

# Public Participation

Public participation is two-way exchange between the units about project construction, project evaluation and the residents in the place where the construction project is located. We make a public inquiry in the area around the project so that the project can be fully known by the public to find out the public proposal and requirements about the environmental protection work of the project construction. Since public participation is conducive to the project to maximize environmental and economic benefits, help the public learn more about the project content. Therefore ,we can make the planning and design of the project further more completed and reasonable through solving some focused problem of public concern, so that construction projects can minimize the impact on the local environment and get more understanding and support from the local population Meanwhile, the implementation of public participation in the process of the environmental impact assessment can improve the effectiveness of the evaluation, raise public awareness of environmental protection, promote the improvement of the environmental impact assessment system, improve environmental quality and can ensure the implementation of the sustainable development strategies.

Public participation is an indispensable part in environmental assessment. In the project construction, we should take the views, suggestions and requests of the groups, communities and local non-governmental public organization (NGO) that are planning to establish projects into full consideration.

## 1 General requirement to public participation

General requirements to public participation include disclosure of environmental information and call for public's opinions. Construction organization or mandated EIA institute, environmental administration should disclose relevant EIA results to public, in compliance with relevant binding regulation and legislation, applying easy and simple means of information disclosure. The information can be released on local media, giving out free leaflets and other easy access for public to access to the information.

Construction organization or mandated EIA institutes should adopt means of public consultation,

forum, workshop and public hearing following release of brief report of EIA on the project to further consult public opinions. Public could feedback in written by letter, fax, email or other stated means to project owner, mandated EIA institutes, or environmental administrations that is responsible for review of EIA report, after receiving released information on the project. The original documents of public's feedback should be filed by those three parties for record and post review.

Principles of information disclosure should be timely, appreciative to affected individuals, groups and organization. In accordance with environmental policies of the World Bank, two public consultations should be delivered.

## 2 Public participation way and content

Public participation includes 2 stages:

### 2.1 Project feasibility report preparation stage

In this stage conduct first public participation, conduct symposia between experts and local department head, and have an informal discussion with project area farmers, to collect opinion.

**Table 1 Public participation way summary**

date	place	participation way	participant
2013.9.16	Huaiyuan county demonstration point	field farmer survey	expert group and farmers
2013.9.16	Wanfu Township, Huanyuan county	symposium	9 experts, province agriculture, deputy county chief, town government staff, county NDRC, county finance bureau, county environmental protection agency, county water resources bureau, county road transport bureau, county land and resources, county agriculture development office, county Animal

			Husbandry Bureau, Village Clerk
2013.9.16	Wanfu Township, Huanyuan county	symposium	project arear village clerk and farmer representative
2013.9.17	Ye county demonstration point	field farmer survey	expert group and farmers
2013.9.17	Ye county government	symposium	9 experts, province Rural energy and environmental protection station, The county government, County Bureau of agriculture, the County Environmental Protection Bureau, County Bureau of agriculture, Longquan township government, Yeyi government, Yeyi County Lian Wan Villiage, Duan Zhuang Villiage, Tongxin Zhai villager, Longquan Township Niudu villiage, Lou fan villiage, Lei Gang Villiage, Da he Zhuang, Zhang Tie Village, and Heji villagar.
2013.9.17	Ye county government	symposium	Yeyi County Lian Wan Villiage, Duan Zhuang Villiage, Tongxin Zhai villager, Longquan Township Niudu villiage, Lou fan villiage, Lei Gang Villiage, Da he Zhuang, Zhang Tie Village, and Heji villagar.
2013.9.18	Ye county government	symposium	9 experts, deputy county chief, province Rural energy and environmental protection station, County Bureau of agriculture, county road transport bureau, County Party



叶县主要粮食作物生产节能与土壤碳汇项目北京专家调研会签到表

2013年9月18日

姓名	单位	联系方式	备注
王学军	叶县农业局	15847595617	
王学军	叶县农业局	15847595617	
王学军	叶县农业局	15847595617	

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fig.1. Participant sign-in sheets

Symposium and field survey picture see fig. 2, fig.3.



Fig.2 Anhui Huanyuan county project area



**Fig.3 Henan Ye county project area**

The symposium is conducted by MOA PMO and expert group who went to two project areas introducing main implementation content of the project to the relevant departments of the local government and answering the relevant departments' question about contents of the projects, financial allocation and use principle. The project area leadership is very welcome projects implementation, the relevant departments responsible person said to actively cooperate with the data preparation and project implementation activities. Symposium mainly talk about feasibility of project implementation contents, ask the relevant departments suggestion. The relevant departments consul on use of funds, experts introduce WB funds use principle, and the matching funds entrust project area to prepare and project area feasibility required data collection.

Environment evaluation and social evaluation experts are discussions with each project area village head and village representatives, they are actively participating in the discussion. After expert introduces this project, the villagers said that this is a good thing, to solve the problem for them, and they are willing to participate in the project. In the discussion, we understand the origin and the price of each project area agricultural irrigation water, surface water and groundwater depth, mechanization degree, whether there are polluting

enterprises around the project area, drought and flood conditions, land leveling time, whether the farmers are willing to land transfer, if willing what is the approximate price? Can they accept? What is the big problem now in production?

Suggestion summary is following:

1. Project areas farmers' are enthusiasm to participate in the project are very high, hope to be able to promote the implementation of the project as soon as possible.
2. The main problem of farmers in production are: the project area every household has less land, artificial cultivation, harvesting, less machinery, large input, low income; Anhui projects area broad irrigation, plus water consumption by land uneven, resources waste; Henan project area with groundwater irrigation, because use diesel engine pump, energy consumption is too high, irrigation cost is high, if use electricity can substantially reduce the cost. So hope the project area can transfer the land, make tractor ploughing road, machinery plant, uniform planting. The temporary influence of construction period can be accepted.
3. Project area do not have minority.
4. Farmers can accept land transfer. After land transfer, migrant workers can still work even in busy season, each local department strongly support project implementation.
5. Environmental protection departments: no polluting enterprises around the project area, no natural reserve, sensitive areas, the project site selection is reasonable.
6. The project area farmers receptivity ability for advanced technology is good, part of farmers have rich planting experience, can guarantee the smooth implementation of the project.

According to project area farmers' demands and concerns, the project carries out the relevant design:

1. According to the problem of flood irrigation high water consumption, design Huaiyuan County in Anhui province conduct flat land based on original land, land flat design in order to achieve the purpose of saving water and drainage system anti-seepage project. Ye County in Henan province is mainly used groundwater irrigation, in order to improve the irrigation and drainage system, project area implement two transformers, to achieve power irrigation solving high cost of irrigation because of energy consumption of diesel engine pump is too high.
2. According to the problem of artificial planting, harvesting, the project design purchase 1 rice harvest grinding rotary in Huaiyuan County in Anhui province, purchase 1 self-propelled corn

mower in Ye County in Henan Province, and rotary tillage sowing grinding machines to improve their working conditions, reduce the operation artificial input.

3. According to less machinery, large input and other issues: project design purchase 1 sets large-scale spraying machine in Huaiyuan county in Anhui province, recommend purchase 1000 units electric spraying device for Ye County in Henan province , each have 100 yuan subsidies, in order to achieve the pesticide reduction applied and the integrated pest control objectives.

At the same time, design using soil testing and formula fertilizer to improve fertilizer efficiency, mechanical deep fertilization, straw turnover and other technology, improve soil fertility.

## 2. 2 Project feasibility stage

Including 2 types public participation

### 2.2.1 Farmer survey

The project team conducts farmer survey in Huaiyuan County in Anhui province from January 2 to 7, 2014, do household survey from January 8th to 11 in Ye County in Henan province. The investigation content is shown in Table 2.

**Table 2 Public participation type summary**

<b>Huanyuan county in Anhui</b>			
time	place	content	participant
2014.1.2-3	Huanyuan county	seminar	MOA PMO, experts team, investigator
2014.1.3	Wanfu township	village level questionnaire	two project village clerk or accountant in Lanqiao Township
2014.1.4-5	Zhendong village, Zhennan village, Chenan village, Zhaomu village in Wanfu township and Sunzhuang village in Lanqiao Township	farmer survey	10 investigator, 15 farmer representative in each village
2014.1.6-7	Huanyuan county	improve survey information	



Ye county in Henan			
2014.1.8	Ye county	seminar	MOA PMO, experts team, investigator
2014.1.9-10	Shenwan, Caizhuang, Wandukou, Tongxinzhai, Niuduzhuang, Beidaying, Quanyin, Longquan, Zhongzhang, Baihaozhuang, Nandaying, Shenzhuang	farmer survey	11 investigator, 15 farmer representative in each village
2014.1.11	Ye county	improve survey information	

Farmer survey picture see in fig.4 and fig.5





**Fig. 4** Farmer survey in Huaiyuan county Anhui province



**Fig. 5** Farmer survey in Ye county in Henan province

In the two project areas, firstly organize project area relevant responsible people to have a

meeting, discusses the distribution and quantity of arrangement of household survey, and then arrange for household survey, finally summarized household survey. Summary is as follows:

1. In Huaiyuan County, the farmers' problems are: pest control(40.2%), lack of technical guidance (17.5%) and frequent natural disasters (8.2%); Ye County, ranked in the top three problems are: lack of irrigation (35.8%), the high cost of farming low income (20.7%) and the lack of agricultural machinery (10.1%). Also, lack of large machinery for straw returning field, road is not convenient, not willing to farming, small land etc..

2. Agricultural technology relatively weak in project area, lack of agricultural technology technician, agricultural technology extension mode is single, therefore, strengthen the construction of agricultural technology extension system in the project area through project is particularly important.

3. Farmers' suggestion for reducing the amount of chemical fertilizer, but not cut yield. Most farmers lack the consideration to this problem, two farmers in Huaiyuan county clear answer that it is impossible. A few participants given positive response to this problem, the proposed recommendations include: testing soil for formulated fertilization, increasing organic fertilizer, rational fertilization, straw return to field, strengthen technical guidance, reduce blind fertilization, deep cultivation, improving water condition.

4. The types and quantity of pesticide application, the first is experience, accounted for 42.3%, the other are pesticide dealers (27.8%), technicians (18.6%), see the manual (5.2%). Whether it is in Huaiyuan County or in Ye County, the majority of farmers is willing to accept the unified and paid pest control services, but in the willingness to pay is shown significant differences.

5. Farmers' attitude focus on the economic benefits of the project, the increase of grain yield, the vast majority of farmers recognize the benefits of the project once access to project, have expressed their willingness to participate in the project, and accept project management mode.

6. Huaiyuan County and Ye County is support object of the national key grain producing counties, within Ye County is provincial poor county. County, township two levels government and relevant departments attach great importance to the implementation of the project, and take the project as a chance to promote the transformation of agricultural production

and operation methods and deepening rural economic structure adjustment and the establishment agricultural society service mechanism.

According to the project area farmers problems, the project carry out the relevant design:

1. In view of lack of straw returning field large mechanical, project design to purchase 1 rice harvest grinding rotary in Anhui province Huaiyuan County , 1 self-propelled corn mower in Henan Province Ye County's, rotary tillage sowing grinding machines to improve their working conditions, reduce the operation artificial input. According to lack of irrigation, project design the irrigation and drainage system improvement and land leveling engineering in Anhui province Huaiyuan county, design to irrigation conditions improvement engineering installing transformer in Henan province.

2. The project design to conduct testing soil for formulated fertilization in project area, use Soil testing formula fertilizer to improve fertilizer efficiency, conduct mechanical deep fertilization, straw returning field and other technology, to improve soil fertility, and achieve production efficiency and increasing yield, at the same time mechanized deep fertilization. The project design to subsidy to use soil testing and fertilizers, Anhui province Huaiyuan County big households 5 yuan per mu, small household 15 yuan per mu. Henan province Ye County small household 15 yuan per mu, to reduced farmers worry about production reduction.

3. The project design plant protection technology training and service, agricultural machinery and agronomy training and services, and establishment of the village level training platform, to solve the problem of agricultural technical force is relatively weak.

4. Project design purchase 1 sets large-scale spraying machine in Huaiyuan county in Anhui province, recommend purchase 1000 units electric spraying device for Ye County in Henan province , each have 100 yuan subsidies, in order to achieve the pesticide reduction applied and the integrated pest control objectives. Project compile integrated pest control manual as a guide, see PMP the report.

### **2.2.2 Publicity**

Feasibility study publicity includes 2 parts: one is the project district environmental protection publicity, the other is public security documents.

The project area environmental protection publicity with two forms: website publicity and rural posted publicity. Publicity mainly introduced the implementation of the project content, sites, technical content, the impact of construction projects on the environment and the prevention measures.

Publicity content is as following:

## GEF climate smart agriculture project (Anhui)

### Information publicity

#### **1.construction project status:**

Project name: GEF climate smart agriculture project

Executing unit: Huaiyuan county PMO

Site: Huaiyuan county in Anhui province

Project task: The project take promote agricultural production in major grain producing areas and energy saving and emission reduction and carbon sequestration ability as the core target, focus on improving the project area grain production disaster adaptive ability and crop productivity, protect the interests of farmers in the project area. By improving the infrastructure, improve farmers' working conditions.

Project content: Foundation engineering construction content mainly includes the irrigation and drainage system improvement(construction of seepage control canal), three gutter transformation (Tian Tou, Ditou and Yao gutter), farmland leveling 50000 mu, 200 mu Paddy Pisciculture in Zhuan Qiao village (6000mfishway, 1000m paddy hydropower facilities), field afforestation area 6000m<sup>2</sup>, tractor ploughing road hardening.

#### **2. Possible impact on environment**

##### **(1) construction time**

(1)Exhaust Gas: inevitably generate dust when building materials transportation, loading and unloading, especially muck piled up make wind erosion raise dust in the strong wind and dry climate soil condition, (2)noise: mainly for the interference to residential area by construction machinery, transport, (3)the waste water: construction personnel sanitary wastewater, sand and stone flushing water in the construction area;(4) the solid waste: mainly is excavation earthwork, masonry mortar and construction personnel household garbage etc.

## **(2)Operation period**

The project itself is energy-saving emission reduction and environmental protection projects. During operation, there is no obvious influence on ambient air, surface water, groundwater and acoustic environment.

## **3. Policies and measures to prevent or mitigate adverse environmental impacts**

(1)Ambient air: The construction site use sprinkler measures, construction materials and the dry earth with plastic cloth, mesh to be covered and other measures to reduce construction dust; (2)Surface water: The construction site waste water should be unified collection, into the temporary settling pond to treatment site set up temporary impervious toilet, treatment according to actual living conditions in rural areas. (3) Acoustic environment: Select low noise equipment, strict working time; (4) Solid waste: According to relevant laws and regulations, properly collecting, rational treatment solid wastes like construction waste, waste (slag) and waste.

## **4. Environmental impact assessment conclusion main point**

This conforms to the requirements of the national industrial policy, conducive to the promotion of energy-saving emission reduction of local agricultural production, accord with the strategy of sustainable development, project setup reasonable. As long as strict implementation of environmental protection measures in report, will not produce a significant impact on the surrounding environment during the construction period of project implementation. From the perspective of environmental protection, construction is feasible.

## **5. The main content of solicit public opinion**

Mainly including public's views of project construction environmental issues, including: if project site is recognized; the project construction impact on the surrounding environment and should further take environmental protection measures. Public can through email, letter, fax giving opinions, feedback to the construction unit or EIA units, please provide detailed contact when comment, so that we can timely feedback to you.

## **6. Construction unit and contact**

PMO: Huaiyuan county Energy Administration Office postal address: Huaiyuan county  
government 1<sup>st</sup> floor postcode:233400

Contact person: Ge Qifeng    Tel: 0552-2212372    Fax: 0552-8215516

email: [akm5188@163.com](mailto:akm5188@163.com)

## **7. ECOP organization unit and contact**

Organization unit: CAU    contact person: Zhang Baoli

Tel: 010-62733494    email: [nongdaeia@126.com](mailto:nongdaeia@126.com)    postcode: 100193

Address: 2 Yuanmingyuan west Road, Haidian district, Beijing, resource and environment department, CAU

Anhui Huaiyuan county PMO

CAU

2014.4

# **GEF climate smart agriculture project (Henan)**

## **Information publicity**

### **1.construction project status:**

Project name: GEF climate smart agriculture project

Executing unit: Ye county PMO

Site: Ye county in Henan province

Project task: The project take promote agricultural production in major grain producing areas and energy saving and emission reduction and carbon sequestration ability as the core target, focus on improving the project area grain production disaster adaptive ability and crop productivity, protect the interests of farmers in the project area. By improving the infrastructure, improve farmers' working conditions.

Project content: Foundation engineering construction content mainly includes tractor ploughing road hardening, transformer equipment construction, field afforestation, etc.

### **2. Possible impact on environment**

#### **(1) construction time**

(1)Exhaust Gas: inevitably generate dust when building materials transportation, loading and unloading, especially muck piled up make wind erosion raise dust in the strong wind and dry climate soil condition, (2)noise: mainly for the interference to residential area by construction

machinery, transport, (3)the waste water: construction personnel sanitary wastewater;(4) the solid waste: mainly is excavation earthwork, and construction personnel household garbage etc.

## **(2)Operation period**

The project itself is energy-saving emission reduction and environmental protection projects. During operation, there is no obvious influence on ambient air, surface water, groundwater and acoustic environment.

## **3. Policies and measures to prevent or mitigate adverse environmental impacts**

(1)Ambient air: The construction site use sprinkler measures, construction materials and the dry earth with plastic cloth, mesh to be covered and other measures to reduce construction dust; (2) Surface water: site set up temporary impervious toilet, treatment according to actual living conditions in rural areas. (3) Acoustic environment: Select low noise equipment, strict working time; (4) Solid waste: According to relevant laws and regulations, properly collecting, rational treatment solid wastes like construction waste, waste (slag) and waste.

## **4. Environmental impact assessment conclusion main point**

This conforms to the requirements of the national industrial policy, conducive to the promotion of energy-saving emission reduction of local agricultural production, accord with the strategy of sustainable development, project setup reasonable. As long as strict implementation of environmental protection measures in report, will not produce a significant impact on the surrounding environment during the construction period of project implementation. From the perspective of environmental protection, construction is feasible.

## **5. The main content of solicit public opinion**

Mainly including public's views of project construction environmental issues, including: if project site is recognized; the project construction impact on the surrounding environment and should further take environmental protection measures. Public can through email, letter, fax giving opinions, feedback to the construction unit or EIA units, please provide detailed contact when comment, so that we can timely feedback to you.

## **6. Construction unit and contact**

PMO: Ye county PMO postal address: 30 Xunan street, Ye county, Pingdingshan, Henan  
postcode: 467200



<p>Contact person: Xiao Shengtao    Tel: 0375-8053415    Fax: 0375-8053415</p> <p>email: <a href="mailto:hnyxny@163.com">hnyxny@163.com</a></p> <p>Organization unit: CAU    contact person: Zhang Baoli</p> <p>Tel: 010-62733494    email: <a href="mailto:nongdaeia@126.com">nongdaeia@126.com</a>    postcode: 100193</p> <p>Address: 2 Yuanmingyuan west Road,Haidian district, Beijing, resource and environment department, CAU</p> <p style="text-align: center;">Henan Ye county PMO</p> <p style="text-align: center;">CAU</p> <p style="text-align: center;">2014.4</p>
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Project area publicity time and form see table 3.

**Table 3: two project area publicity time and form**

project area	form	place
Ye county in Henan	web publicity	<a href="http://nyj.ye.gov.cn/News_show.asp?Newsid=13">http://nyj.ye.gov.cn/News_show.asp?Newsid=13</a>
	post publicity	Longquan township Niu Du village, Beidaying village, Lou fan village, Quanyin, Yeyi township Wan Du Kou village, Cai Zhuang publicity column
Huaiyuan county in Anhui	web publicity	<a href="http://www.ahny.gov.cn/Html/2014_04_01/3751_169904_2014_04_01_1553675.html">http://www.ahny.gov.cn/Html/2014_04_01/3751_169904_2014_04_01_1553675.html</a>
	post publicity	Huaiyuan county agriculture publicity board, Huaiyuan county Wanfu township Zhuanqiao village publicity board
publicity board		From Apr 1 to 15

Post notice picture see fig. 6 and fig. 7



Fig.6 Ye county Henan project area



Fig. 7 Anhui project area

Based on environmental impact assessment analysis, the environmental impact during the project construction is temporary, recoverable, strict implement environmental evaluation mitigation measures can take to minimize impact on the environment; influence on environment of operation period is mainly positive benefits, through the implementation of some advanced technology, make the effects of pesticides, chemical fertilizers on the environment to a minimum.

With the implementation of the project, can promote the good cycle of ecological system in the project area, and promote agricultural income.

Public security documents: the main file publicity is the social impact assessment report, the resettlement policy framework, environmental practices and pest management plan four parts, through the website publicity and notice posted two ways.

**Table4. Publicity time and form**

	form	site
MOA	web publicity	<a href="http://www.reea.moa.gov.cn/tzgg/201404/t20140424_3884222.htm">http://www.reea.moa.gov.cn/tzgg/201404/t20140424_3884222.htm</a>
	publicity time	2014.4.24—2015.5.12
Ye county	web publicity	<a href="http://nyj.ye.gov.cn/News_show.asp?Newsid=15">http://nyj.ye.gov.cn/News_show.asp?Newsid=15</a>
	post publicity	Yeyi township publicity board, Longquan township publicity board
Huaiyuan	web publicity	<a href="http://www.ahny.gov.cn/Html/2014_05_08/3751_169904_2014_05_08_1591772.html">http://www.ahny.gov.cn/Html/2014_05_08/3751_169904_2014_05_08_1591772.html</a>
	post publicity	Huaiyuan county agriculture publicity board, Huaiyuan county Wanfu township publicity board, Huaiyuan county Zhuanqiao township publicity board
publicity time		2014.5.-8—2015.5.28

Post publicity picture see fig.8 and fig.9



Fig.8 Anhui Huaiyuan county publicity picture



Fig. 9 Henan Ye county publicity picture

### 3 Social assessment brief

Social impact analysis survey arrangement see table 4.

Tabel 4. Social impact analysis arrangement

date	site	main content
2 <sup>nd</sup> Jan	Huaiyuan county	seminar:

		<ul style="list-style-type: none"> <li>● fix sample village</li> <li>● develop baseline survey preliminary plan</li> </ul>
3 <sup>rd</sup> Jan morning	Huaiyuan county	seminar and training: <ul style="list-style-type: none"> <li>● introduce smart agriculture project</li> <li>● introduce baseline survey aim and method</li> <li>● discuss and amend survey content               <ul style="list-style-type: none"> <li>● develop baseline survey plan</li> <li>● staff arrangement and schedule</li> </ul> </li> </ul>
3 <sup>rd</sup> Jan afternoon	Wanfu township	village level survey: <ul style="list-style-type: none"> <li>● village level questionnaire</li> <li>● rich and poor rank in project village</li> <li>● farmer rich and poor standard</li> </ul> Discuss and define the research agenda and sample farmers selection criteria
4 <sup>st</sup> Jan	Wanfu township Zhendong village and Zhennan village	farmer survey
5 <sup>st</sup> Jan	Wanfu township Chenan village, Zhaomu village and Lanqiao township Sunzhuang village	farmer survey
8 <sup>st</sup> Jan	Ye county	seminar: <ul style="list-style-type: none"> <li>● fix sample village</li> <li>● develop baseline survey preliminary plan</li> </ul>
9 <sup>st</sup> Jan	Shenwan, Caizhuang, wandukou, Tongxinzhai, Niufuzhuang, Beidaying	farmer survey

10 <sup>th</sup> Jan	Quanyin, Longquan, Zhongzhang, Baihaozhuang, Nandaying, Shenzhuang	farmer survey
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### 3.1 Basic situation of the project villages in Huaiyuan County

Huaiyuan County includes 12 administrative villages, 177 groups of villagers, 9, 621 peasant households with average family member of 4.6. Per capita income in 2013 is 7, 520 RMB. There are 994 poor households, 2582 people living under the minimum living standard , and 498 people are listed in the "Five guarantees family". The total number of labors in the 12 project villages is 26140, accounting for 58.7% of the population. The average labor number of the household is 2.7.

The 12 administrative villages have cultivated land of 83234 mu with average household cultivated land area of 9.1 mu and per capita arable land area of 1.94 mu. Rice planting area accounts for 84.3% of the total arable land and wheat accounts for 98.8% of the total farmland area. The overall fluxion rat of farmland is 21.1%, of which the cultivated land of Zhuanqiao village and Liulou village of are paid and circulated to the county agricultural company, the other ways of village farmland fluxion are mainly in the form of free or cultivating by others.

### 3.2 Basic situation of the project villages in Ye County

The project area of Huaiyuan County includes 28 administrative villages, of which there are 21 villages in Longquan and 7 villages in Yeyi Town. The sites include 183 groups of villagers, 10, 153 peasant households with average family member of 4. Per capita income in 2013 is 3, 388.11 RMB. There are 1485 poor households, 1, 964 people living under the minimum living standard, and 1964 people are listed in "Five guarantees family" in the County. The total number of labors in the 28 project villages is 20, 730, accounting for 56.7% of the total population. The average labor number per household is 2.3.

The 28 administrative villages of the project area have cultivated land of 52, 215 mu with average household cultivated land area of 5.14 mu and per capita arable land area of 1.32 mu. Maize planting area accounts for 88.5% of the total arable land and 6 villages grow maize entirely. Wheat accounts for 90.2% of the total farmland area and 7 villages grow wheat entirely.

### 3.3 Survey questions & solutions

Statistical and way to solve the problem of projects are summarized in Table 5

**Table 5 Statistical and way to solve the problem of projects**

Classification	Problems	Solving ways
Biggest problem for crop production	In Huaiyuan County, the first three problems are: pest control (40.2%), lack of technical guidance (17.5%) and frequent natural disasters (8.2%). Problems few farmers mentioned include: fake and shoddy agricultural supplies, fertilization technology, lack of irrigation, weed, straw treatment, etc.	Project design to purchase 1 rice harvested Rotary crushing machine in Huaiyuan County. Designed irrigation & drainage improving systems, and farmland leveling works because of lacking irrigation conditions
	In Ye County, first three problems are: lack of irrigation (35.8%), high cost and low income of agriculture production (20.7%) and lack of agricultural machinery (10.1%). Few farmers in Ye also mentioned the problems existed in Huaiyuan County, they also mentioned the problems of lack of large-scale straw returning to field machinery, inconvenient of field road, unwilling to do (much) farm work, land of small pieces and wheat seedling destruction by chickens and sheep.	Purchase 1 self-propelled corn mower in Ye County in Henan Province, and rotary tillage sowing grinding machines to improve their working conditions, reduce the operation artificial input, and design to install transformer to improvement irrigation works.
The favorite way for technology promoting and training	Whether in Huaiyuan County or Ye County, guidance in the field ranked first, accounting for 81.4% and 68.7%, respectively, followed by technician instruction, accounting for 18.6% and 32.4%.	The project design plant protection technology training and service, agricultural machinery and agronomy training and services, and establishment of the village level training platform for this question.

Suggestions for reducing fertilizer amount without affecting productivity	A handful of the interviewee positively responded to the question, and the proposed suggestions included soil testing formula fertilization, increasing application of organic fertilizer, reasonable fertilization, straw returning to the field, strengthening technical guidance, reducing blind fertilization, deep tillage, improving water conditions, etc.	The project design to conduct testing soil for formulated fertilization in project area, use Soil testing formula fertilizer to improve fertilizer efficiency, conduct mechanical deep fertilization, straw returning field and other technology, to improve soil fertility, , at the same time mechanized deep fertilization.
Willingness to pay for unified formulated fertilization service	Of the general concept of farmer, crop fertilization belongs to normal technology, thus, 9.3% of the interviewee said that they were unwilling to participate in unified formulated fertilization, and the proportion in Ye County was 14.5%. These farmers are lack of enthusiasm even the unified formulated fertilization service is free of charge. 32.8% of farmers in Huaiyuan County and 14% of farmers Ye County accepted the unified formulated fertilization services free of charge.	Based on the comments feedback ,the project design to subsidy to use soil testing and fertilizer , Anhui province Huaiyuan County big households 5 yuan per mu, small household 15 yuan per mu. Henan province Ye County small household 15 yuan per mu.
Willingness to pay for unified pest control	These farmers are lack of enthusiasm even the unified prevention and control service is free of charge. 27.8% of farmers in Huaiyuan County and 12.3% of farmers Ye County accepted the unified prevention services free of charge. They would like to attend as long as the unified prevention and control service is free. Whether in	Project design to purchase 1 sets large-scale spraying machine in Huaiyuan county in Anhui province, recommend purchase 1000 units electric spraying device for Ye County in Henan province , each have 100 yuan subsidies, in order to achieve the pesticide reduction



	<p>Huaiyuan County or in Ye County, most farmers are willing to accept the paid unified pest control services, but the willingness to pay showed a larger difference, the maximum payment is 150 yuan/mu in Huaiyuan County, while the value is 50 in Ye County. On average, the value is 33.26 yuan/mu in Huaiyuan County and 15.63 yuan/mu Ye County.</p>	<p>applied and the integrated pest control objectives.</p>
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### 3.4. Social impact analysis

#### 3.4.1 Project beneficiary and their attitude toward the project

After social evaluation analysis, the beneficiaries of the project are farmers, village-level organizations, women and vulnerable groups etc.; the county governments, subordinate relevant governments and township governments are also the beneficiaries.

The households in the project sites emphasize the economic benefit of grainfood production. Most of the households could realize the benefit of the project and be willing to take part in the project and accept the management mode.

Huaiyuan County of Anhui province and Ye County of Henan province all belong to key national supporting object of major grain-producing counties, and Ye County is provincial poverty-stricken counties. Government of County and township level and the related departments pay highly attention on the project implementation, and consider it a good chance to promote the transformation of agricultural production, to deepen structure adjustment of the rural economic and to establish agricultural socialization service system.

#### 3.4.2 Anticipatory social benefit evaluation

The project use the concept of smart agriculture, and it will reduce the pesticide and fertilizer application by applying a series of advanced technology integration related to energy conservation, low-emission and carbon sequestration. Not only could the project obtain good economic and

ecological benefits, but it can maximize the social benefits. It should be mainly shown in the following several aspects:

### **1 Making the vulnerable groups of the project area the most direct beneficiaries of the project area**

The farmers at home in the project area are mostly women and old people who belong to vulnerable groups. On one hand, they need to bear heavy production work, on the other hand, they are suffering from the excessive use of fertilizers and pesticides which result in environmental pollution harm to health. The effective technology adopting by the project not only can reduce the use of chemical fertilizers and pesticides, which means reducing the cost of agricultural production, it can also effectively reduce the labor intensity by using mechanical straw returning to field technology and effective social service. And the vulnerable groups will become the most direct beneficiaries after the improvement of ecological environment quality.

### **2 Changing farmer's ideological concept, increasing the technical and environmental awareness of farmer and changing their traditional production method and life style**

The key to success of the project is peasants' ideological change, especially the improvement of science and technology consciousness and environmental awareness. Therefore, it will effectively update the farmers' production and living concept; strengthen the concept of green development during the project construction period by introducing new technology and integration, technical training for farmers and demonstration and spreading new technology, new knowledge and information. More people will understand the significance of protecting ecological environment and preventing pollution through publicity, education and training which can make them consciously participate in the protection of agricultural ecological environment, thus, changing the traditional production and life style.

### **3 Creating good brand effect of agricultural products and providing safe and healthy products for more consumers**

The implementation of the project can effectively improve the production environment, control application of pesticides and residue, improve the quality of agricultural products, and make positive contribution to eliminate safety food problem. At present, the food safety incident frequently happens which make more and more consumers pay attention to food safety. Natural and pollution-free green agricultural production gradually becomes consumer's choice and society

reliable security brand. Therefore, this project will guarantee the security of the production through the relevant technologies. The project will create a distinctive brand of agricultural products through the construction and authentication of pollution-free, green and organic foods base which will have a good brand effect and socioeconomic benefits.

#### **4 Strengthen building capacity of project community and related agencies of counties and townships**

According to the project implement concept and experience of World Bank at home and abroad, the project needs higher management objectives and technical requirements, and it is very important to strengthen building capacity of the related agencies of counties and townships. Therefore, the implementation of the project actually creates an effective platform and mechanism for the agricultural management department and technical department to learn and accept the world advanced technology and experience. The ability and quality of staff in the agriculture and energy departments will be greatly improved by strengthen the organization system construction, hardware construction and personnel training, which will make the institutions work more efficiently and creativity. It will also enhance the capacity of the county agricultural sector by promotion and application of the successful project experience in project counties.

#### **5 Increasing farmer's income and living standard**

It could be expected that application of reduction of pesticide and fertilizer and straw returning to field technology will increase farmer's income and living standard through survey and analysis of related cases. The farmer work outside will avoid suffering from going back and forth from the work site and home in busy agricultural season because of the effective socialized service. At the same time, as the increasing of the economic benefit in the project sites and further circulating of the farmland, it will create a stable income condition for the farmer who lost labor force.

#### **6 Promoting rural production efficiency and optimizing the agricultural industrial structure**

Project construction combines with peasants' life and agricultural production, and it will promote the development of breeding and processing industry and structure adjustment of planting industry. In addition, it will achieve the goal of intensive management of farmers' agriculture production and development of efficient ecological agriculture by low investment and high

productivity of grain production. For example, combination of pollution treatment construction project and construction of the rural characteristic industry, effective integration of breeding and planting industry, development and extension of agricultural industrial chain of comprehensive benefits will promote the deep utilization of agricultural resources and rural circular economy development, achieving the goal of "low energy consumption, low emissions, recycled and reused, high efficiency".

#### **7 Establishing and improving the sustainable development of ecological agriculture technology service system**

The project implementation target at ecological agriculture, and it will constantly promote construction of agricultural technology service system in the project area, involving agricultural mechanization service, soil testing service, integrated pest and disease management services, services of straw returning to field, services of market information and marketing of agricultural products, thus, it will overcome a series of problems of the current small agrochemical business and maximize comprehensive economic and social benefits of the project.

#### **8 Form a good mechanism of agricultural new technology innovation and promotion**

Project will take technical advantage of of national, provincial and county agricultural experts. It will form technological innovation while applying the success technology in the project area. First, these innovative technologies can be promoted all over the project township, and then scaled up to the other townships of project counties. The provincial related agencies will promote successful technology and experience to the other parts of the province, at the same time, the success technology and experience will be promoted to a larger scale by project office of ministry of agriculture and the world bank, which can continuously expand the impact of the project area and make the success technology and experience of the project take effect in a larger range.

### **3.4.3 Potential social risk of the project and countermeasures**

Huaiyuan County of Anhui province and Ye County of Henan province all belong to key national supporting object of major grain-producing counties, and Ye County is provincial poverty-stricken counties. Government of County and township level and the related departments pay highly attention on the project implementation, and consider it a good chance to promote the

transformation of agricultural production, deepen structure adjustment of the rural economic and establish agricultural socialization service system. The village cadres and farmer in the project villages also express the same expectations

The social factors involved are relatively complex in the 50000 mu project area designated of the two counties, including several important aspects:

### **1. The great difference between the villages that the project covered**

The project sites of Huaiyuan County in Anhui Province locate in Wanfu Township and Lanqiao Township. The 12 village were divided into three conditions: 1) Entire population and cultivated land of 4 village are assigned as project area; 2) There is one village of which entire population are in the project area, while part of the land is assigned as project area; 3) There are 7 village of which part of natural village are assigned as project area; 4) The land of Zhuanqiao and Liulou village were circulated by the Difei Agriculture Science and Technology Ltd., implementing a unified management, and part of the farmers offer relevant service for the company.

The project sites of Ye County in Henan Province locate in Longquan Township and Yeyi Township, including 28 administrative villages. 21 villages of Longquan Township were involved in the project, and 5 villages of Longquan. Townships were involved in the project. Five villages in Longquan Township are listed as key villages for poverty-relief work.

Because of the different participation of villages in the project area, it is bound to affect the project resources allocation between different townships, different administrative villages in the same township, and even the different natural villages within the same administrative.

#### **Countermeasure:**

— According to the specific conditions of different villages, establishing a corresponding project coordination team of township and village project implementation team to coordinate project resources distribution,;

— Setting clear principles and standards of project resource allocation on the basis of unified planning and design to avoiding social contradictions and conflicts;

— Establishing transparent system of project resource allocation and the farmers' complaints mechanism.

### **2 The cultivated land area of household is small and decentralized which may influence**

**the quantity and quality of the project.**

The average household cultivated land area in Huaiyuan County is 9.1 mu with per capita arable land area of 1.94 mu. The average household cultivated land area in Ye County is 5.14 mu with per capita arable land area of 1.23 mu. The main production patterns are rice-wheat rotation (Huaiyuan County) and Maize-Wheat rotation (Ye County). Due to the absolute egalitarianism principle of land contract, the limited land is further divided. Of the 97 peasant households in Huaiyuan County, the average cultivated land was divided into seven pieces, most have more than 20, and the fewest has 2 pieces; the average cultivated land in Ye County has 3.3 pieces, the most has 7 pieces, but 11% of the arable land of family is arranged together. The average smallest area of the piece of cultivated land in Huaiyuan County is 0.9 mu, the maximum value is 10 mu, the minimum value is 0.14 mu; For Ye County, the average smallest area of the piece of cultivated land is 1 mu, the maximum value is only 2.5 mu, the minimum value is 0.1 mu. Farmers surveyed complain about the phenomenon of the cultivated land fragmentation, which greatly affect the use of agricultural machinery and all kinds of new technology.

**Countermeasure:**

- Strengthening the guide of farmers, and making the project implement maximum cover of the land;
- The project design should pay attention to the adaptability of related technical measures to farmers' small-scale farming environment;
- Through the orderly land circulation to large planting growers, making family farm and cooperative actively participate in the project.

**3 Constantly increase of the cost of land circulation limits the land's concentration to large planting household, family farm and cooperation.**

The cost of land circulation in Huaiyuan County is 1000 yuan/mu, and the total proportion of land circulation is 21.1%. The cultivated land of Zhuanqiao village and Liulou village of are paid and circulated to the county agricultural company, the other ways of village farmland circulation are mainly in the form of free or cultivating by others. In Ye County, the cost of circulated land is as high as 800-1000 yuan/mu because of the development of tobacco planting. The total proportion of land circulation is 10.8%. Obviously, it is beneficial for the household who transfer land. But it is difficult for large planting household to obtain good economic benefit under

conventional planting pattern. According to the sample investigate results, the net income of rice and wheat rotation planting pattern is 1303.65 yuan/mu (remove the cost of land rent and labor force), of which the net income is 884.26 yuan/mu and 423.39 yuan/mu, respectively, for rice and wheat. The economic benefit of wheat and maize rotation planting pattern is 912.6 yuan/mu, including the cost of labor force, of which maize is 445.8 yuan/mu and wheat is 466.8 yuan/mu. Therefore, the large planting household will lack enough incentive to plant foodgrain crops at the land circulation price that household could accept.

**Countermeasure:**

— Take project as an opportunity to improve the quality of agricultural products, and help farmers continuously improve the grain sales price and management benefit through pollution-free food, green food or organic food certification;

— Helping the farmers develop market of effective high quality agricultural products;

— To guide land orderly circulation to large planting experts

**4 The promotion force for township agricultural technology is weak**

All the townships in Huaiyuan County establish technology service center in charge of County Agriculture Committee. While the technology service center is subordinate to the government, the County Agricultural Bureau only takes effect on professional work. Generally, the village technology service center (including agriculture, animal husbandry, forestry, hydraulic engineering, agricultural economy, etc.) has 15 regular authorized departments, but there are only three agricultural technology service centers direct related to the project and most of the technical staffs are short of related professional education background. In the investigation samples, the farmer who never receive the technician of township account for 53.6% in Huaiyuan County and 63.1% in Ye County. As more and more young adults become migrant workers in cities, the farmer technician and mode agricultural technology households set up in village disappear, which may influence the promotion and application of the project technology.

**Countermeasure:**

— Taking the project implementation as an opportunity to strengthen the construction of village-level technology service team and offer intensified training for the team;

— Establishing socializing agriculture technology service system base on the project implementation;

— Cultivating a certain amount of farmer technicians and mode technology household, especially the women, by taking effective training mode and mechanism

— The County Agricultural Bureau and Agriculture Committee can assign one technician to offer point-of-service for the farmer and promote the growth and running of socialized technical service organization.

## **5 The farmer's consciousness of science and technology and environmental awareness is not high**

Due to the feminization and aging of labor, and the lack of promotion fund, the technology training and service ability is limit. The farmers are short of channel accessing new technology and increasing scientific consciousness and environmental awareness. According to the investigation, 53.6% of the 97 farmer samples never participate in agriculture technology training in any form in Huaiyuan County in 2013. The value in Ye County is 63.1%. The fertilizer and pesticide application are usually higher than the technology requirement by experience. Almost all the household don't use farm manure. As for straw returning to the field, the returning rate is very low in Huaiyuan County and burning is still the main straw handling method. Part of households specialized in breeding didn't dispose animal waste effectively which result in environmental pollution.

### **Countermeasure:**

- strengthen the technical training and environmental education of farmers;
- strengthen demonstration of agriculture technology and environmental protection technology;
- effective improvement of environmental conditions at project sites through technical service system

## **4 Policy arrangements for increasing social impact of project implementation**

The main goal of the project is energy saving, emission reduction and carbon sequestration, and to effectively change the mode of food production, improve the level of grain production and



economic benefits which has remarkable ecological and economic effects. However, achievement of these effects should be under the premise condition of social impact. In a sense, social influence is not only the purpose but also an indispensable mean of the project.

The key to success of the project implementation is the participation of all farmers in the project area, especially shouldn't simply pursue technical operation convenience, excluding the poor peasant households and women in the project to the benefit of group. The social goals should be in more important position while achieving the technology, economy and ecological goals of the project. Only through effective participation, can farmers improve their awareness of environment protection. And it will change their irrational behavior in grain production through effective intervention. At the same time, it is the key to guarantee the sustainability of the project by maximizing their ability and organizational degree.

## **4.1 Poor households' participation**

Because of the different statistical caliber and different understanding of the poor, the quantity and the proportion of the poor is still an uncertain factor in the project. Therefore, you need to develop specific operational measures on the basis of definition and identification of the poor, promoting the poor to participate in the project and be effective beneficiaries of the project.

### **1、 Definition of the poor**

The poor exclude households enjoying the five guarantees and family of which the main labor become disabled and become poor, at the same time, it exclude the ones who become poor because of disease, natural causes or sudden economic and social reasons. Strictly speaking, these farmers belong to civil administration relief object, and they cannot be treated as the poor in this project. But if they plant foodgrain crops that the project involved and accept the technology demonstration and project application, they will get subsidies and technical support according to the general farmers of the project.

The poor in the project is defined as: the one who have a certain amount of labor in the family; the family income is below poverty line (with annual per capita income of 2300 yuan) because of lack of employment opportunity or effective skills engaged in agricultural production.

### **2、 Identification of the poor**

Identify the poor in the project village by investigation and farmer wealth ranking.

The project office formulates unified survey plan and the conditions of the poor, such as family basic information, family income, non-agricultural income and poverty reasons were investigated by village committee and report to the project office. The project office is responsible for conducting spot check and verifies the report.

Farmer wealth ranking can be determined by farmers (5-10 person) organized by the project office. After exclude the poor related to civil affair, the farmer was classified in three types and sort, and the result was compared with object investigation result.

### **3、 The participation of the poor**

- 1) First, training activities for the poor need to be conducted making them fully understand the project and their rights and obligations, and learn the participation willing of the poor in the project through questionnaire interviews or group discussion;
- 2) Special project support activities should be developed for the poor who will participate in the project besides subsidies and technical support the usual farmer enjoy, including:
  - a) According to the actual situation of the poor, make necessary adjustments of the related project activities and technical requirements;
  - b) Increase training efforts to the poor. They should enjoy targeted training activities besides training for general farmers;
  - c) Arrange for technician to conduct technical operation guidance in the field and traceability of technical services for poor;
  - d) Investigate and learn the difficulties the poor faced during the implementation of the project activity and find the effective solutions;
  - e) Monitor the effect of project implementation of the poor, find the problems and handle in time, providing maximum help and support.
- 3) The representative of the poor should hold certain proportion in selecting technology mode household and in the study process of Farmer Field School. (The specific proportion is determined by project village).

## **4.2 Women's participation**

In sampling survey, the women of the two counties only accounted for 19.5% (Huaiyuan County) and 16.2% (Ye County) of the total respondents, the result shows that the role of women

in the rural community hasn't got enough attention they deserve. Because of the widely use of machinery in food production, workload of women in the fields is shrinking. But as more male labor work outside, women is still the main food production labor, especially in the field management link except mechanical sowing and reaping. Comparatively speaking, women are short of chance to attend technical training, and the consciousness and ability are lower than male farmers which restricts their effective participation in the community to a great extent. Through the project implementation, the above phenomenon needs to be changed to a certain extent. Therefore, it should promote substantive participation of women in the project, and maximize their benefit according to the characteristics of women in the process of project design and implementation,

1) At the project village level, the related activity and decision of project are valid only when more than half of the women are participated in.

2) The project office of the County should learn the willing of women to participate in the project and the suggestions of them related to the project;

3) The proportion of the women shouldn't be less than 50% in the technical training in any forms;

4) The study group of field school composed of women can be established. In the mixed group, the women should account for more than 50%;

5) The women should make up more than 50% of the recommended technician during the implement of cultivating village-level technician;

6) Encouraging the establishment of farmers' professional cooperative or socializing agriculture technology service organization led by women;

7) Organizing the women who actively participated in the project and achieve good results to visit and study outside to expand their horizons;

8) Discussing and forming training and technology transfer mechanism of women to women in the process of project implementation;

The County project should make it an important monitoring index for women's participation, so as to evaluate the performance of project implementation in the village.

### **4.3 Ethnic Minority Development Planning**

The 40 administrative villages in the two project counties are all Han nationality except a natural village (Nandaying) of Ye County where 100 households belonging to Hui minority. There are no difference between the production mode and related production activities Hui and Han nationality, except the religion and living habits differences. Therefore, it won't take a negative influence on the effective implementation of the project technology. Because the administrative village is key village for poverty alleviation works of Ye County. Therefore, the county project office should cooperate with poverty relief office and develop a more feasible plan for the project implementation, combining implementation of project with poverty alleviation and development work, to maximize help Hui farmers to participate in the project and benefit from it.