms are subjected to vibration due to use of hand tools, power tools, or the whole body of workers is subjected to vibration due to standing or sitting on vibrating surface, it should be reduced by choosing appropriate equipment, installation of vibration damping pad or vibration damper or limitation of exposure time;

⑤Warning signs should be placed on all energized electrical devices and wires; all wires, cables, power hand tools should be checked to see if there is damage or exposed wire. The allowed maximum operating voltage of hand tools should be determined according to the manufacturer's recommendations; double insulation / ground handling should be conducted for all electrical equipment in wet (or possibly wet) environment;

⑥ Appropriate eye protection appliances (such as welding goggles and / or face shield) should be

provided to operators participating or assisting in the welding;

⑦Protective barrier (with an intermediate rod and surrounding damper) should be installed in the edge with fragile risk. Meanwhile, construction workers should apply fall prevention devices (including seat belts and distance limitation lanyard);

⑧ Construction units shall establish procedures and systems for reporting and recording of occupational accidents and diseases and hazard accidents;

⑨Health education should be conducted among construction workers, such as implementation of information communication strategies, enhancement of face to face counseling, settlement of systemic issues affecting individual behavior, encouragement of individual protective measures; in addition, use of insect repellent, clothes, mosquito nets and other blocking methods is encouraged to avoid disease dissemination by mosquitoes bites.

7, Social Impact

(1) Impact Analysis

Construction will cause short-term effects on social environment along the way, mainly including:

① Due to construction, farmland and roads will be occupied, which increases load of existing roads and impacts nearby villagers' transportation ;

② Construction vehicle frequently pass through densely populated areas such as villages and schools, which may cause local traffic accident risks;

③Uncivilized behavior of part of construction workers will affect local residents and crops;

④ Construction noise bothers local villagers;

⑤ Uncompleted project may bring dangers to local villagers.

The above effects can be maximally avoided or completely eliminated by rational arrangement of construction plan, civilized construction. Therefore, construction unit should develop comprehensive construction plan, make stringent requirements for construction workers to mitigate the social impact caused by the construction.

(2) Control Measures

①Traffic control plan should be developed in advance with announcement publicized. Merging of cross way along main work plus pipeline construction line and temporary bypass roads should be reasonably set, to minimize closed construction period of main cross-roads;

② Shortcut should be left for unit, bazaars, farmland, residential areas and other road network connections along the pipeline to dredge pedestrians and vehicles and prevent traffic jams. Or notify the relevant units to change to other roads in advance through other means and set up clear signs for temporary bypass path at major intersections;

③ During villages segment construction, duty post should be set at construction section to dredge flow of traffic and ensure travel safety of pedestrians;

④ If stronger vibration construction is needed in the vicinity of the village, adobe houses near the construction site should be monitored, to prevent accidents;

⑤Reasonable arrangements for construction time should be made, and lunch time and night construction should be prohibited. Construction at night should be limited, and publicity to nearby villagers should be made during strong noise operation;

⑥Signs should be hanged for hazardous areas, equipment, materials to remind the local villagers.

8, Other

If cultural relics is discovered or suspected during project excavation or construction, according to requirements of *"Cultural Relics Protection Law of People's Republic of China"* (2015 amendment), during construction projects or agricultural production, any unit or individual who discovers cultural relics shall protect the scene and immediately report to the local cultural relic protection department. After receiving the report, cultural relic protection department should arrive to the scene within

twenty-four hours in absence of exceptional circumstances and put forward handling suggestions within seven days. Cultural relic protection department can report to the local people's government to notify the public safeguard organ to assist in site protection; discovery of important cultural relics shall be immediately reported to cultural relics protection department under the State Council which shall put forward handling opinions within 15 days after receiving the report. Heritage reporting procedure is shown in Figure 1.

If cultural relics is discovered or suspected during project construction, the construction unit should:

① Stop the construction activities at the location, and inform the county PMO staff at the first time;

② Designate sites or areas with discovery;

③Protect movable objects in the site from missing and damage; assign dedicated person in charge as much as possible to ensure guard at night until responsible county Cultural Relics Bureau takes over the matter.

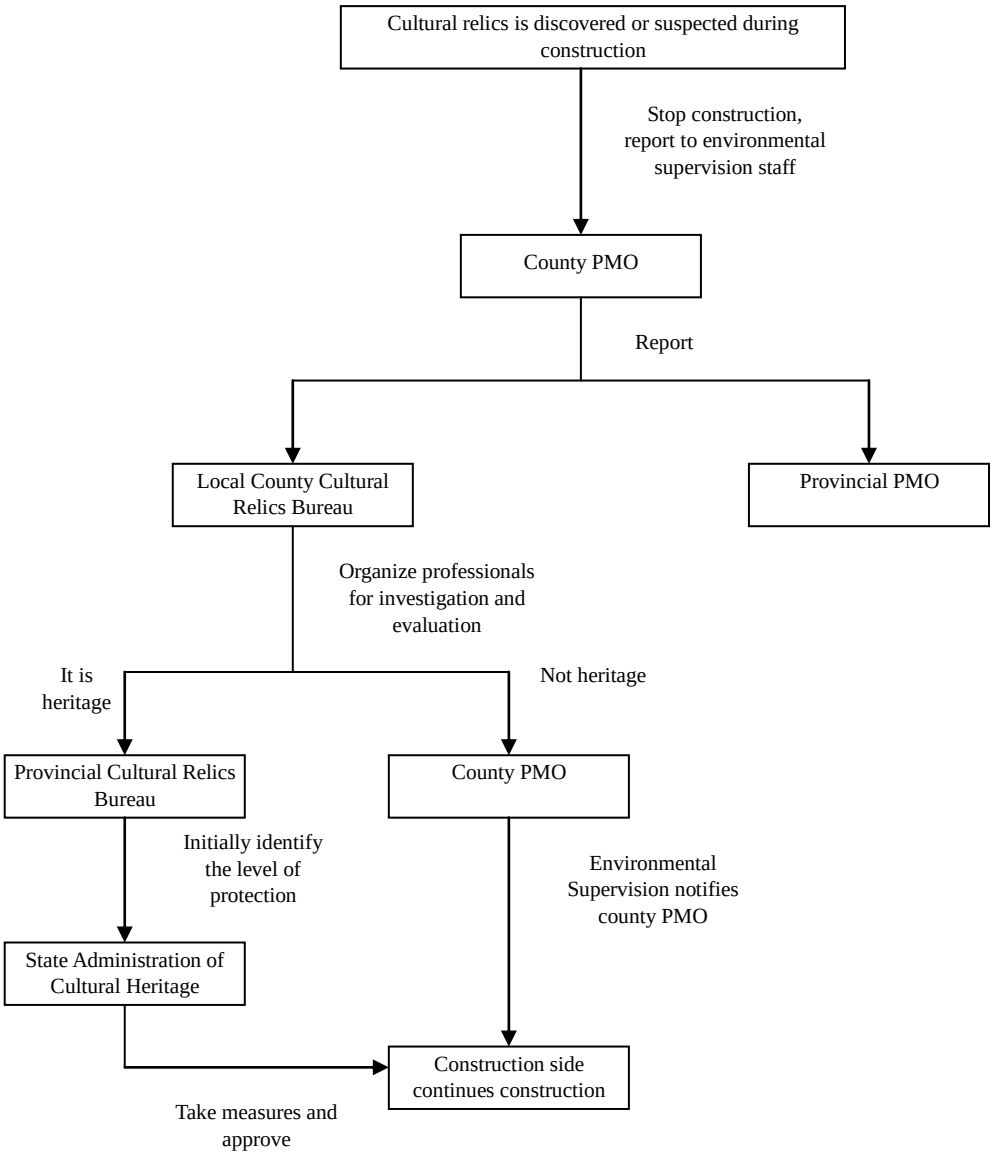
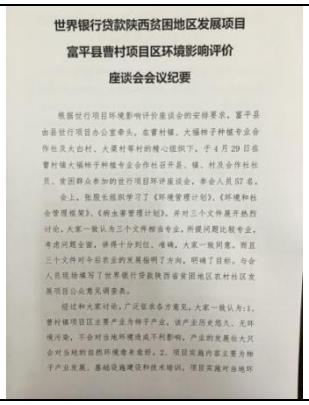


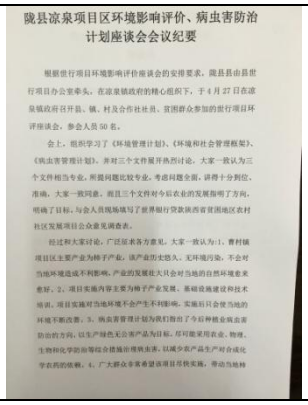
Figure 1 Cultural heritage reporting procedure

Annex 2 Meeting Minutes of Public Participation Forum



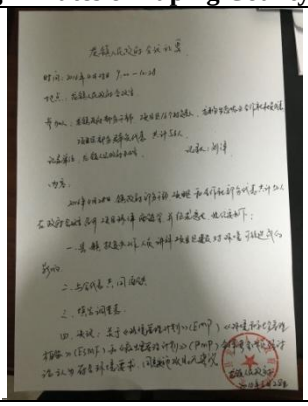
世界银行贷款陕西贫困地区发展项目
富平县曹村项目区环境影响评价
座谈会会议纪要

Meeting Minutes of Fuping County Forum

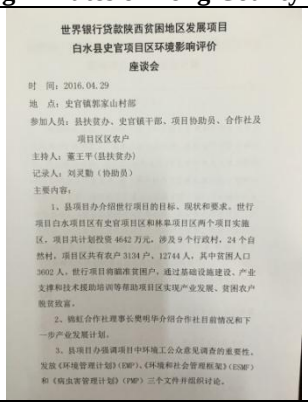


陇县凉泉项目区环境影响评价、病虫害防治
计划座谈会会议纪要

Meeting Minutes of Long County Forum



Meeting Minutes of Mizhi County Forum



世界银行贷款陕西贫困地区发展项目
白水县史官项目区环境影响评价
座谈会

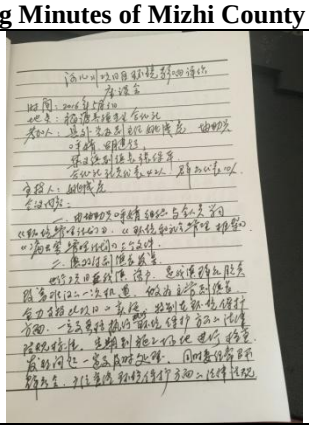
时　间：2016.04.29
地　点：史官镇郭家山村部
参加人员：县扶贫办、史官镇干部、项目协助员、合作社及项目区区农户
主持人：董王平（县扶贫办）
记录人：刘灵勤（协助员）
主要内容：

1、县项目办介绍世行项目的目标、现状和要求。世行项目白水项目区有史官项目区和林皋项目区两个项目实施区，项目共计划投资 4642 万元，涉及 9 个行政村，24 个自然村，项目区共有农户 3134 户，12744 人，其中贫困人口 3602 人，世行项目将瞄准贫困户，通过基础设施建设、产业支撑和技术援助培训等帮助项目区实现产业发展，贫困农户脱贫致富。

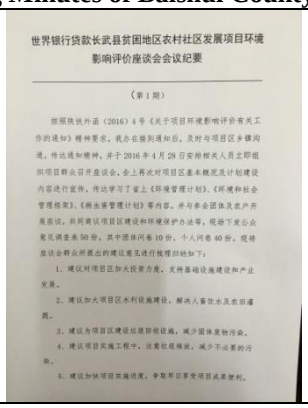
2、锦虹合作社理事长樊明华介绍合作社目前情况和下一步产业发展计划。

3、县项目办强调项目中环境工公众意见调查的重要性。发放《环境管理计划》(EMP)、《环境和社会管理框架》(ESMF)和《病虫害管理计划》(PMP)三个文件并组织讨论。

Meeting Minutes of Baishui County Forum



Meeting Minutes of Yichuan County Forum



世界银行贷款长武县贫困地区农村社区发展项目环境
影响评价座谈会会议纪要

（第 1 期）

Meeting Minutes of Changwu County Forum

Annex 3 Website Publicity

Screenshot of first online publicity of public participation

Screenshot of second online publicity of public participation

Annex 4 Newspaper Publicity

三秦都市报

服务热线 965369

2016.5. 10 星期二

丙申年四月初四

总第7557期

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2版

“魏则西事件”调查结果公布

百度竞价排名影响搜索结果公正

利用世界银行贷款陕西省贫困地区农村社区发展项目环境影响评价第二次信息公示

根据世界银行安全保障政策文件要求及环发【2006】28号文《环境影响评价公众参与暂行办法》的有关规定，现对利用世界银行贷款陕西省贫困地区农村社区发展项目进行环境影响评价第二次公示，进一步收集和征求公众对该项目环境保护方面的意见和建议。一、建设项目概要：世界银行贷款陕西省贫困地区农村社区发展项目是由陕西省扶贫开发办公室与世界银行合作共同开展的扶贫项目，项目实施范围包括宝鸡市的麟游县、陇县，咸阳市的长武县，渭南市的富平县、白水县、合阳县，榆林市的定边县、米脂县，延安市的宜川县、延长县、延川县，共5个市、11个县。在其中选择13个规模适度的贫困聚居区作为首批项目实施社区。项目主要建设内容包括生产基础设施和住区基础设施建设。产业生产基础设施包括：苹果园改造（增加灌溉设施、安装防雹网）、设施农业（种植大棚）、养殖圈舍、机井、农业配套节水灌溉设施及管网工程、羊肚菌种菌厂、柿饼加工厂、辣椒加工厂、苹果分拣厂、田间生产道路、土地整理（坡改梯）工程、气调冷藏座、合作社办公及农业用房和沼气工程等；住区基础设施包括：过水桥、护坡工程（河堤修复）、住区道路、垃圾转运车和垃圾收集箱/台、集雨窖等。规划项目总投资为79274万元。二、预防或者减轻不良环境影响的对策和措施的要点：（1）施工期生产废水、施工扬尘、噪声等对周围环境的影响及占压土地、破坏植被等生态影响。本项目通过相应的生产废水处理、防尘降噪措施以及项目建成后加强绿化等来补偿对环境的影响；（2）运营期环境影响包括不同子项目对环境空气、地表水、地下水、噪声和固体废物对周围环境的影响；根据不同子项目活动特征采取相应的污染防治措施，如污水处理设施、隔声、减震和消声措施、废气收集和处理设施及固体废物分类收集、定点处置等措施。三、环境影响报告书提出的环境影响评价结论的要点：本项目建设符合国家产业政策和相关规划要求，选址合理可行，项目公众支持率较高；在采用设计和环评提出的污染治理措施后，可实现废气、废水、噪声的达标排放，对环境的影响总体较小，从环境保护角度分析，项目建设可行。四、征求公众意见的范围、主要事项、具体形式及期限：自本公告即日起10个工作日内，公众可通过电话、传真、邮件等方式与建设单位及环评单位联系，发表对本项目环境保护方面的意见或建议。五、建设单位、环评单位及联系方式：建设单位：陕西省扶贫开发办公室；联系人：冯工；联系电话：029-87368791；环评单位：核工业二〇三研究所；联系人：贺工；联系电话：029-33572081；传真：029-33576931；邮箱：heaven12358@163.com

Annex 5 Photos of public participation forums

	
Fuping County Forum	**Long County Forum**
	
Mizhi County Forum	**Baishui County Forum**
	
Yichuan County Forum	**Changwu County Forum**

Annex 6 List of Public Participators

Attached List 1 List of Public Participators of Fuping County

No.	Name	Address or Unit	Contact Information
1	Zhang Hongjun	Poverty Alleviation office of Fuping Country	13474699188
2	Zhang Xiaoming	Environmental Protection Agency of Fuping	2262500
3	Sun Yongli	Caocun Town People's Government	18191716069
4	Chen Ping	Caocun Town Persimmon Planting Specialized Cooperative	18161838888
5	Dang Chenglong	Caocun Town Lingqian Village Committee	13571303739
6	Ma Zhuxin	Caocun Town Caocun Village Committee	13369182826
7	Zhang Genchao	Caocun Town Daqun Village Committee	13892503436
8	Jiao Shengli	Caocun Town Zhoujia Village Committee	13636854028
9	Wang Chongmin	Caocun Town Taibai Village Committee	18792318993
10	Dang Jianguo	Caocun Town Xitou Village Committee	13186219555
11	Wang Guojian	Taibai Village	15829429498
12	Lu Xiangyang	Taibai Village	15091648979
13	Wang Juli	Taibai Village	13474186994
14	Wang Genwang	Taibai Village	8754720
15	Wang Shuanshen	Taibai Village	13892570537
16	Wang Fang	Taibai Village	15592437920
17	Wang Guangxun	Taibai Village	8754400
18	Wang Zhansheng	Taibai Village	15029535779
19	Jiao Fenlian	Jiapo Village	15592435297
20	Cao Xihua	Jiapo Village	18700383378
21	Wang Gongyuan	Jiapo Village	13369152512
22	Wang Jiyuan	Jiapo Village	15929088509
23	Chen Shuanlian	Jiapo Village	15929275659
24	Chen Daoming	Taibai Village	13572748545
25	Zhou Qiang	Jiapo Village	15929083616
26	Chen Jiangli	Xitou Village	18700321758
27	Wang Baowa	Xitou Village	17092164313
28	Wang Chunyan	Taibai Village	18395434605
29	Zhang Chunnian	Tupo Village	15129898738
30	Yang Xianghui	Zhoujia Village	18991547239
31	Wang Weiyuan	Zhoujia Village	8754608
32	Wang Wang	Zhoujia Village	13772766143

33	Dang Zhifa	Lingqian Village	13892545765
34	Dang Zhigang	Lingqian Village	15091161408
35	Lu Xiaoli	Daqu Village	18291341908
36	Yang Juan	Daqu Village	15877649643
37	Liang Wengeng	Daqu Village	18700308483
38	Chen Xiaoning	Xitou Village	18740636349
39	Miao Jiaohua	Taibai Village	18700347710
40	Wang Chuang	Taibai Village	18992329507
41	Wang Lei	Taibai Village	8754518
42	Wang Yuanyin	Zhoujia Village	18220368595
43	Wang Ke	Zhoujia Village	18792323189
44	Wang Mengyuan	Zhoujia Village	15191831387
45	Wang Fuli	Taibai Village	15191344083
46	Zhang Xiaoe	Taibai Village	13279144479
47	Zhi Zhanyun	Caocun Village	15929664357
48	Ren Yonghua	Caocun Village	15319134349
49	Ma Zengying	Taibai Village	15929846780
50	Wang Kuanxin	Taibai Village	18220910354
51	Dang Pinru	Zhoujia Village	18791691912
52	Liu Rong	Xitou Village	15229967826
53	Jiao Yaoying	Xitou Village	13720782092
54	Liang Qinzhen	Xitou Village	15384534838
55	Liu Lianying	Xitou Village	18292432042
56	Dang Gongshe	Caocun Village	18391320903

Attached List 2 List of Public Participators of Longxian County

No.	Name	Address or Unit	Contact Information
1	Li Jianrong	Group 3 of Shangliangquan Village	15336173986
2	Xiao Jiake	Group 3 of Shangliangquan Village	18791704381
3	Yang Huixia	Shangliangquan Village	15229874426
4	Zhao Hongli	Shangliangquan Village	13474214024
5	Ge Aicui	Shangliangquan Village	13991732575
6	Wang Xiaoli	Shangliangquan Village	13892470557
7	Zhao Tianmin	Shangliangquan Village	
8	Ge Fangfang	Shangliangquan Village	18292744280
9	Xiao Zhuhui	Group 1 of Shangliangquan Village	13891718504
10	Zhao Jiafu	Group 3 of Shangliangquan Village	15592520985

11	Zhao Jutai	Group 2 of Shangliangquan Village	13772688208
12	Zhao Chongzhen	Group 4 of Shangliangquan Village	13891731951
13	Zhao Decheng	Group 2 of Shangliangquan Village	15091088427
14	Wang Haihai	Group 2 of Shangliangquan Village	15829498021
15	Zhai Taihe	Group 2 of Shangliangquan Village	4584053
16	Xiao Fuyuan	Shangliangquan Village	15129458867
17	Zhi Jinyuan	Shangliangquan Village	18991752538
18	Zhao Baixian	Shangliangquan Village	13636822029
19	Wang Lude	Group 2 of Shangliangquan Village	13772646155
20	Zhi Jinkui	Shangliangquan Village	13571770039
21	Ge Guirong	Group 1 of Xialiangquan Village	18729776538
22	Gao Jucai	Group 1 of Xialiangquan Village	13891754907
23	Ge Longgang	Group 5 of Xialiangquan Village	18791873622
24	Jing Fenjuan	Group 3 of Liujiaju	13991787150
25	Gao Zhaocai	Group 2 of Liujiaju	13649172466
26	Zhang Xiaowen	Group 1 of Liujiaju	15520676030
27	Wei Linke	Group 2 of Liujiaju	18129874573
28	Zhang Tianshe	Group 1 of Liujiaju	18508523799
29	Yan Xiaolin	Group 4 of Hujiazhuang	18700759119
30	Hu Peihe	Group 4 of Hujiazhuang	13992797819
31	Hu Wencai	Group 5 of Hujiazhuang	
32	Hu Dede	Group 3 of Hujiazhuang	
33	Li Zhigang	Group 1 of Hujiazhuang	
34	Hu Jucai	Group 4 of Hujiazhuang	
35	Li Xingtai	Group 1 of Hujiazhuang	
36	Ni Jinxue	Group 3 of Hujiazhuang	
37	Wang Genxu	Group 1 of Sanjiaodian	13259170182
38	Yang Jincang	Group 1 of Sanjiaodian	15769178473
39	Yan Wanming	Group 6 of Sanjiaodian	13991734780
40	Lan Xinying	Group 4 of Sanjiaodian	4563556
41	Wang Shude	Group 3 of Sanjiaodian	18791724221
42	Wang Hutian	Group 2 of Sanjiaodian	15129771839
43	Lan Guangyi	Group 2 of Sanjiaodian	15829500343
44	Wang Pinghui	Group 2 of Sanjiaodian	18700747271
45	Lu Yinfang	Group 3 of Xialiangquan Village	4581518

46	Yang Bingke	Group 4 of Xialiangquan Village	13772656800
47	Lu Yuhu	Group 2 of Xialiangquan Village	13759730637
48	Yang Dezhi	Group 1 of Xialiangquan Village	13689174080
49	Gao Junfeng	Group 3 of Liujiaju	13689276105
50	Yang Pingzhi	Group 4 of Liujiaju	13571743389

Attached List 3 List of Public Participators of Mizhi County

No.	Name	Address or Unit	Contact Information
1	Cao Tianlai	Mizhi County Longzhen Town Longlaigou Ecological Agriculture Specialized Cooperative	13488485988
2	Song Lirong	Mizhi County Longzhen Town Longlaigou Ecological Agriculture Specialized Cooperative	13259324710
3	Li Jinfa	Mizhi County Longzhen Town Longlaigou Ecological Agriculture Specialized Cooperative	13379327119
4	Du Linyan	Longzhen Town People's Government	18591236157
5	Sun Wengui	Anzhai Village, Longzhen Town	15929496910
6	Sun Rongxiang	Anzhai Village, Longzhen Town	15229799376
7	Song Haijun	Longmao Village	13772394168
8	Sun Caixiu	Baijian Village	15929188157
9	Liu Wu	Caoshan Village	13275963213
10	Li Youzhi	Heliuju Village	15991921923
11	Gao Heping	Anzhai Village, Longzhen Town	13488489096
12	Feng Lingying	Caoshan Village	18992280813
13	Liu Xiaowei	Caoshan Village	15529924220
14	Wang Xiaonan	Longzhen Town People's Government	09126422209
15	Liu Wei	Longzhen Town People's Government	18629120453
16	Ai Shaobao	Fengzhuang Village	18700251183
17	Ai Jun	Aijiawa Village	13891228181
18	Ai Shaofei	Aijiawa Village	15929827199
19	Gong Yao	Longzhen Town People's Government	0912-6422209
20	Li Youming	Longmao Village	15399282562
21	Sun Shushang	Longmao Village	13571276572
22	Bai Xiaohong	Houzhongzhuang Village	15291295322
23	Li Shengpeng	Heliuju Village	15929409098
24	Mi Xiangcai	Longmao Village	13098280229
25	Liu Yongxing	Longzhen Town People's Government	13468892324
26	Zhao Lin	Shanjianleng Village	6318883

27	Du Pengteng	Longzhen Town People's Government	6422209
28	Li Guilang	Lishan Village	15991297235
29	Zhao Qijian	Zhaishan Village	13572698944
30	Zhao Fangchang	Shanjianleng Village	13310921675
31	Zhao Chunbao	Zhaoxingzhuang Village	13772944627
32	Bai Huani	Longzhen Town People's Government	6422209
33	Li Jinchuan	Longzhen Town People's Government	6422209
34	Ma Wenbin	Zhongzhuang Village	18966954038
35	Zheng Shengli	Longmao Village	15399282552
36	Liu Ze	Longzhen Town People's Government	6422209
37	Zhang Peng	Longzhen Town People's Government	15991230301
38	Song Lishu	Longmao Village	13772331939
39	Zhao Yinghu	Zhaishan Village	15129526599
40	Li Qiang	Lishan Village	13636884717
41	Bai Yungao	Shanjianleng Village	15319616535
42	Luo Baowa	Qianzhongzhuang Village	15399298801
43	Zhu Yugao	Aijiagua Village	15929021014
44	Gao Chengliang	Caoshan Village	13572646052
45	Bai Yunfei	Baijian Village	13891210337
46	Zheng Ruiliang	Anzhai Village	13468746052
47	Li Xiaoyun	Heliuju Village	13772372177
48	Ai Shaobao	Fengzhuang Village	15191214343
49	Li Jie	Lishan Village	18700292880
50	Ji Xinkai	Longmao Village	13571271129

Attached List 4 List of Public Participators of Baishui County

Name	Unit Address	Linkman	Occupation	Contact Information
Baishui County World Bank PMO	Baishui County Poverty Alleviation office	Gao Feng	Chief of foreign share	13060320666
Shiguan Town People's Government	Shiguan Town People's Government	Wang Lei	Deputy Town Chief of Shiguan Town	18991669178
Shiguan Town Guojiashan Village Committee	Guojiashan Village, Shiguan Town	Guo Changbin	Village Head	13891337180
Shiguan Town Jinhong Apple Cooperative	Qunying Village, Shiguan Town	Fan Minghua	Director-general	13892550877

No.	Name	Address or Unit	Contact Information
1	Guo Feng	Group 6 of Guojiashan Village	18792339961
2	Guo Wenbao	Group 6 of Guojiashan Village	15929270282

3	Ding Feng	Group 3 of Guojiashan Village	15892546218
4	Ding Yuanshun	Group 1 of Guojiashan Village	13572303950
5	Guo Yanhai	Group 6 of Guojiashan Village	13992344583
6	Guo Youyi	Guojiashan Village	18220354528
7	Guo Suolao	Group 8 of Guojiashan Village	13571326693
8	Shi Chuanxin	Group 5 of Shijiashan Village	15129132208
9	Wu Qinghai	Group 8 of Shijiashan Village	13468993582
10	Zhang Jimin	Guojiashan Village	15891336128
11	Guo Zhongmin	Group 5 of Guojiashan Village	13484437538
12	Guo Yongbin	Group 5 of Guojiashan Village	13891343019
13	Shi Dingbao	Group 9 of Shijiashan Village	18220319211
14	Guo Jianwen	Guojiashan Village	13892504329
15	Sun Xiaomin	Sunjiashan Village	13474140023
16	Sun Jianbin	Sunjiashan Village	15991393830
17	Zheng Mangding	Group 2 of Shijiashan Village	18791319816
18	Shi Junfeng	Shiguan Town	15091825320
19	Lei Guichang	Shijiashan Village	18700324436
20	Zhang Fayu	Shijiashan Village	15129557016
21	Guo Feng	Cooperative 6 of Guojiashan Village	18792339961
22	Chen Sunbin	Cooperative 6 of Guojiashan Village	15877686161
23	Sun Pengfei	Cooperative 1 of Sunjiashan Village	15877430910
24	Guo Yumin	Guojiashan Village	13484423024
25	Feng Yinwa	Guojiashan Village	15289331963
26	Guo Jianjun	Guojiashan Village	18792342638
27	Guo Tianming	Group 8 of Guojiashan Village	13992373351
28	Jiao Fuqiang	Group 3 of Guojiashan Village	13892345398
29	Guo Wangsuo	Guojiashan Village	13892300981
30	Guo Changbin	Guojiashan Village	13891337180
31	Guo Wanglou	Guojiashan Village	13474185310
32	Ding Gaofeng	Guojiashan Village	15929437318
33	Sun Zhimin	Sunjiashan Village	18609134033
34	Ding Baoquan	Guojiashan Village	13468906011
35	Shi Jianmin	Shijiashan Village	15029538275
36	Shi Jinshan	Shijiashan Village	13759683990
37	Shi Zhenjun	Shijiashan Village	13108478951
38	Guo Huijun	Guojiashan Village	13201997877

39	Zhang Guisheng	Guojiashan Village	18792342881
40	Guo Facheng	Guojiashan Village	13759668263
41	Yin Facai	Guojiashan Village	13468901343
42	Shi Hongbing	Shijiashan Village	13488427652
43	Guo Xiaolong	Guojiashan Village	15891045268
44	Ding Huiyun	Guojiashan Village	13772762925
45	Guo Huifang	Sunjiashan Village	13572377694
46	Shi Wangzhen	Group 9 of Shijiashan Village	18792388350
47	Guo Junlou	Guojiashan Village	13468905163
48	Guo Shuzhan	Sunjiashan Village	15091276159
49	Guo Yonghong	Group 8 of Guojiashan Village	13992383159
50	Ding Yongqian	Guojiashan Village	13468906238
51	Shi Hanjun	Group 9 of Shijiashan Village	15129557865

Attached List 5 List of Public Participators of Yichuan County

No.	Name	Address or Unit	Contact Information
1	Sun Cunqian	Chenjiazhuang Village	15291133679
2	Wei Yincheng	Chenjiazhuang Village	13649114219
3	Wei Shunchang	Chenjiazhuang Village	15991588132
4	Ren Zhansheng	Chenjiazhuang Village	13992123541
5	Wang Jianrong	Chenjiazhuang Village	18740514558
6	Bao Jianmin	Chenjiazhuang Village	18740313180
7	Ding Yanying	Chenjiazhuang Village	15291135218
8	Zhan Tiekang	Chenjiazhuang Village	
9	Li Lingge	Chenjiazhuang Village	13474389217
10	Bao Jun	Chenjiazhuang Village	13649186105
11	Jing Yaoxiang	Chenjiazhuang Village	18829813469
12	Wei Zhengrong	Chenjiazhuang Village	15009117100
13	Wei Bangzhu	Chenjiazhuang Village	15291130639
14	Wei Bangyu	Chenjiazhuang Village	13571549020
15	Wei Xiaoyi	Chenjiazhuang Village	13636869334
16	Wei Shunchang	Chenjiazhuang Village	15191129238
17	Wei Yinchang	Chenjiazhuang Village	15991588132
18	Wei Hongxing	Chenjiazhuang Village	15129592983
19	Zou Kaiyan	Shitaisi Village	15191123462
20	Xu Genmin	Shitaisi Village	15129345391
21	Jing Baoquan	Shimengou Village	15029685597

22	Liu Baodian	Shimengou Village	13891134094
23	Qiu Haiquan	Shimengou Village	
24	Sun Shengqin	Shimengou Village	
25	Li Youmin	Yadi Village	15909223022
26	Qiu Aimin	Yadi Village	13720986059
27	Qiu Jianlong	Yadi Village	13669116944
28	Li Baoqun	Sipingtou Village	13474380165
29	Li Xiaoliang	Sipingtou Village	13892357933
30	Qiu Fahong	Sipingtou Village	18791382994
31	Ren Zhengrong	Machagou Village	13992102926
32	Ren Jianmin	Machagou Village	
33	Ren Huimin	Machagou Village	4869260
34	Wei Minsheng	Machagou Village	13892183206
35	Wei Huisheng	Machagou Village	13892183207
36	Ren Haifeng	Machagou Village	15091813563
37	Ding Baoqian	Machagou Village	18829615322
38	Liu Youhong	Tasi Village	13891184246
39	Ding Xitang	Tasi Village	13571155158
40	Ding Xuanlong	Tasi Village	13571549020
41	Ding Jinqiu	Tasi Village	10658134122
42	Zhang Linhan	Yadi Village	4869132
43	Zhang Xianglong	Yadi Village	13484683039
44	Zhang Jing	Yadi Village	18700153395
45	Zhang Jianwen	Yadi Village	15877410983
46	Zhang Yousi	Yadi Village	4869122
47	Zhang Jiangfeng	Yadi Village	13359115823
48	Ye Rui	Yadi Village	4869122
49	Li Dongshe	Tongshugou Village	15229575238
50	Li Juncheng	Zhangpo Village	13669116758
51	Zhang Baoqin	Zhangpo Village	15991542979
52	Bao Jianfei	Tongshugou Village	13840313180
53	Li Yaotang	Zhangpo Village	18992164369
54	Zhang Qiaolan	Yadi Village	13468583896
55	Zhang Jianqiang	Yadi Village	15929856182
56	Wang Zhenxi	Siwa Village	
57	Ji Baozhang	Siwa Village	18270131849
58	Lei Xuyun	Siwa Village	13488415583

59	Wang Shuangcheng	Siwa Village	13992334002
60	Zhou Wenhong	Siwa Village	15353973960
61	Zhou Yousi	Siwa Village	13636727553
62	Sun Zhaofeng	Liuchagou Village	13772271065
63	Wang Jinhong	Tongshugou Village	
64	Zhang Donglong	Zhangpo Village	13891139475

Attached List 6 List of Public Participators of Changwu County

No.	Name	Address or Unit	Contact Information
1	Liu Yahong	Group 2, Xiyuan Village, Tingkou Town, Changwu County	13772570086
2	Liu Feng	Group 2, Xiyuan Village, Tingkou Town, Changwu County	13772500086
3	Bo Jingmin	Group 2, Xiyuan Village, Tingkou Town, Changwu County	15091425908
4	Li Liezhuan	Group 2, Xiyuan Village, Tingkou Town, Changwu County	18717264974
5	Liu Zhongxiang	Group 2, Xiyuan Village, Tingkou Town, Changwu County	13474250506
6	Liu Xining	Xiyuan Village, Tingkou Town, Changwu County	13484505714
7	Zhang Yuandan	Group 1, Xiyuan Village, Tingkou Town, Changwu County	15929475210
8	Zhang Xingping	Group 1, Xiyuan Village, Tingkou Town, Changwu County	13474252735
9	Zhang Xuanlu	Group 1, Xiyuan Village, Tingkou Town, Changwu County	15829519111
10	Su Ankui	Xiyuan Village, Tingkou Town, Changwu County	15129806126
11	Liu Huanju	Xiyuan Village, Tingkou Town, Changwu County	13474606746
12	Liu Juju	Xiyuan Village, Tingkou Town, Changwu County	18191202049
13	Lu Suie	Group 4, Xiyuan Village, Tingkou Town, Changwu County	13474606746
14	Lei Chunfang	Group 2, Xiyuan Village, Tingkou Town, Changwu County	13992005924
15	Feng Zhaoping	Changwu County Tingkou Town Xiyuan Village Committee	13571007633
16	Zhang Junjun	Changwu County Tingkou Town Xiyuan Village Committee	15929631000
17	Li Rui	Changwu County Tingkou Town Government	18149188093
18	Zhang Bo	Changwu County Tingkou Town Government	13992038791
19	Shi Dandan	Fanluo Village, Tingkou Town, Changwu County	13772596374
20	Ge Lue	Fanluo Village, Tingkou Town, Changwu County	14791672455
21	Shi Xianjie	Fanluo Village, Tingkou Town, Changwu County	15191054577
22	Zhang Anping	Fanluo Village, Tingkou Town, Changwu County	13759861458

23	Ge Junlu	Fanluo Village, Tingkou Town, Changwu County	13468521152
24	Su Fenfen	Fanluo Village, Tingkou Town, Changwu County	13619187621
25	Wang Mingxian	Fanluo Village, Tingkou Town, Changwu County	13619187621
26	Shi Yongan	Fanluo Village, Tingkou Town, Changwu County	14791672455
27	Chen Qinqin	Fanluo Village, Tingkou Town, Changwu County	18220617553
28	Shi Yongshi	Fanluo Village, Tingkou Town, Changwu County	13474096523
29	Zhang Yonghe	Fanluo Village, Tingkou Town, Changwu County	13483174714
30	Jiao Shuanquan	Fanluo Village, Tingkou Town, Changwu County	13484873645
31	Zhu Xiongwa	Fanluo Village, Tingkou Town, Changwu County	13488405602
32	Shi Changmin	Fanluo Village, Tingkou Town, Changwu County	13484871694
33	Shi Minxing	Fanluo Village, Tingkou Town, Changwu County	15929256380
34	Zhang Anping	Changwu County Tingkou Town Fanluo Village Committee	13759861458
35	Wang Xiaojun	Changwu County Tingkou Town Santai Village Committee	15929861422
36	Zhang Junru	Changwu County Tingkou Town Santai Village Committee	13468919667
37	Zhang Anan	Langrun Fruits Specialized Cooperative	15929633092
38	Bo Feng	Langrun Fruits Specialized Cooperative	15829177043
39	Zhao Chunsheng	Santai Village, Tingkou Town, Changwu County	18292985189
40	Bo Ping	Santai Village, Tingkou Town, Changwu County	18700085164
41	Zhao Jianrong	Santai Village, Tingkou Town, Changwu County	13474258440
42	Chu Xingjun	Santai Village, Tingkou Town, Changwu County	18717400802
43	Su Gaizhuan	Santai Village, Tingkou Town, Changwu County	18220900285
44	Zhao Shuanjun	Santai Village, Tingkou Town, Changwu County	18292985314
45	Zhao Xiaojun	Santai Village, Tingkou Town, Changwu County	13891498284
46	Zhao Shuanqiao	Santai Village, Tingkou Town, Changwu County	18329746591
47	Zhao Junmin	Santai Village, Tingkou Town, Changwu County	15029440833
48	Chu Jinsuo	Santai Village, Tingkou Town, Changwu County	13488174594
49	Zhang Anping	Santai Village, Tingkou Town, Changwu County	18394845933
50	Zhang Yonghong	Santai Village, Tingkou Town, Changwu County	15129309477

Annex 7

List of Impact and Measures of Social Management Plan

Social Factors	Potential Impact	Mitigation Measures	Time Arrangement	Budget (ten thousand yuan)	Executors	Supervisors	Monitoring Index	Frequency
1-Positve benefits								
Economic development	Promote agricultural structure adjustment, and develop county economy	Positive influence, no mitigation measures is needed.						
Income increasing of the farmers	Promote industries upgrading and deepening, and help increase the income of rural poor households	Positive influence, no mitigation measures is needed.						
Infrastructure improvement	Improve infrastructure construction, and improve the production and living environment of poor people	Positive influence, no mitigation measures is needed.	/	/	/	/	/	/
Organizational degree improvement	Improve farmers' organizational degree and agricultural production efficiency, and reduce cost and risks	Positive influence, no mitigation measures is needed.						
Development ability promotion	Improve productive labor skills and self-development ability of poor people	Positive influence, no mitigation measures is needed.						
Sales promotion of agricultural products	Broaden distribution channel of agricultural marketing sales channels, and help rural poor households increase production and income	Positive influence, no mitigation measures is needed.						
2-Potentical impact								
Rural poor households	Market risk; livelihood risk, technical risk, equitable benefit risk	1. Increase farmer organizational degree; 2. Increase industry earlier stage support; 3. Strengthen agricultural production technique training; 4. Increase project implementation transparency	2017-2022	Contained in the feasibility report	PMO, agricultural bureau, animal husbandry bureau, fruit industry, forestry bureau, water	Poverty Alleviation office, PMOPMO, editorial organization	Refer to the editorial monitoring index	Refer to the editorial monitoring frequency

Social Factors	Potential Impact	Mitigation Measures	Time Arrangement	Budget (ten thousand yuan)	Executors	Supervisors	Monitoring Index	Frequency
					supplies bureau, supply and marketing combination cooperative, tourism administration, etc.			
Cooperatives	The farmers have inadequate knowledge of the cooperatives; the cooperatives have imperfect internal health system and nonstandard operation; the farmers have low participation in the cooperatives.	1. Strengthen the cooperatives' publicity, education and training; 2. Enhance the participation of ordinary farmers; 3. Establish the cooperatives that conform to the local industrial development and meet the demands of farmers and market, improve the cooperatives' ability to serve farmers; 4. Handle well the relationship with various departments and bodies.	2017-2022	Contained in the feasibility report	PMO, agricultural bureau, animal husbandry bureau, fruit industry, forestry bureau, water supplies bureau, supply and marketing combination cooperative, tourism administration, etc.	Poverty Alleviation office, PMO, editorial organization	Refer to the editorial monitoring index	Refer to the editorial monitoring frequency
Vulnerable groups	The interests are easily to be overlooked; insufficient labor and funds lead to low participation and multiple difficulties;	a. Provide special assistance or treatment for the old, weak, sick, disabled and other disadvantaged groups; b. Give priority to the disadvantaged laborer groups in vocational training, employment guidance and employment opportunities; c. During the project implementation and operation, give priority to them in projects or financial	2017-2022	Contained in the feasibility report	PMO, human resources and social security bureau, agricultural bureau, animal	Poverty Alleviation office, PMO, editorial organization	Refer to the editorial monitoring index	Refer to the editorial monitoring frequency

Social Factors	Potential Impact	Mitigation Measures	Time Arrangement	Budget (ten thousand yuan)	Executors	Supervisors	Monitoring Index	Frequency
		support.			husbandry bureau, fruit industry, forestry bureau, water supplies bureau, supply and marketing combination cooperative, tourism administration, etc.			
Women	Women have low participation in cooperatives; women have weak subject consciousness; women are occupied in work with low economic efficiency and heavy burden in the cooperatives; the cooperatives have imperfect democratic management mechanism that they restrict women's participation.	9.3.1 1. Reform and improve the membership registration mode; 2. Include the "women participation" in the establishment and operation criteria of cooperatives; 3. Carry out various forms of training for women; 4. Create a favorable external environment for women's participation in cooperative governance. 9.3.2	2017-2022	Contained in the feasibility report	PMO, human resources and social security bureau, agricultural bureau, animal husbandry bureau, fruit industry, forestry bureau, water supplies bureau, supply and marketing combination cooperative, tourism	Poverty Alleviation office, PMO, editorial organization	Refer to the editorial monitoring index	Refer to the editorial monitoring frequency

Social Factors	Potential Impact	Mitigation Measures	Time Arrangement	Budget (ten thousand yuan)	Executors	Supervisors	Monitoring Index	Frequency
					administration, etc.			
Public participation	Having put emphasis on top-down command and guidance but ignored bottom-up feedback and consultation participatory, bidirectional asymmetric participation; the immigrants and former residents and other stakeholders do not understand the project and resettlement information, so they delay or hinder the project; the immigrants and former residents and other stakeholders' benefit loss, doubt, needs and recommendations can not be effectively expressed.	Prepare public participation plans; establish complaint mechanism	Since 2016	/	PMO, village committee, relevant county/town/village/group four-tier stability safeguard system	PMO, third party monitoring organizations	Implementation of public participation plans; complaint	2 times/year