IPP620

World Bank Project of Guangdong agricultural non-point source pollution control

Social Impact Assessment Report

Department of Agriculture of Guangdong Province

Urban Management Research Institute of Guangdong

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Abstract

This project is the first World Bank loan project for agricultural nonpoint source control in China. It is composed of four components including the environment-friendly farming, livestock waste management, monitoring and evaluation, capacity building and knowledge management. This project aims to enhance the capacity of agricultural nonpoint source pollution control through advanced means of prevention, and reduce the extent of non-point source pollution of water and soil in order to achieve sustainable development of both production and environment.

The project involves three prefecture-level cities, six counties (cities) and 30 towns with thousands of farmers in and hundreds of enterprises (cooperatives). There is a wide range of social impact, and various implementation aspects are closely linked. The key of a success implementation of the project lies in the will and attitude of these participants.

The goal of the social impact assessment is to optimize the overall design and effective implementation of the entire project. Evaluation team investigated with a variety of social survey methods (such as the group discussion, questionnaires, in-depth interviews, site visits and case studies), to identify the stakeholders while monitoring and evaluating a variety of positive and negative social impact during the whole process of project construction. The team also put forward ideas for optimizing project construction and implementation of the program in a timely manner to ensure the stakeholders' right to know and participate effectively, and avoid social risks of the construction project.

This report is divided into 10 parts. The first part is introduction which provides an overview of the project and the accordance, purpose, content, and analysis methods of the social impact assessment report. The second part is to identify the role of various stakeholders in the project. The third to sixth part is to analyze the current situation, problems, the stakeholders' awareness and demand, the processes and mechanisms of the implementation as well as risk and countermeasures of the four sub-projects. These sub-projects include: reduced fertilizer pollution control, pesticide reduction pollution control, livestock waste management and conservation tillage.
And these four parts also analysis. The seventh part focuses on the role of women's groups in the project. The eighth and ninth part provides countermeasure for the expected benefits and risk of the project. The last part of the report provides ideas for the design and implementation of the project.

The main conclusions of the report are as follows: 1) farmers and organizations generally support this project and hold welcome attitude. They hope the project can help improve their technical level, reduce costs and increase revenue. While environmental protection concern is put on the secondary position and there is need to increase promotional efforts. 2) farmers focus on the economic benefits of the project and are more sensitive to the potential cost increase. There is need to provide subsidies to mobilize the enthusiasm of these participants to use the proposed products of this project. 3) the different stakeholders including grower, retail, cooperatives and companies hold different mode of production and use habits of chemical fertilizer and pesticide, thus they should be treat differently in the technology support programs and subsidy programs. 4) farmers generally concerned about the fairness of the project and hope that the project will be conducted in an open, fair, and transparent manner. 5) the bottom-up participatory rural research methods, which helps the farmers to speak their opinion, complemented the shortcoming of the top-down design of the project and enables the project to be more operational and practical. 6) the implementation of the project need to pay special attention to the issues of women's gender and the vulnerability of small farmers, and develop special training programs for women and small farmers to meet their needs. 7) it have been identified that for the towns in the first sub-project, and the 150 farms in the second sub-project, there is no aboriginal issues, based on currently available information, there will be no resettlement issue related to aborigines.
Part 1: Summary

1.1 Project overview

1.1.1 Project background

Since the reform and opening up, China's economic rapid development increased the degree of development and utilization of water resources, however, water environment protection and repair work is relatively slow, the water environmental issues have become increasingly prominent. Data indicate that agricultural non-point source pollution is the major pollution sources of water environment in China.

Guangdong Province is a major economic and agricultural province, but in recent years, with the increase in population and the rapid development of the rural economy, agricultural nonpoint source pollution situation became very grim. It is not only a serious threat to the ecological environment security, which restricts the efficiency of agriculture, but also a threat to human health. After calculation, the province's agricultural COD contributes for 40% of the province's total pollutant emissions, ammonia emissions account for 42% of the province's total emissions. Agricultural nonpoint source pollution has been directly restricting the sustainable social and economic development of Guangdong. Therefore, agricultural nonpoint source pollution control has great significance in both promoting the agricultural structure adjustment of Guangdong and improving production conditions as well as the agricultural ecological environment in rural areas.

1.1.2 Project purposes

This project is China's first World Bank loan project in agricultural nonpoint source pollution control. Its goal is to systematically reduce the extent of non-point source pollution of water and soil through comprehensive prevention and control means and to promote the establishment of agricultural nonpoint pollution control system through capacity-building, knowledge management, monitoring and evaluation. Ultimately, Guangdong residents can enjoy economic, social and ecological benefits from agricultural non-point source pollution control, thus the overall well-being is enhanced.
1.1.3 Project construction content and scale

There are four sub-projects in this World Bank Project of Guangdong agricultural non-point pollution control: (1) environmental-friendly farming; (2) livestock waste management; (3) monitoring and evaluation, capacity building and knowledge management; (4) project management. The first sub-project includes the following three projects: reduced fertilizer and pollution control project, pesticide reduction project and conservation tillage project. The project implementation period is five years, from January 2014 to December 2018.

**Table 1-1 List of project construction content and scale**

<table>
<thead>
<tr>
<th>Name of sub-project</th>
<th>construction content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sub-project 1. environmental-friendy farming</strong></td>
<td>1.1 Reduced fertilizer and pollution control project: The promotion and application programs are proposed for formula fertilizer, slow / controlled release fertilizer, integrated water and fertilizer, and rice control technology. And related public support for the proposal is configured.</td>
</tr>
<tr>
<td></td>
<td>1.2 Pesticide reduction project: Comprehensive crop pests prevention and control for the main product of the project area including rice, corn, vegetables, litchi, banana and potato; after the implementation of the project, those agricultural products will be awarded a pollution-free green certification, the provincial funds will be awarded.</td>
</tr>
<tr>
<td></td>
<td>1.3 Conservation tillage project: Choose rice and corn crops for the pilot test. Among which are two Rice Conservation Tillage pilot (1 in Huizhou and 1 in Jiangmen) and two maize conservation tillage Pilot (1 in Huizhou and 1 in Heyuan)</td>
</tr>
<tr>
<td><strong>Sub-project 2. livestock waste management</strong></td>
<td>2.1 <strong>Environmental friendly energy</strong>: Biogas systems and sewage purification projects in a total of 100 farms.</td>
</tr>
<tr>
<td></td>
<td>2.2 <strong>Ecological energy</strong>: Biogas systems and sewage purification projects in a total of 200 farms.</td>
</tr>
<tr>
<td></td>
<td>2.3 <strong>New technology example</strong>: The high bed fermentation ecological farming technology demonstration</td>
</tr>
<tr>
<td><strong>Sub-project 3. monitoring and evaluation, capacity</strong></td>
<td>3.1 <strong>Monitoring and evaluation</strong>: Propose method for daily monitoring and result evaluation for the following fields: the progress and effectiveness of the project; the security policy enforcement, etc.</td>
</tr>
</tbody>
</table>
### 3.2 Capacity building
Mainly includes lab construction, purchase of equipment, technology and policy research, technical training, technical visits, promotion and other management activities.

### 3.3 Knowledge management
Mainly includes the establishment of agricultural nonpoint source pollution Knowledge Database and Information Database.

<table>
<thead>
<tr>
<th>Sub-project 4. project management</th>
<th>Including daily management of the project, management of progress, management of project incentive subsidy and meeting arrangements</th>
</tr>
</thead>
</table>

This project is mainly implemented in Huizhou and Jiangmen. The demonstration project of fertilizer and pesticide pollution control is mainly implemented in 30 towns and six counties in these two cities with a total farmland area of 50 million mu. The demonstration project of livestock and poultry farms waste pollution control will be implemented in 150 large-scale farms, among which most from Huizhou, Jiangmen and Heyuan (including 30 of the first phase).

### Table 1-2 Guangdong agricultural non-point source pollution control project site

<table>
<thead>
<tr>
<th>City</th>
<th>District</th>
<th>Town</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huizhou</td>
<td>Huicheng</td>
<td>Ruhu, Luzhou, Hengli, Ma’an, Shuikou Street</td>
</tr>
<tr>
<td></td>
<td>Huiyang</td>
<td>Pingtan, Liangjing, Yonghu, Shatian, Zhenlong</td>
</tr>
<tr>
<td></td>
<td>Boluo</td>
<td>Shiwan, Futian, Changning, Yangcun, Longhua</td>
</tr>
<tr>
<td>Jiangmen</td>
<td>Taishan</td>
<td>Chonglv, Doushan, Duhu, Chixi, Haiyan</td>
</tr>
<tr>
<td></td>
<td>Kaiping</td>
<td>Cangcheng, Chishui, Longsheng, Magang, Dasha</td>
</tr>
<tr>
<td></td>
<td>Enping</td>
<td>Encheng Street, Naji, Niujiang, Shahu, Liangxi</td>
</tr>
</tbody>
</table>

150 large scale farms in the province including 30 in the two cities above and Heyuan

### 1.2. Condition of social assessment

#### 1.2.1 Basis for preparing Social Impact Assessment Report

During the process of the preparation of the report, the following references were made including the World Bank regulations, China's relevant laws and regulations, industry regulations, and project information. As shown in Table 1-3.
## Table 1-3 Basis for Social Impact Assessment Report

<table>
<thead>
<tr>
<th>Category</th>
<th>Name</th>
<th>Promulgation and implementation time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>World Bank loan project resettlement monitoring and evaluation business guide (draft)</td>
<td>June 2000</td>
</tr>
<tr>
<td></td>
<td>&quot;Environmental Protection Law of the People's Republic of China&quot;</td>
<td>December 1989</td>
</tr>
<tr>
<td></td>
<td>&quot;Water Pollution Prevention Law of the People's Republic of China&quot;</td>
<td>February 2008</td>
</tr>
<tr>
<td></td>
<td>&quot;Solid Waste Pollution Prevention Law of the People's Republic of China&quot;</td>
<td>April 2005</td>
</tr>
<tr>
<td></td>
<td>The People's Republic of China Women's Rights Protection Act &quot;</td>
<td>October 1992</td>
</tr>
<tr>
<td></td>
<td>&quot;Organization Law of Villagers’</td>
<td>November 1998</td>
</tr>
<tr>
<td>Related projects</td>
<td>Memorandum of identification group of Guangdong agricultural nonpoint source pollution control projects (P127775/P127815)</td>
<td>March 19th – March 30th 2012</td>
</tr>
<tr>
<td></td>
<td>Memorandum of technology investigation group of Guangdong agricultural nonpoint source pollution control projects (P127775/P127815)</td>
<td>June 2012</td>
</tr>
<tr>
<td></td>
<td>Notice about energy reduction program for “twelfth five-year” from State Council</td>
<td>Guofa〔2011〕26</td>
</tr>
<tr>
<td></td>
<td>&quot;Instruction inquire about World Bank loan project in 2012-2014 fiscal year &quot;</td>
<td>Fagaiwaizi〔20118〕1915</td>
</tr>
<tr>
<td>Name</td>
<td>&quot;Chinese investment projects Evaluation Guide&quot;</td>
<td>China International Engineering Consulting</td>
</tr>
</tbody>
</table>
### 1.2.2 The purpose and content of the social impact assessment

The goal of the social impact assessment is to optimize the overall design and effective implementation of the entire project. Evaluation team investigated to identify the stakeholders while monitoring and evaluating a variety of positive and negative social impact during the whole process of project construction. The team also put forward ideas for optimizing project construction and implementation of the program in a timely manner to ensure the stakeholders' right to know and participate effectively, and avoid social risks of the construction project.
The social impact assessment focuses on the main body of implementation (farmers). By conducting investigation among four major stakeholders (project organization managers, main body project implementation, main body of technical support and other related public participant) (see Table 2), we found that the willingness to participate in the project is the key of a success implementation. In addition, during the interviews for stakeholders, vulnerable groups, such as women and poor groups were given special attention.

Based on the opinion of local residents, the investigation team would put forward views and suggestions on implementation of the project as socio-economic technological support for the project, which includes the following two parts: (1) the project design recommendations; (2) the organizing ability of project affected area. The team would formulate "community involvement Manual", which is to ensure the full participation of stakeholders in the construction of the project, help them to be able to benefit from the project, as well as merging with other development opportunities.

1.2.3 Social impact assessment method

Based the objectives above, the social evaluation team uses different methods including: data analysis, site survey, a random sample survey, the follow-up survey, to convene a village meeting, open semi-structured interviews, stakeholder interviews, matrix analysis method to collect information on production and living conditions in the project impact area, statistics, analyzes and other methods for evaluation. These methods ensure the participation of different stakeholders and farmers under the principle of voluntariness and equality. In the whole project area, promotion in forms of questionnaire, bulletins, conferences and meetings was made for the relevant government departments, villages as well as farmers, so that as much people as possible was able to understand the purpose, content and operational procedures of the project to ensure the smooth implementation of the project. (Detailed work method programs see Annex 1)

1.2.4 Technology routes and Analysis framework (please find the EN Version at Annex II)
1.3 Socio-economic situation

1.3.1 Economic development condition in Project area

(1) Huizhou (Huicheng District, Huiyang District, Boluo Town)

Huizhou City has three project districts. Huizhou has a GDP (GDP) of 2097.3 billion yuan in 2011, and 67.27 billion yuan of total fiscal income, urban per capital disposable income is 26,609 yuan, rural per capital net income is 10,938 yuan. The conditions of project area is shown in Table 1-4 and Table 1-5. From the economic point of view, the project area is in good shape of economic growth and has a
relatively high growth rate of GDP and per capita income.

Table 1-4 The national economy and income indicators of project area in Huizhou (2011)

<table>
<thead>
<tr>
<th>Town and its location</th>
<th>Gross Regional Product（One hundred million yuan）</th>
<th>Growth rate %</th>
<th>Fiscal general budget revenue（One hundred million yuan）</th>
<th>Growth rate %</th>
<th>Rural net income per capital（Yuan）</th>
<th>Growth rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huizhou</td>
<td>2097.3</td>
<td>14.6</td>
<td>162.8</td>
<td>31.3</td>
<td>10938</td>
<td>20.5%</td>
</tr>
<tr>
<td>Huicheng District</td>
<td>405</td>
<td>14.5</td>
<td>83.77</td>
<td>30.2</td>
<td>12056</td>
<td>20.9</td>
</tr>
<tr>
<td>Huiyang District</td>
<td>217.05</td>
<td>16.5</td>
<td>18.10</td>
<td>30.2</td>
<td>12660</td>
<td>16%</td>
</tr>
<tr>
<td>Luobo Town</td>
<td>354.43</td>
<td>16.8</td>
<td>18.36</td>
<td>28.6</td>
<td>9065*</td>
<td></td>
</tr>
</tbody>
</table>

Source: national economy and social statistical bulletin. * 2010 data

Table 1-5 Huizhou City project town (street) development indicators of the national economy (2010)

<table>
<thead>
<tr>
<th>Town and its location</th>
<th>Gross industrial production (Ten thousand yuan)</th>
<th>Gross agricultural production (Ten thousand yuan)</th>
<th>Total fiscal revenue (Ten thousand yuan)</th>
<th>Actual arable land area (mu)</th>
<th>Crops sown area (mu)</th>
<th>Consumpti on of Chemical Fertilizers (ton )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huicheng District in Huizhou</td>
<td>Ruhu Town</td>
<td>308867</td>
<td>40468</td>
<td>7749</td>
<td>47312</td>
<td>98963</td>
</tr>
<tr>
<td></td>
<td>Luzhou Town</td>
<td>12027</td>
<td>15913</td>
<td>4652</td>
<td>33000</td>
<td>58172</td>
</tr>
<tr>
<td></td>
<td>Hengli Town</td>
<td>64144</td>
<td>53454</td>
<td>7393</td>
<td>86250</td>
<td>148196</td>
</tr>
<tr>
<td></td>
<td>Ma'an</td>
<td>183659</td>
<td>23550</td>
<td>2910</td>
<td>22150</td>
<td>42765</td>
</tr>
</tbody>
</table>
As can be seen from the chart below, for the majority of the towns, there is a linear positive correlation of gross agricultural production and fertilizer use.
Figure: Diagram of Huizhou City project town agricultural GDP and Chemical Fertilizers

(2) **Jiangmen City (Taishan City, Enping City, Kaiping City)**

Jiangmen City also has three project towns. In 2011, Gross Regional Product (GDP) is 1830.64 billion yuan, it is an increase of 13.0% compared to the previous year; annual tax revenue is 27.633 billion yuan, disposable income per urban capita was 23,924 yuan, it is an increase of 13.1% compared to the previous year. The net income per rural capita was 9,996 yuan, it is an increase of 16.4% compared to the previous year. The conditions of project area are shown in Table 1-6 and Table 1-7.

**Table 1-6 The national economy and income indicators of project area in Jiangmen (2011)**

<table>
<thead>
<tr>
<th></th>
<th>Gross Regional Product (One hundred million yuan)</th>
<th>Growth rate %</th>
<th>Fiscal general budget revenue (One hundred million yuan)</th>
<th>Growth rate %</th>
<th>Rural net income per capital (Yuan)</th>
<th>Growth rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Jiangmen City</strong></td>
<td>1830.64</td>
<td>13.0</td>
<td>119.17</td>
<td>20.5</td>
<td>9996</td>
<td>16.4</td>
</tr>
<tr>
<td><strong>Taishan City</strong></td>
<td>277.46</td>
<td>13.7</td>
<td>15.56</td>
<td>13.8</td>
<td>8760</td>
<td>12.3</td>
</tr>
<tr>
<td><strong>Kaiping City</strong></td>
<td>240.22</td>
<td>14.1</td>
<td>14.29</td>
<td>26.0</td>
<td>9211</td>
<td>15.1</td>
</tr>
</tbody>
</table>
## Table 1-7 Jiangmen City project town (street) development indicators of the national economy (2010)

<table>
<thead>
<tr>
<th>Town and its location</th>
<th>Gross industrial production (Ten thousand yuan)</th>
<th>Gross agricultural production (Ten thousand yuan)</th>
<th>Total fiscal revenue (Ten thousand yuan)</th>
<th>Actual arable land area (mu)</th>
<th>Crops sown area (mu)</th>
<th>Consumption of Chemical Fertilizers (ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taishan City in Jiangmen</td>
<td>Taishan Town</td>
<td>5.58</td>
<td></td>
<td>38776</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Doushan Town</td>
<td></td>
<td></td>
<td>53885</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Duhu Town</td>
<td>141731</td>
<td>52306</td>
<td>49153</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chixi Town</td>
<td></td>
<td></td>
<td>32673</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Haiyan Town</td>
<td>33188</td>
<td>37066</td>
<td>1018.3</td>
<td>59080</td>
<td></td>
</tr>
<tr>
<td>Kaiping City in Jiangmen</td>
<td>Cangcheng Town</td>
<td>105000</td>
<td>26000</td>
<td>31810</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chishui Town</td>
<td></td>
<td></td>
<td>79304</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Masheng Town</td>
<td></td>
<td></td>
<td>29831.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Magang Town</td>
<td></td>
<td></td>
<td>47989</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dasha Town</td>
<td></td>
<td></td>
<td>21486</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: The national economy and social statistical bulletin.
### Enping City in Jiangmen

<table>
<thead>
<tr>
<th>Encheng Street</th>
<th>Naji Town</th>
<th>Niujiang Town</th>
<th>Shahu Town</th>
<th>Liangxi Town</th>
</tr>
</thead>
<tbody>
<tr>
<td>23200</td>
<td></td>
<td>90000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8321</td>
<td></td>
<td>18305</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
<td>30210</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42708</td>
<td></td>
<td>72825</td>
<td></td>
<td>61050</td>
</tr>
</tbody>
</table>

Source: The national economy and social statistical bulletin. Part of the data needs to be supplemented

#### (3) Heyuan City

In 2011 the Gross Regional Product (GDP) of Heyuan is 571.94 billion yuan, it is an increase of 13.1% compared to the previous year, which is 3.9% faster than the national growth and 3.1% faster than provincial growth. The city's local fiscal general budget revenue is 3.137 billion yuan, it is an increase of 32.8% compared to the previous year, the growth rate ranked No.3 in the province's 21 prefecture-level cities. The disposable income per urban capita is 14,737 yuan, it is an increase of 11.8% compared to the previous year; net income per rural capita is 6734 yuan, it is an increase of 19.3% compared to the previous year. To the end of 2011, a population of 245 thousand enjoys the minimal relief, including 319 thousand urban population and 213.1 thousand rural population.

### 1.3.2 Demographic characteristics of the project area

#### (1) Huizhou City (Boluo Town, Huiyang District, Huicheng District)

By the end of 2011, the population of Huizhou is 4.6336 million people with a population density of 408 persons / sq km. Among which Huicheng District has a population of 1.1745 million, including a registered population of 799.8 thousand people, of which agricultural population is 286.4 thousand people, accounting for 35.8%. The Huiyang District has a population of 576.8 thousand people, including a registered population of 378.5 thousand, of which agricultural population is 206.1 thousand, accounting for 54.5%. Boluo Town has a population of 1.0465 million,
including a registered population of 851.8 thousand, of which agricultural population is 606.1 thousand, accounting for 71.2%. Town population of each project area is showed in the following table.

Table 1-8  Huizhou City project town (street) demographics List (2010)

<table>
<thead>
<tr>
<th>Project location</th>
<th>Total population (person)</th>
<th>Total number of households (household)</th>
<th>Agricultural population (person)</th>
<th>Agricultura l population percentage %</th>
<th>Average household population (person)</th>
<th>Minority population (person)</th>
<th>Minority population percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huicheng District in Huizhou</td>
<td>Ruhu Town</td>
<td>48012</td>
<td>12079</td>
<td>45036</td>
<td>93.80</td>
<td>4</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Luzhou Town</td>
<td>25961</td>
<td>5540</td>
<td>24366</td>
<td>93.86</td>
<td>4</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Hengli Town</td>
<td>69726</td>
<td>10762</td>
<td>62000</td>
<td>88.92</td>
<td>6</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Ma’an Town</td>
<td>29535</td>
<td>7098</td>
<td>26333</td>
<td>89.16</td>
<td>4</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Shuikous Street</td>
<td>59463</td>
<td>10927</td>
<td>46398</td>
<td>78.03</td>
<td>4</td>
<td>None</td>
</tr>
<tr>
<td>Huiyang District in Huizhou</td>
<td>Pingtan Town</td>
<td>43921</td>
<td>7834</td>
<td>36000</td>
<td>81.97</td>
<td>5</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Liangjing Town</td>
<td>37633</td>
<td>9072</td>
<td>30093</td>
<td>79.96</td>
<td>3</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Yonghu Town</td>
<td>28814</td>
<td>6750</td>
<td>25037</td>
<td>86.89</td>
<td>4</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Shatian Town</td>
<td>15443</td>
<td>3096</td>
<td>12000</td>
<td>77.71</td>
<td>4</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Zhenglu</td>
<td>27889</td>
<td>7754</td>
<td>23899</td>
<td>85.69</td>
<td>3</td>
<td>None</td>
</tr>
</tbody>
</table>
From the population data it could be seen that all the 15 towns in Huizhou are agricultural town, the proportion agricultural population basically reached more than 80%, among which two towns reached 93%. Average household agricultural population is about 4, and there is no minority population.

(2) Jiangmen City (Taishan City, Enping City, Kaiping City)

By the end of 2011, the population of Jiangmen is 4.4655 million with registered population of 3.9371 million. Among the total population, urban population is 2.8043 million, rural population is 1.6612 million, accounting 37.2%. Taishan city has a population of 986.6 thousand, including 262.7 thousand non-agricultural population, accounting 26.7%. Kaiping has a population of 690.5 thousand, including a non-agricultural population of 239.971 thousand, accounting 34.75%. Enping has a population of 505.5 thousand. The democratic information for towns is showed in the following table.

<table>
<thead>
<tr>
<th>Project location</th>
<th>Total population</th>
<th>Total number of agricultural population</th>
<th>Agricultural population</th>
<th>Average household</th>
<th>Minority population (person)</th>
<th>Minority population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boluo Town</td>
<td>51688</td>
<td>9816</td>
<td>44049</td>
<td>85.22</td>
<td>4</td>
<td>None</td>
</tr>
<tr>
<td>in Huizhou Town</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Futian Town</td>
<td>31892</td>
<td>5518</td>
<td>27995</td>
<td>87.78</td>
<td>5</td>
<td>None</td>
</tr>
<tr>
<td>in Huizhou Town</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changning Town</td>
<td>34401</td>
<td>5833</td>
<td>27962</td>
<td>81.28</td>
<td>5</td>
<td>None</td>
</tr>
<tr>
<td>in Huizhou Town</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yangcun Town</td>
<td>45041</td>
<td>7215</td>
<td>37038</td>
<td>82.23</td>
<td>5</td>
<td>None</td>
</tr>
<tr>
<td>in Huizhou Town</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longhua Town</td>
<td>24452</td>
<td>4637</td>
<td>21501</td>
<td>87.93</td>
<td>5</td>
<td>None</td>
</tr>
</tbody>
</table>

Source: Huizhou Statistical Yearbook 2011 the municipalities reported from baseline survey data.
<table>
<thead>
<tr>
<th>Location</th>
<th>Person</th>
<th>Household</th>
<th>Person</th>
<th>Percentage</th>
<th>Person</th>
<th>Population</th>
<th>Percentage</th>
<th>Village</th>
<th>None</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taishan City in Jiangmen</td>
<td>Chonglu</td>
<td>37900</td>
<td>9177</td>
<td>34467</td>
<td>90.94</td>
<td>4</td>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Doushan</td>
<td>54000</td>
<td>11764</td>
<td>45816</td>
<td>84.84</td>
<td>4</td>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Duhu</td>
<td>50400</td>
<td>12654</td>
<td>44888</td>
<td>89.06</td>
<td>4</td>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chixi</td>
<td>33100</td>
<td>6845</td>
<td>30861</td>
<td>93.24</td>
<td>5</td>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Haiyan</td>
<td>83670</td>
<td>21524</td>
<td>80145</td>
<td>95.79</td>
<td>4</td>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaiping City in Jiangmen</td>
<td>Cangcheng</td>
<td>30592</td>
<td>7555</td>
<td>28891</td>
<td>94.44</td>
<td>4</td>
<td>80</td>
<td>（Zhuan, Tujia, Li, Yao, Miao, Buyi Minority）</td>
<td>0.23</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chishui</td>
<td>10296</td>
<td>39000</td>
<td>4</td>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Longsheng</td>
<td>8651</td>
<td>35326</td>
<td>4</td>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Magang</td>
<td>54943</td>
<td>13574</td>
<td>53931</td>
<td>98.16</td>
<td>4</td>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dasha</td>
<td>33000</td>
<td>7611</td>
<td>31454</td>
<td>95.32</td>
<td>4</td>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enping City in Jiangmen</td>
<td>Enchen Street</td>
<td>184018</td>
<td>10316</td>
<td>38729</td>
<td>21.05</td>
<td>4</td>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Naji</td>
<td>18000</td>
<td>None</td>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Niujian</td>
<td>23000</td>
<td>5420</td>
<td>21869</td>
<td>95.08</td>
<td>4</td>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shahu</td>
<td>65000</td>
<td>18684</td>
<td>56918</td>
<td>87.57</td>
<td>3</td>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From the population data it could be seen that apart from Encheng Street with an agricultural population of 21%, all the other 14 towns are agricultural town, the proportion of agricultural population has basically reached 85% or more. The average household agricultural population of about four people, the Cangcheng Town in Kaiping City has a minority population of 80.

(3) **Heyuan City**

By the end of 2011, Heyuan has a residential population of 2.9819 million, the urbanization rate is 40.18%. The total population is 3.6678 million, including non-agricultural population of 820.3 thousand and agricultural population of 2847.5 thousand, accounting for 77.6%. There are five nations in the city, including majority of Han and Minority of She, Zhuang, Miao, etc.

**Conclusion:**

In summary, the majority of project towns are agricultural towns, about 80% of the total population is agricultural population. There is only a small number of the minority population in the project area, only 80 people in Cangcheng Town, Kaiping, Jiangmeng (the household population), accounting for 0.23% of the town's total population. There are 7 different nations, mainly Zhuang, followed by the Tujia, Li, Yao, Miao, Bai and Buyi. There is no minority village in the project.

**1.4 Condition of agricultural non-point source pollution in project area**

**1.4.1 Basic agriculture condition in project area**

(1) **Basic agriculture condition in Huizhou**

Huizhou has a subtropical monsoon climate with Tropic of Cancer running through the city. The climate is mild with abundant perennial rainfall and plenty of sunshine. The average annual rainfall is 2000 mm, the average temperature is 22 °C. Huizhou City has a land area of 11,200 km², including 2.1218 million mu of arable land. The north part is mainly mountain, central and coastal zones have many small plains, while the east and west areas are mainly hills. One of the three major river systems in Guangdong Province, the East River and West Zhijiang, run through the
city. The freshwater reserves amounted to 8.51 billion cubic meters, which is the main water source of Hong Kong, Shenzhen, Dongguan, the level of water supply ranks No.3 among the cities in China. Huizhou has rich production of rice, sugar cane, peanuts, litchi and orange. Huizhou also has rich marine resources, with a 223.6 km long coastline and a 4520 square kilometers sea area, there are more than 640 kinds of aquatic species.

In 2011, the added value of agricultural is 11.77 billion yuan, it is an increase of 5%. Rural per capita net income is 10,938 yuan, it is an increase of 20.5% compared to the previous year, basic indicators of agricultural condition in the project area are as follows.

<table>
<thead>
<tr>
<th>Project area</th>
<th>Total agricultural output (Billion Yuan)</th>
<th>Growth rate %</th>
<th>Agricultural production (ten thousand ton)</th>
<th>Grain</th>
<th>Fruit</th>
<th>Vegetables</th>
<th>Meat</th>
<th>Aquatic products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huizhou</td>
<td>5</td>
<td></td>
<td></td>
<td>60.98</td>
<td>214.55</td>
<td>58.88</td>
<td>18.94</td>
<td>14.66</td>
</tr>
<tr>
<td>Huichen District</td>
<td>25.5</td>
<td>3.3</td>
<td></td>
<td>8.5</td>
<td>2.5</td>
<td>27.7</td>
<td>3.6</td>
<td>1.8</td>
</tr>
<tr>
<td>Huiyang District</td>
<td>15.36</td>
<td>2.8</td>
<td></td>
<td>4.25</td>
<td>10.67</td>
<td>19.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boluo Town</td>
<td>52.5</td>
<td>6.5</td>
<td></td>
<td>16.1</td>
<td>—</td>
<td>65.9</td>
<td>8.52</td>
<td>—</td>
</tr>
</tbody>
</table>

Source: National Economic and Social Development Statistics Bulletin, data reported by towns

(2) Basic agriculture condition in Jiangmen

Jiangmen has a subtropical monsoon climate, warm and rainy throughout the year without snow, with an average annual temperature of 22 °C, an average annual rainfall of 2078 mm and an annual average sunshine of 1700 hours. The city is rich in rivers, fertile land and agricultural resources. Jiangmen has a land area of 9541 square kilometers, an arable area of 2.295 million mu accounting for about 1/4 of the Pearl
River Delta arable land, but per capita arable land area is only 0.8 acres; the aquaculture area is 1.0128 million mu, accounting for 1/3 of the Pearl River Delta’s aquaculture area; the forestry land is 6.633 million mu, accounting for 1/4 of the Pearl River Delta’s forestry land. Major rivers in Jiangmen City is the Xijiang and Tanjiang, river annual runoff is 11.966 billion cubic meters, the total water resources is 12.08 billion cubic meters, accounting for 6.49% of Guangdong Province’s total water resource. In 2011, the total revenue of the city's rural area, agricultural output value and added value of agriculture is 297.6 billion yuan, 25.422 billion yuan and 13.769 billion yuan, which is a growth of 24%, 4.4% and 4.0%. The per rural capita net income reached 9,996 yuan, it is an increase of 16.4% compared to the previous year and it is the fourth consecutive year for double-digit growth. The basic agricultural status indicators in the project area are as follows.

<table>
<thead>
<tr>
<th>Project area</th>
<th>Total agricultural output (Billion Yuan)</th>
<th>Growth rate %</th>
<th>Net income per rural capita (Yuan)</th>
<th>Agricultural production (ten thousand ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grain</td>
</tr>
<tr>
<td>Jiangmen</td>
<td>254.22</td>
<td>4.4</td>
<td>9996</td>
<td>91.78</td>
</tr>
<tr>
<td>Taishan</td>
<td>28.46</td>
<td>5.9</td>
<td>8760</td>
<td>40</td>
</tr>
<tr>
<td>Kaiping</td>
<td>42.64</td>
<td>3.5</td>
<td>9211</td>
<td>22.20</td>
</tr>
<tr>
<td>Enping</td>
<td>28.05</td>
<td>5.4</td>
<td>6149.18</td>
<td>12.9</td>
</tr>
</tbody>
</table>

Source: National Economic and Social Development Statistics Bulletin

(3) Basic agriculture condition in Heyuan

Heyuan has a subtropical monsoon climate. In 2010 the average annual temperature is 21.0°C, which is 0.5°C higher than usual and the average annual rainfall is 1742.0 mm. The city has a total area of 15,800 km², including 21.1263 million mu of agricultural land. The city is rich in water resources, the average annual runoff is 15.13 billion cubic meters, the city's per capita water resource is 4,500 cubic meters, about 2 times the country and the province's per capita water resources. Agricultural industry develops steadily. In 2011, the output value of agriculture, forestry, animal
husbandry and fishery together is 11.987 billion yuan, an increase of 6.5% over the previous year. The process of agricultural industrialization progressed steadily. There are 260 leading agricultural enterprises in the city with the business model of "company + base + farmers". In 2011, there are 40 new enterprises, among which the number of provincial level leading enterprise is 4 and city level leading enterprise is 12. They affected up to 230,000 farmers and increased their income by 2,900 yuan.

Table 1-12 Heyuan City project area agricultural status indicators (2011)

<table>
<thead>
<tr>
<th>Project area</th>
<th>Total agricultural output (Billion Yuan)</th>
<th>Growth rate %</th>
<th>Net income per rural capita (Yuan)</th>
<th>Agricultural production (ten thousand ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grain</td>
</tr>
<tr>
<td>Heyuan</td>
<td>119.87</td>
<td>6.5</td>
<td>6734</td>
<td>90.98</td>
</tr>
</tbody>
</table>

Source: Heyuan Economic and Social Development Statistics Bulletin 2011

1.4.2 Condition of agricultural non-point pollution in project area

(1) Agricultural non-point pollution condition in Huizhou

The agricultural pollution situation in Huizhou City is grim, average fertilizer utilization rate is about 32%, the pesticide utilization rate is about 30%, with a huge loss of chemical fertilizers and pesticides by agricultural runoff into rivers, causing eutrophication. In addition, less than 20% of the discharge in large-scale farms reached the standards in the city. In Huiyang District and Huicheng District, the percentage of discharge what reached the standards is 0, such discharge without proper modification process of animal manure and other pollutants has caused pollution to the surrounding agricultural area (water pollution) and threats the healthy living of resident (air pollution and contamination of drinking water). It has become an important environmental issue which cannot be ignored.

Table 1-13 Status indicators of agricultural nonpoint source pollution in Huizhou City (2011)

<table>
<thead>
<tr>
<th>Project area</th>
<th>Pollution Situation of farming</th>
<th>Pollution Situation of breeding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fertilizer utilization quantity and rate</td>
<td>Pesticide</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td></td>
<td>Nitrogen (ton, %)</td>
<td>Phosphorus (ton, %)</td>
</tr>
<tr>
<td>Huizhou</td>
<td>104520 (35.1)</td>
<td>49153 (16.1)</td>
</tr>
<tr>
<td>Hhuicheng</td>
<td>10915 (28.2)</td>
<td>8611 (20.2)</td>
</tr>
<tr>
<td>Huiyang District</td>
<td>10400 (36)</td>
<td>6900 (22)</td>
</tr>
<tr>
<td>Boluo Town</td>
<td>37870 (35)</td>
<td>39465 (20)</td>
</tr>
</tbody>
</table>

Source: Huizhou baseline survey data

(2) Agricultural non-point pollution condition in Jiangmen

The agricultural nonpoint source pollution in Jiangmen is more serious, the major pollutants come from farming and breeding, mainly includes livestock and poultry industry waste and crop straw, fertilizers, pesticides and other agricultural inputs. In 2011, the city's fertilizer unit application rate is 53 kg / mu (above the level of the province's 51 kg / mu), the amount of pesticides is also higher than the provincial average. 2011 Urban agricultural plastic film utilize amount is 4543 tons. Some plastic film decomposed into toxic substances and contaminated the soil, changing the soil's physical and chemical properties. In addition, in 2011, the emissions of livestock and poultry feces up to 5.93 million tons, the comprehensive utilization rate is only 64.6%, about 1/3 of the livestock and poultry manure was direct emissions, this is one of the most important reasons for air pollution and eutrophication.

Table 1-14 Status indicators of agricultural nonpoint source pollution in Jiangmen City (2011)
Social Impact Assessment Report of World Bank Project

<table>
<thead>
<tr>
<th>area</th>
<th>Fertilizer utilization quantity and rate</th>
<th>Pesticide utilization rate</th>
<th>Number of large scale farms</th>
<th>Percentage of non-standard discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nitrogen (ton, %)</td>
<td>Phosphorus (ton, %)</td>
<td>Potassium (ton, %)</td>
<td>Compound fertilizer (ton)</td>
</tr>
<tr>
<td>Jiangmen</td>
<td>142723</td>
<td>69016</td>
<td>44222</td>
<td>119399</td>
</tr>
<tr>
<td>Taishan</td>
<td>44700</td>
<td>21050</td>
<td>11454</td>
<td>35620</td>
</tr>
<tr>
<td>Kaiping</td>
<td>30585</td>
<td>15076</td>
<td>11740</td>
<td>27464</td>
</tr>
<tr>
<td>Enping</td>
<td>18934</td>
<td>10769</td>
<td>6624</td>
<td>18156</td>
</tr>
</tbody>
</table>

Source: Jiangmen baseline survey data

(3) Agricultural non-point pollution condition in Heyuan

Currently the problem of agricultural non-point source pollution, livestock pollution and industry production has become increasingly prominent in Heyuan. The city is highly concerned about the livestock pollution prevention and control, and insists on the scientific planning and development of livestock breeding according to relevant rules and regulations. The city has strict standard for environmental access and promotes ecological farming. In 2010, special law enforcement inspection was carried out in fields of livestock and poultry breeding, this effectively curbed illegal breeding and sewage disposal, effectively strengthened the standardized management of farming and breeding enterprises, and established a number of ecological farming demonstration farms to promote healthy livestock poultry breeding industry and sustainable development.

1.5 Basic social economic condition of sample town

Taking into account the diverse level of economic and social development, agricultural development, characteristics and other factors, the evaluation team decided to take a sample survey method, to choose a representative of the township as
a sample, and investigate through home interviews with farmers, field trips and other
methods, and conduct a thorough study of the population, social and economic
developments and relevant information of the sample town. Chonglou Town in
Taishan was chosen to represent in the project area.

Chonglou Town has an arable land area of 38.6 thousand mu and a farming
system of three crops a year. In 2011, the town’s early agricultural production includes
29 thousand mu of rice, 7.3 thousand mu of melon, 2.259 thousand mu of vegetables.
The agricultural output value is 55.8 thousand yuan, the average annual income of
farmers is 6.358 thousand yuan. The production organization is individual based.

<table>
<thead>
<tr>
<th>Table 1-15 Utilization condition of fertilizer per crop of agricultural production in Chonglou Town</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Utilization condition of fertilizer per crop</strong></td>
</tr>
<tr>
<td>Nitrogen fertilizer</td>
</tr>
<tr>
<td>Quantity (ton)</td>
</tr>
<tr>
<td>Quantity per mu (kg)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 1-16 Breeding condition in Chonglou Town</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breed</strong></td>
</tr>
<tr>
<td>Pig</td>
</tr>
<tr>
<td>Chicken</td>
</tr>
<tr>
<td>Duck</td>
</tr>
<tr>
<td>Goose</td>
</tr>
</tbody>
</table>
The opinions of the public mainly including the following three points:

First, livestock manure that was used as fertilizer in scattered manner would cause the field to stink and attract flies in the village. They wish to have a centralized high-temperature treatment for manure before the fertilizer is sold.

Second, livestock manure should be purified before emission in every farm in order to solve the pollution problem.

Third, in order to control the use of pesticides and fertilizers, training in modern agricultural science and technology, promotion of long-term low-toxicity pesticides and controlled-release fertilizers, and reduction of agriculture fertilizer application are needed.
Part 2 Project understanding and demand of stakeholders

This chapter analyzes all the related stakeholders in the project. Because this is an agricultural nonpoint source pollution control and technology application project, its operation will inevitably involve different people, therefore a clear framework of stakeholders must be identified. According to the analysis, direct stakeholders includes: farmers, village-level organizations, township fertilizer station, township animal husbandry station, women, and the indirect stakeholders includes: Agriculture Department of Guangdong Province, the project town (cities, districts ) governments and its subordinate government agencies. Their role would be pre-defined by investigation team.

According to project investigation, the related stakeholders are shown in the following figure 2-1
Stakeholders of the project

- Farmer
- Breeding farmer
- Cooperative
- Provincial agriculture department
- City agriculture department
- County agriculture department
- Town agriculture department
- Village committee
- Supplier
- Minority
- Nearby resident
- Enterprise
- Cooperative union
- Professional cooperatives
- Individual
- Big scale
- Small scale
- Province office
- Provincial Joint Conference Office
- Project organizer
- Project implementation main body
- Project technical support main body
- Other public participants
2.1 Grower

The growers are the main body of agricultural non-point source pollution control project and direct implementers of the project, they are also the largest victims or beneficiaries of the agricultural non-point source pollution control project.

During the process of social assessment, investigation group conduct careful survey visits and issued questionnaire for growers, farmers and enterprises. The first diagnostic questionnaire issued a total of 1,500 questionnaires, 50 questionnaires per town, questionnaires in 15 towns were recollected (1,000 copies), including 850 valid questionnaires accounting 66.67%. The following result is based on the first large-scale research:

2.1.1 Basic condition

According to the questionnaires, it could be found that most of the farmers in the project area are locals, and the family's major income source is growing. The income level is basically 10-20 thousand per year, which is relatively low

◆ Population structure:

Main labor force is middle-ages of 40-50 years old. According to the survey, in some towns most young people went out to work, there is the "hollowing out" phenomenon in rural areas. However, recently there is also a trend of rural labor reflux.

◆ Income source:

The major income source for growers is farming. According to the survey, 56.08% of the farmers’ major income resource is farming.

◆ Technology acquisition:

According to the survey, only about 34.14% of the growers had involved in agricultural extension services and training on pesticides, fertilizers, soil testing, pest control and fertilizer formulation technology while 65.86 percent of the farmers have not participated in any related training, and their main source of technology is showed below.

The major method to acquire farming technology is independent learning, only 19.47% of the survey population participated in related training courses provided by government. Therefore, diverse training programs should be designed in the project to
meet the need of farmers of different learning habit.

◆ **Opinions about pollution:**

   According to the questionnaire, most farmers are aware of the water pollution, while about 30% of farmers responded “I don’t know”. The awareness of pollution, its pathways and hazards would influence the participation of the program. Therefore, more promotion among the farmers about the project is needed.

### 2.1.2 Large scale grower

The grower is an important part of the project promotion. Growers of certain scale have stronger ability and more enthusiasm to accept new technology involved in the project. Therefore, by promoting among these entrepreneurial growers or retail growers, the implementation of project can be made easy.

### 2.1.3 Retail growers

Generally speaking, growers are more enthusiastic about the project. But they are still reluctant to accept the new technologies. According to the survey, this is because most retail growers are older in age and have smaller growing area, so they are not sensitive to growing cost change of 10%-20%. Because the project has only a limited influence on them, they are not very enthusiastic about the project.

### 2.1.4 Entrepreneurial growers

Because the enterprises have more funds and machines, they are more motivated to accept new technologies and thus more involved in the project. The large scale growers are the key target of the promotion and training program, and this would help to achieve better implementation of the project.

### 2.2 Organization managers

Local government departments, such as the departments of counties, towns, villages, are the initiator and organizer of this agricultural non-point source pollution control project, they have a larger role and guiding force in governance the early stage and the entire process of the project, the quality of decision-making and governance would determine the method and direction of the project, and its ability to regulate and control the socio-economic environment often determines the final effects of the
project.

◆ **Agricultural department of Guangdong**

Department of Agriculture of Guangdong acts as a macro guidance and policy managers to participate in the World Bank project, it is the project coordinator between the project, the company and the farmers. It will oversee the World Bank agricultural non-point source pollution control project and take the responsibility to ensure repayment obligations.

◆ **Agricultural department and bureau of towns**

As the major organizer in town level, Department of Agriculture in each town is directly in charge of the operation of the project. Generally, the department would involve in the project as a coordinator between the project and farmers. And they are also the main stakeholder of the project. Among the 30 towns involved in the project, two towns have previous experience of related agricultural promotion World Bank project. These departments have accumulated certain experience in the project operation. The service center of town would act as a bridge between government and villagers, agriculture department and villagers and between the different villagers.

◆ **Current problem**

According to the survey, the governments are very concerned about the project. Due to the enthusiasm of the towns, towns began to compete with each other. They regard better environment as the biggest effect of the project. However we also know from the interview that in the process of promoting the project, the government has various difficulties including: 1) **lack of experience.** Because this world bank project in the first agricultural non-point pollution control project in China, there is no previous example to learn from. Experience about operation and technological routes is lacking; 2) **lack of technology experts.** Take Enping as an example, although Enping is a major agriculture city, the number of agricultural experts is far from enough and it makes the implementation of project very hard 3) **the agriculture environment monitoring system is not perfect.**; the environmental protection ability in terms of both facility and labor resource need to be improved 4) **people’s understanding of project need to be improved.**; Some farmers and agriculture organization has vague understanding of the significance of the project, and this has negative impact on the project.5) **difficulty in promoting new technology.** Firstly, there is aging problem.
among farmers in some of the towns, for example, according to the report of Enping, the ability to accept new technology need to be improved. Secondly, the scattered mode of farming operation increased the difficulty of the implementation of the project.

2.3 Technological support main body

Expert Group experts such as fertilizer station, livestock station are the major technical guidance in project preparation, and also the main collaborating institutions of the implementation of project. In this project, the provincial project expert group provides project planning and technical guidance; while provincial fertilizer pollution control group, pesticide reduction control group, livestock and poultry pollution control group, project consulting and management experts takes responsibility in fertilizer pollution control projects, the pesticide reduction control harmful projects and large-scale farms biogas projects and project consulting and management. They are also responsible for daily technical guidance, project implementation progress control and report implementation summary of the project.

Figure 2-2: Project management and technical support organization
2.4 Understanding and demand of project

60.54% of the farmers know about the project, but they are not familiar with the detail of implementation of the project. About 82.88% of the farmers including enterprise, minority, female are willing to participate in the project, and believe the project would not have negative impact on their family.

The farmers focus on the economic benefit of the project, and they are sensitive to increased cost. They hope to participate the project without a decrease in crop production and income. 49% of the farmers believe the project would help increase their income and life quality while 39% of the farmers believe the project can effectively control the non-point source pollution in their village. This is also the anticipation of the farmers to the project. Most farmers realized the benefit of the project after they understand the project and they are willing to participate in the project.

![Figure 2-3: response to “In your opinion, what is the effect of the project?”](image)

A. increasing income and upgrading living standard-49%  
B. promoting farm productivity-29%  
C. generating good agricultural brand effect-24%  
D. controlling ANP and improving rural eco-environment-39%  
E. reducing diseases and epidemics- 28%  
F. creating job opportunities and improving social security-1%

- **Enterprise farmer:** The entrepreneurial farmers have enthusiasm to involve in the project, and hold expectations of improving the technology and reducing costs.

- **Large scale farmer:** 2/3 of the farmers are not familiar with the project. After the interview, most of them are willing to participate in the project. 10% of the farmers
don’t know how to participate. Their expectation of projects includes the followings: the first is to increase production and income, the second is to improve technology such as fertilizer and pesticide.

- **Retail farmer:** Most of the farmers are not familiar with the project. After the interview, most of them are willing to participate in the project. 10% of the farmers don’t know how to participate. Their expectation of projects includes the followings: the first is to increase production and income, the second is to improve technology such as fertilizer and pesticide.

- **Farmer cooperatives:** Farmer cooperatives are enthusiastic about the project and their expectation for the project is to increase income, reduce cost and increase subsidy.

- **Supplier:** The effect of promotion is not satisfactory. Agricultural fund company competes with formulate fertilizer test pilot. The main purpose of the agriculture company is to make profit, and the application of formula fertilizer would affect its sales of fertilizer and income.
Part 3 Fertilizer Reduction and Pollution control

3.1 Involved social groups

3.2 Current condition and analysis

3.2.1 Current fertilizing practice

(1) Fertilizing practice in different subject

Individual planters generally use the same type of composite fertilizer. Cooperatives use less fertilizer in quantity than the other two groups. Cooperatives discusses on fertilizer purchases before ordering, which is more standardized.

Table 3-1: Comparison of fertilizing practice in rice planting for subject groups

<table>
<thead>
<tr>
<th>Fertilizer Information</th>
<th>Major Grower</th>
<th>Individual Grower</th>
<th>Cooperatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types</td>
<td>Composite</td>
<td>Urea, composite</td>
<td>Composite, manure</td>
</tr>
<tr>
<td>Num. of uses</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Social Impact Assessment Report of World Bank Project

<table>
<thead>
<tr>
<th>Quantity</th>
<th>57.5 kg/Mu</th>
<th>Urea: 20 kg/Mu Composite 32.5 kg/Mu</th>
<th>Nitrogen 10 kg/Mu Composite + manure 32.5 kg/Mu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase from</td>
<td>Farm material supplier</td>
<td>Farm material supplier</td>
<td>Unified purchases by committee</td>
</tr>
<tr>
<td>Applied by</td>
<td>Hired workers</td>
<td>Self</td>
<td>Hired workers</td>
</tr>
</tbody>
</table>

(2) Usage in Different Planting System

Table 3-2: Comparison of usage in Different Planting System

<table>
<thead>
<tr>
<th>Planting System</th>
<th>Types and Costs</th>
</tr>
</thead>
</table>
| Niujiang, Enping (Rice-rice-sweet potatoes) | ● General types: urea, composite fertilizer  
   ● Urea is 2.4 yuan/kg; composite fertilizer is 3.4 yuan/kg  
   ● Each Mu uses urea 19.5kg, costs 46.8 Yuan  
   ● Each Mu uses composite fertilizer 35 kg, costs 119 Yuan, Total 166 Yuan/Mu each use.  
   ● Large planters use 8-10 kg less urea and composite fertilizer than small planters. |
| Hengli, Huizhou (Rice-rice-Vegetable) | ● General types: urea and composite fertilizer; some phosphorous and potassium  
   ● Urea is 2.4 Yuan/kg; composite fertilizer is 3.4 Yuan/kg or 3.6 Yuan/kg  
   ● Each Mu uses urea around 15kg each season; costs 36.18 Yuan;  
   ● Each Mu uses composite fertilizer 41 kg each season; costs 134.6 Yuan  
   ● Each Mu uses potassium fertilizer 16kg each season; costs 57.6 Yuan |
| Hengli, Huizhou (Rice-rice) | ● General types: urea, composite fertilizer, some potassium fertilizer with small ratio  
   ● Urea cost 2.4Yuan/kg; composite fertilizer 3.3Yuan/kg  
   ● Each Mu uses urea around 18.3kg; costs around 43.9 Yuan / kg;  
   ● Each Mu uses composite fertilizer around 28.9kg; costs around 95.37 Yuan |

3.2.2 Problems

- Inadequate use of organic fertilizer. It is found that the majority of planters
rarely use manure or organic fertilizer. In Douhu, Taishan, for example, in more than 90% of the planting field organic fertilizer is not applied.

- **Unbalanced fertilizing in different stages.** Most planters use fertilizer before tillering stage; a small fraction of the planters uses panicle; a smaller fraction uses postheadings.

- **Unbalanced fertilizing among nitrogen and phosphorous and potassium fertilizer.** Planters still uses nitrogen fertilizer in general, only a small number of planters use phosphorous and potassium fertilizer.

- **Low efficiency & high wastage rate.** From Huizho’s stats, in recent 3 years, the wastage rate is 70%; In Douhu, Taishan, the chemical fertilizer’s efficiency is lower than 30%, which results in soil hardening and water pollution.

### 3.3 Analysis on compensation

### 3.4 Process and mechanism

(1) IC Card

An IT company is responsible to make IC card and its software. Information of planters will be collected and recorded in the system. Individual planters will receive their cards after the village committee confirms the information. Cooperatives collect their IC cards in town.

(2) Purchases and compensation
The designate material supplier should provide computer and internet access, and apply to the county’s agricultural department. Contract will be signed for the selected supplier and IC card system installed.

After planters receive the manual, they use IC card to purchase from the material supplier. They provide IC card and sign the planter information sheet, and receive a discount in proportion to their land area. The city PMO and county PMO will supervise on the material supplier.

Planters practice fertilizing by the technical requirements in corresponding documents and booklets, and keep records. They can contact local professionals for technical support.

The material supplier uses IC card data and planter information sheet to settle accounts with fertilizer factory; and settle the account with provincial PMO.
(3) Withdrawing
If planters want to withdraw from the project, they should fill out an application form explaining the reason and submit it to the village committee. When approved, they return IC card and the information sheet.

3.5 Risks and suggestion

3.5.1 Risks

- Fertilizing habits and amounts are difficult to control. The instant effect is subtle to planters.
- Unpredictable factors (weather, etc) may result in reduction of production amount, which would cause suspicion among planters

3.5.2 Suggestions

- Setting up example zones, and letting the enterprises show the techniques to individual planters; start first from improving fertilizing habits and techniques.
- Agricultural tech center needs to set up a complete encouragement mechanism and improve training programs and methods.
- Increase the number of formulated fertilizer supplier; strengthen the scale of influence;
- Send professionals to give home training and monitor the quality of soil in long term;
- Collaborate with big fertilizer factories to ensure quality.
- Conduct further supervision and evaluation
Part 4 Pesticide Reduction

4.1 Involved Social Groups

![Diagram of involved social groups in pesticide reduction project]

4.2 Current condition and analysis

4.2.1 Current use of pesticide

- Individual planters use similar pesticides (mainly domestic low-toxicity pesticide). Physical and biological methods are applied in small fraction.
- Pesticide amount is quite the same. Individual planters use the least; cooperatives the highest.
- Planters apply pesticide according to reports from agricultural tech center. It is found that many villages will apply pesticide uniformly within 1-2 days after the recommended period, forming a spontaneous reaction.
- Cooperatives and large planters use more machinery than individuals.

Table 4-1: Comparison of pesticide usage habit of types of planters (rice; one season)
4.2.2 Problems

- **Incorrect method of using pesticide.** Many planters directly use tube from bucket to spray the pesticide without a sprayer. The spray is not uniform; large amount of pesticide fall to ground causing waste and pollution.

- **Outdated tools.** Individual planters cannot afford the high price of purchase and maintenance of high-efficiency tools. Inefficient tools also caused pesticide waste and pollution.

- **Lack of knowledge & uses of highly toxic pesticide.** High-efficiency, low toxic pesticide is more expensive. Due to low profit of farming and knowledge, planters are excessively concerned with price and use highly-toxic pesticide.

- **Incomplete infection monitoring and report network.** Due to lack of monitoring system and professionals in counties and villages, current infections are forecast by investigation in limited area. The result is not satisfactory.

4.3 Analysis of compensation

4.4 Process and mechanism
**Fig 4-2:** Biological pesticide and highly-effective low-toxic pesticide compensation flowchart

1) Provincial PMO selects biological pesticide and highly-effective low-toxic pesticide list, and distributes the IC cards according to the stats from city PMO.

2) Every year before project execution, the city PMO and the county agriculture department survey planters (cooperatives, companies, farm market, large growers and individual planters) and farmland area of each type of product, submit it to provincial PMO’s IC card system. Then the provincial PMO determines the compensation quantity of pesticide from the stats, and save the account value to the IC card. Planters uses IC card as cash to purchase listed pesticides in the designated material supplier (biological pesticide or highly-effective low-toxic pesticide). At the same time, planters should turn in disposals of pesticides bought last time to the material supplier for recycling. The city and county PMO supervises and supports the planters and the material supplier.

3) After each planting season, the material supplier submit the records of the planters’ pesticide purchase to corresponding material dealers. The dealers settle the accounts with the provincial PMO from planters’ pesticide purchase record. Then the dealer settles the accounts with the material supplier according to the selling records.
4.5 Risk and suggestions

3.5.1 Risks

- The habit of using pesticide is hard to change and the amount is hard to control.
- Planters fail to meet the technical requirements and blame the techniques itself.

3.5.2 Suggestions

- Industrial planters can manifest their own monitoring system to keep track of the effects of the project to reflect the true effects of the project.
- Professional cooperatives can collaborate with technical companies and recommend pesticides, physical and biological methods
- Agricultural tech center needs to set up a complete encouragement mechanism and improve training programs and methods.
- Send professionals to give home training and monitor the quality of soil in long term;
- Conduct further supervision and evaluation
Part 5 Livestock Waste Management

5.1 Involved Social Groups
- Farmers
- Organizers (city, county, village)
- Technical support team
- Construction team

5.2 Condition and Analysis
Up to now, large farms in Guangdong province have some fundamental facilities in waste disposal. However, some farms have expanded and the old facilities are unable to meet the requirements. Expansion or reconstruction of the facilities is required. In addition, some farmers are unwilling to build high-cost disposal facilities, and choose to build simple ones instead, which makes the effect unsatisfactory. In the investigated farms, it is found that many farms have low pollution-free treatment rate, and insufficient disposal facilities.

From the aspect of the farmers, the difficulties they face are mainly lack of investment and technology.

5.3 Need and knowledge
- **Strong need in participation:** 100% of the farmers are willing to participate in the project. This is because of the current environment policy. The majority of farm owners are upgrading the facilities in advance.
- **Good preparation.** The farmers are very supportive to the project and are fully prepared.
- **High expectation.** They hope the project will improve the production and environment of the farms.
5.4 Process and mechanics

Fig. 5-1  Flow chart of livestock waste management project

5.5 Risks and suggestions

(1) Risks

- Self-raised funds from farms are not sufficient
- Selection of farms and purchase process could be biased; secret operations might take place
- Completed facilities might not be maintained due to high cost.

(2) Suggestions

- Elaborate the assessment system of the project; involve 3rd party experts to check; strengthen supervision of the project.
- Build a complete administrative system, sign the tripartite agreement; make sure the purchase process and price is open to public, and avoid falsely high numbers in the project.
- Build mechanisms for withdrawing the project; clarify the responsibilities of the party that breach the agreement.
- Conduct further supervision and evaluation
Part 6 Conservative Tillage

6.1 Involved Social Groups

(1) Operation Unit

According to the result of the investigation organized by Dept. of Agriculture of Guangdong Province, and the conditions in each demonstration site, the following sites are selected for conservative tillage:

- **Rice demonstration sites (2):**
  - Lutian Vegetable and Rice Professional Cooperative (300 Mu) and Academy of Agricultural Sciences (100 Mu), Niujiang County, Enping, Guangdong
  - A 400 Mu Rice farmland in Botang County, Bolo, Huizhou, Guangdong

- **Rainfed corn demonstration sites (2):**
  - Wufengtai Investment Co., Ltd. of Shenzhen, Lianping Branch (500 Mu)
  - Zhou’s Papaya Professional Cooperative, Pingtan Village, Pingtan County, Huiyang District, Huizhou, Guangdong. (400 Mu)

(2) Experts

Technology promotion and ensuring expert group is led by experienced unit in research and promotion of agricultural machinery in South China, in collaboration with other experienced units in the country and experts in cultivation, planting, fertilization.

6.2 Conditions and Need Analysis

Conservative tillage is a new tillage technique in contrast with the classical tillage, and is seldom used in the country. There’re not many examples as well. In the investigation, it is found that most planters are not familiar with the term. After the explanation from the investigators, they doubt the actual effects of the practice, and would not take the risk to perform it. Thus, individual planters do not have the knowledge or need for conservative tillage. It is suggested that the project starts with large growers, enterprises and cooperatives as experimental site, and come up with a practical plan before promoting it.
6.3 Process and Mechanisms

(1) Organizing:
- Purchased facilities are owned by the government. They are put to use in experimental sites. If anticipation is met in 3 years, then the facilities are transferred to the operation unit.
- The subjects are large growers of the demonstration site, leading enterprises or professional cooperatives.
- Conservative tillage demonstrations will be operated under the guidance from the expert group.

(2) Project Implementation

Contracts are signed with planter. The project supplies the facilities and maintenance fee. Planters operates the facilities themselves, while the expert groups guides them when and how to use the facilities. Planters purchase fertilizers and pesticides themselves and use them with the help from the experts.

6.4 Risks and suggestions

(1) Risks
- Immaturity of tillage and facilities could cause degradation of the product.
- The technology is limited in condition and effect, and is therefore difficult to promote.

(2) Suggestions
- It is needed to strengthen the development of prophase technologies and to carry out experiment trails and modifications of the facilities.
- Keep detailed record during the implementation, and summarizes experiences from success and fails.
- Reserve some funds for compensation for production loss.
- Set up some encouragement funds and award it to successful applicant of the technology.
Part 7  Women

7.1 Current condition

The responsibility of women in family and society, the opportunity and roles in the project, and the benefit for them are all factors that affects their participation. It is found that if women are in a relative higher position in her family, the gender factor will be de-correlated from the participation in the project. It is also found that some women perform farm work individually. As the education level and social status of women increases, women farmers are gradually walking out of their doors and participate in farm work. Their ability also rises in the process. Note that in some places, working women farmer rise to 70% of the total population.

7.2 Existing Problems

7.2.1 Less opportunity to receive training

From the investigation, 95% of the women have never entered a training program of agricultural technology organized by the county. Usually such programs request one person from one family to participate, and therefore by convention men in the family are responsible to enter the program and discuss with other villagers. When they get home they share their knowledge with women. It is found that 90% of the women found such practice normal, and do not have a strong will to enter the program.

7.2.2 Influence of women’s health from pesticide

Women farmers are the main labor force in farming families. However, the application of pesticides, especially highly toxic pesticides has affected their health. It is found that after one week of using the pesticide, the odor still remains in the clothes and hand. This causes negative effects on their aspiration system, skin and eyes.
7.3 Women’s willingness and Suggestions

It is found that, 90% of women are supportive to the project, expecting it to reduce the cost of planting for the family, and to increase the production rate and profit by the new technology.

As the education level and social status of women increases, women now have the same rights as men in daily life, health care, education and employment. We suggest that more concern be placed in women’s willingness to participate. It is suggested that the project provide them with more opportunities of study, and organize them to participate in training and monitoring program. In addition, more propaganda on highly-effective low-toxic pesticide is helpful to promote women’s health condition.
Part 8 Anticipated Social Benefits

8.1 Ecological Benefits

8.1.1 Effective control on non-point pollution in agriculture

The project can reduce the amount of pesticide, fertilizer and livestock waste, and effectively reduces non-point agricultural pollution of pesticide, fertilizer and livestock waste. Computation shows that after 5 years the amount of fertilizer will reduce 10% or more; the nitrogen fertilizing efficiency will rise to more than 35% from current 25%; phosphorous from 15% to 20% or more. Annual COD emission will reduce 10% and the ratio of polluted water will rise.

8.1.2 Reduction in disease and promotion of health condition

The biogas project and livestock waste disposal project will effectively reduce the source of infection; weaken the route of transmission by anaerobic fermentation of human and livestock waste. It will reduce the occurrence of diseases, epidemics, and improve health condition of the farming families.

In addition, ferment residues are good sources of organic fertilizer. Using it will reduce the amount of fertilizer the chance of plant diseases and insect infection. It will raise the quality of agricultural product and farmer’s health.

8.1.3 Improvement of Rural Environment

Unprocessed waste from agricultural practices in rural area will cause pollution of water, soil, air and farm product. It is found that the general rural environment can be summarized as “haystacks everywhere, trash everywhere, dirty water everywhere, stool everywhere, livestock everywhere, flies everywhere and smoke everywhere”. This project is capable of improving the rural environment, moving away stools and smoke. Improvement of environment will enhance the tertiary industry especially in sports, tourism, entertainment, food manufacturing, and therefore enhance the balanced development of environment and economy.

8.2 Social Benefits

8.2.1 Change of ideology and lifestyle of farmers

The import of new technology, fund, and new information will effectively renew the ideology the farmers have, and enhance their thinking of green development. By
education and training, more farmers will understand the importance of protecting the environment from pollution, and participate in environment protection. In this way they can gradually move away from the outdated traditions of living and working.

8.2.2 Branding effects of farm product

The implementation of the project can effectively improve the production environment, control the pesticide amount, and improve the quality of agricultural products. At present, natural pollution-free green agricultural products are gradually becoming the first choice for the majority of consumers, and they trust some brands. From demonstrations of some farm families this project will enhance the production and trade of natural pollution-free green agricultural products, and will have good effects and profit from farm product brands.

8.2.3 Strengthening the ability of community and institutes

The project has a high management and technical requirement on agriculture departments. At this time, a large number of involved counties have never implemented such a project, and are in need of advanced experience and technologies from the world. It could be foreseen that by using the fund from World Bank to perform system development, facility construction and training, the ability of the personnel in the project will be greatly improved, and the efficiency and creativity of this institutes will be enhanced.

8.3 Economical Benefits

8.3.1 Increase of farmers’ income

It could be anticipated that the technology of reduction of fertilizer and pesticide will improve the income level of the farmers and raise their life standard. Household biogas has both direct and indirect economic benefits. Direct benefits include reduction in fuel (coals, natural gas, woods, etc.) consumption, reduction in fertilizer usage from biogas slurry and residue. Indirect benefits include the thrust given by the project to livestock raising, farm product quality improvement and saving of labors. From the Ministry of Agriculture, a biogas pool of 8 square meter will raise the family income by 478.54 Yuan.

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1 Data Source: Science and Education Division of the Ministry of Agriculture at the energy ecosystem
8.3.2 Improvement of production rate and industrial structure

The project is in tight combination with the life and work of farmers. At the same time of solving the energy problem of the farmers’ life, it will promote livestock raising industry, adjust planting industry’s structure, expand the influence to food manufacturing, and therefore realize the planters’ cooperative economy and enhance the development of organic agriculture. For example, we can combine the pollution control with the construction of rural characteristic industry, effectively realizes the special effect of biogas in connecting the livestock-raising and planting to expand the synthetic benefits of agricultural industry chain. This will improve the utility of agricultural resources and the sustainable economy development in rural areas, and realizes “low energy, low emission, recyclable, reusable, highly-efficient” economy.

8.3.3 Construction of technology system of sustainable ecological agriculture

This project emphasizes on expanding and application of farmland fertilizer and pesticide reduction, biogas technology, livestock waste recycling and disposal technology. It utilizes the essence from traditional agriculture and the outcome of modern technology to resolve the conflict between the economic development, environment protection and resource utilization by ecological engineering.
Part 9 Risks and Corresponding Strategy

9.1 Management risks and strategies

This kind of risk comes from the project management unit. It results from the inappropriate management of the project. It includes: (1) Separation of management and loan management; (2) Traditional top-to-bottom methodology in management; (3) over-concern of facility construction and insufficient concern on educational merit.

Strategies

— We need to establish a mechanism for collaboration between the PMO and the loan management department, and uniformly arrange loan, payment and other tasks.

— We ask the government to organize and coordinate the project well and ensure the successful implementation. They need to strengthen the organization, produce good design and implementation plans of the project.

— They need to give training to the managers of different levels in the project before implementation. The content includes not only implementation, fund management, payment, purchasing, accounting and foreign language, but also participation method, ideologies of community development and working methodology.

9.2 Benefit Groups’ Risk and Strategies

The project community and its population are not only the beneficiaries of the project but also the participants. The environment of the community, its population’s ideologies and education level can either be the guarantee of the success or a risk factor. It includes: (1) The beneficiaries have limited education and capability; (2) Traditional ideology and farmerist’s deep influence hampers participation; (3) Negative community environment, for example the manager’s autocrat working style, and the ignorance of people.

Strategies

— The PMO should pay attention to the knowledge and skill improvements of the farmers. In different stages of the project, it should carry out various training problem based on the need of the farmers. It should also raise the income of the
participants in various ways.

— Strengthen propaganda and education on the importance of pollution control, raise the knowledge level of the farmers, and encourage them to change their ideologies. The farmers have the freedom to participate or not to participate; and no forced participation is allowed.

— The PMO should conduct detailed survey on the targeted villages, choose the ones with good social conditions, and work out the regulation of the project at the community level.

9.3 Natural risks and strategies

This project is mainly on non-point pollution control, and is subject to natural disasters. This includes floods, drought, typhoon, hail, extreme temperature, and epidemics.

Strategies

— For weather disasters, we can track the history of the local weather, and compute the probability of the occurrence and expected loss of such disasters. We need to formulate an emergency solution in advance, and make prompt announcement to planters. We can also build reserve houses for fodder and hay, and at the same time collaborate with neighboring agricultural zones in sharing the materials.

— For epidemic preventions, we mainly rely on building a scientific epidemic prevention system and educating the planters to strictly follow it. Meanwhile we should also give the farmers related training to promote the ability in livestock handling.

9.4 Technological risks and strategies

Technological risks are mainly from (1) The effect of fertilizer and pesticide reduction and the rural biogas application; (2) Large livestock farm’s waste recycling and pollution-free disposal. If these new technologies are immature and the effects are not significant, or some new strains are not suitable to the climate or the soil in the zone, then these technologies might not give the planters good profits but loss as well.

Strategy
— The quality must be ensured at all aspects. Regulations should be made. Training should be completed in advance; emergency plan should be in place.

— Experiments should be carried out for the technologies and strains that will be implemented on the project district. In addition, changing the top-down executive order style of management, encouraging community participation, and consulting planters about their opinion is also a way to avoid the risk.

9.5 Policy and System Risk and Strategies

Policy risk is the difficulty brought by the imperfect policies or the malpractice of the policies. It can be macroeconomic policy or the project-specific policies. Macroeconomic policies include industrial policy, land policy, import and export policy and currency policies. These policies are not affected by the project.

**Strategies**

— By scientific planning, the project can come up with policies that benefit the implementation of the project. For example, by setting the lower bound of the ratio of women participation, or giving priority to planters in harder economic status, the policies can enhance the participation of the vulnerable groups. To design practical, beneficial to the participant and the goal of the project, the designer of the project should be well knowledgeable to the targeted area. Detailed investigation and encouragement of farmers’ participation in planning is the best way.

9.6 Market Risks and Strategies

Currently the strains of fruits and vegetables in the market are in rapid change. The way to bring the products to the market and keep its competitiveness is directly related to the farmers’ income. For example, the livestock raiser will experience loss if the price of livestock drops in the market.

— To avoid such risks, the most practical solution is to help the farmers build the cooperatives of technology and economy. By helping each other, they can face the market together. Another way is to use the pattern “enterprises + planters”. The planters can sign contract with enterprises, and sell their products to the enterprises regularly.

— We can help the farmers to better predict the market, and determine the strains
and quantity according to the need of the market.
Part 10 Operation Plan

10.1 Suggestion on project plan and realization

The general goal of this social evaluation is for optimizing the design of the project and its effective implementation. Therefore its value greatly relies on the participation in all stages of the project and on-time suggestions to the reports and proposals. Table 10-1 summarizes the suggestions from the evaluation team and its realization.

<table>
<thead>
<tr>
<th>No.</th>
<th>Suggestion from social evaluation groups</th>
<th>Realization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Due to the scale and complexity, the project should start from some demonstration sites and expand it after it become mature.</td>
<td>Accepted. 6 counties are selected from 30 to implement the project for first year.</td>
</tr>
<tr>
<td>2</td>
<td>Planters are mostly concerned the profit from the project, and are sensitive to its cost. The project should ensure the production and income.</td>
<td>Feasibility and stability of the technology and production is raised in consequence. Conservative tillage has reserved some fund for compensation.</td>
</tr>
<tr>
<td>3</td>
<td>Large growers, individual planters, cooperatives and enterprises have different habits, levels and methods production in using fertilizers and pesticides. Tech solution and compensation plan should be separated for each group.</td>
<td>Accepted. Different compensation plans have been made.</td>
</tr>
<tr>
<td>4</td>
<td>Investigation at base level should be deepened. The evaluation team has clarified the fertilizer and pesticide’s usage, type and brands, supplier, manufacturing costs, etc., providing evidences for making encouragement and compensation plans.</td>
<td>The reports and plans are based on deep study of the provided data.</td>
</tr>
<tr>
<td>5</td>
<td>It is found that compensation is needed for the planters to change their habits. Acceptable compensation level is between 25% - 50%. Most planters cannot accept decreasing annual compensation.</td>
<td>Partially accepted. Compensation plan is changed to a uniform annual rate.</td>
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<td>6</td>
<td>In the compensation plan, at the first stage of compensation, the compensation of the backpack pesticide sprayer is not included. In the evaluation, it is found that this tool is effective and greatly welcomed by the farmers. It is suggested to be included.</td>
<td>The research units should pay attention to it and give some consideration.</td>
</tr>
<tr>
<td>7</td>
<td>Most planters worry about the fairness of the implementation. They hope the project to be opened to public and fair. They are also concerned with the fertilizer and pesticide’s quality, as well as the buildings’ quality.</td>
<td>The project manager is very concerned of the point. It is mentioned many times in the meetings. We suggest the fairness be ensured by public announcement, expert review and contracts.</td>
</tr>
<tr>
<td>8</td>
<td>Using bottom-up method of survey helps implying true opinions of the farmers in the project design, making up of the deficit in top-down design approach, and increase its feasibility.</td>
<td>Accepted. The project proposal becomes more concerned of subjects’ willingness and opinion.</td>
</tr>
<tr>
<td>9</td>
<td>Basic level workers as village committee members are the terminal of management and implementation. Their duties are heavier but the salary remains the same. This hurts their enthusiasm. It is suggested that stipends be given to the workers in base level.</td>
<td>Accepted. In funding budget and compensation proposal, stipends for basic level workers are included.</td>
</tr>
<tr>
<td>10</td>
<td>Planters’ education level is limited. Some senior planters have eye problems. It is suggested that the brochures be printed in bigger letters and more pictures be added.</td>
<td>Accepted. Plans are made to publish manual brochures.</td>
</tr>
<tr>
<td>11</td>
<td>Planters usually self-learn the farming skills, and pay close attention to the experience of the skilled ones. Thus while designing training programs, it is suggested that multiple methods be applied to adhere to planters’ habits. In addition, we should pay attention to the modeling effect of the skilled ones.</td>
<td>Accepted. It is confirmed that the villages and planters that contributes to the project will be awarded.</td>
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<tr>
<td><strong>12</strong></td>
<td>Because the ownership of land, utilization of farmland, and land acquisition for construction is related to resettlement issues, it is suggested that attention be paid on the issue. The utilization of the land in the project area should be completely clarified and reported to the World Bank.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Accepted. Current investigation clarifies that no land acquisition is involved. Corresponding reports are made.</td>
<td></td>
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<tr>
<td><strong>13</strong></td>
<td>Some farmers cannot accept the plan that 35% of self-raised fund be paid one-time. According to the previous practices, it is suggested that installment be used to reduce the pressure of the farmers and promote their confidence.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rejected because the self-raised fund from farmers must be ensured.</td>
<td></td>
</tr>
</tbody>
</table>

**10.2 Suggestions on the Subjects**

(1) **Use the model effect from professional cooperatives and large growers**

Planters prefer learning from others, and will imitate successful practice of others. Professional cooperatives can lead planters. Meanwhile large growers have good reputation among them and are more willing to accept new techs. We suggest that they set up models at the first stage, and lead other planters to try new technologies.

(2) **Set up standard and regulation in subject selection, and respect the subjects own will**

We should set up standard and regulation in subject selection, guide the basic level managers to settle subject selection, and accelerate the implementation. While selecting the subject, we should patiently explain the project and pay full respect to subjects’ own will. No forced participation is allowed.

(3) **Ensure low-income planters, and women have equal opportunity to participate in the project.**

We need to ensure low-income planters, and women have equal opportunity to participate in the project. If the project only selects those that have ability to repay the loan, or planters with relatively high income, it will result in imbalanced profit of different social groups or even cause conflicts. This will also cast doubt of the
feasibility of the project.

(4) **Pay attention to urbanization factors in the targeted area**

We should avoid selecting locations in fast urbanization process. In Encheng street, Enping, farming population consist of only 21%, which indicates high urbanization rate for the area. It is suggested that while choosing the targeted area, we should avoid the effects of city construction and land acquisition.

**10.3 Suggestions on Implementation and Related Mechanisms**

**10.3.1 The operating mechanism of the project**

(1) **Gradually expand from point to surface**

Due to the scale and complexity, the project should start from some demonstration sites and expand it after it become mature. We first choose some large growers and planters with good reputation, or some villages with better conditions to start the application of new technology. From point to surface, we can let the planters see the real effects and motivate them to participate in the project.

(2) **Further improve mechanisms of participation and discussion**

The main purpose of participation-oriented planning and discussion is to ensure the self-willingness of participation. The involved social groups participate in the decision making and at the same time learn corresponding technologies after they fully understand the information of the project. Discussions, surveys, interviews and feedbacks are taken to strengthen the communication between the government and the related groups, so that people are willing to take part in the project in designing, implementing, managing and evaluating process. Process should be reported in a timely basis; suggestions from government and other institutes should be heard in time to continuously improve the operation of implementing the project. Problems should be raised about kinds of problems in implementing and solutions should be planned in advance.

(3) **Use multiple propaganda techniques**

In pollution control, we should realize the power of the public media in order to promote participation of all social groups involved. On one hand, the public should be informed of the importance of the pollution control; on the other, more effort should
be taken in educating the public about facts, technologies, policies, laws and experiments of the environment protection.

- Help the farmers to better understand pollution control and to change their ideology. The concepts of the project should be spread into villages. The responsible organizers should motivate the villager to participate in learning the concepts.
- Use multiple types of media. We can combine the habits of the farmers; use TV, radio, announcement board and internet for advertising.
- In addition to organizing training program, guidelines and brochures should be distributed to planters.
- Use modeling effect of rural cooperatives and related social organizations.

(4) **Use multiple implementation methods; unleash the strength of social organizations for expanding the technology**

- Planters are sensitive to cost. For the projects that raise the cost for planters, multiple methods should be applied, so that different solutions are presented and chosen by them. Planters’ burden should be lowered as much as possible to keep their enthusiasm. For example, small farms can share biogas facilities.
- The best way for pollution control is letting the producers apply environment-friendly technologies, so that the source of pollution is eliminated. Therefore, environment-friendly technologies are the key in pollution control, which require the social groups, especially research institutions, to develop some simple, economical and environment-friendly technologies, so that planters can control the pollution from its source.

(5) **The process should be standardized and open to public**

The facility and construction purchase standards should be open to public. The planters’ fund should be clearly accounted to avoid false numbers. The most concerned construction quality should be ensured.

### 10.3.2 Encouraging mechanism

(1) **Scientifically set up compensation standard**

Planters are mostly concerned the profit from the project, and are sensitive to its cost. The project should ensure the production and income. The lowest compensation standard
accepted by the planters is between 25% and 80%. It is suggested that mature mathematical models are applied to set up a scientific compensation standard.

(2) Award contributive subjects

The project should set up award for contributive subjects in organizing events, expanding technologies and giving support, such as technical station, planters and experts.

(3) Set up compensation for basic level workers

Basic level workers as village committee members are the terminal of management and implementation. Their duties are heavier but the salary remains the same. This hurts their enthusiasm. It is suggested that stipends be given to the workers in base level.

(4) Improve compensation system for agricultural ecology

Major developed countries have started practices of compensation of agricultural ecology since 1970s. For example, the US government gives compensation to farm owners who are willing to take best measures to reduce non-point pollution. EU and Japan also have similar measures. China should also improve compensation system for agricultural ecology to motivate the farmers to control agricultural pollution.

10.3.3 Supervising system and mechanisms

(1) Combine with some established methods

To ensure the quality of products, some enterprises have established a rigid system of regulation and facilities to sample and monitor pesticide residue, heavy metal components in the vegetables. These methods can be combined with the monitoring and recording system of the project to better reflect the true effect of the project.

(2) Set up dynamic monitoring system for the entire process

To evaluate the success of the project, the information of social management plan should be acquired promptly and adequately. Tractable monitoring and evaluation program and standards should be established. The need of the subjects should also be recorded during the process, and modifications of the plan should be made to eliminate the factors that harm the social goal of the project.

Monitoring is performed together with the project, and proper evaluations are to be made annually after project implementation and reported to corresponding
departments. Monitoring and evaluation is to ensure the project be implemented according to the plan.

① The PMO reports the project process and arrangement in a timely basis. It is suggested that the PMOs publish some briefings and post them in the community.

② After each major activities, such as fertilizer and pesticide reduction, or biogas technology training, the PMO or management team should consult about feedbacks from the participants and keep good records of them, so that in later events improvements can be made, and more information is collected for evaluation.

③ For each project location, several households can be employed to perform daily monitoring of some parameters to ensure planters participation and fairness. The household can be substituted in a timely manner.

④ The PMO should set up plans and goal of monitoring, and organize the implementation. It should arrange technicians to form special monitoring group. Monitoring points should be set up in forestry stations, and necessary instruments and tools should be equipped.
Annex I: Social Assessment Report Methodology

1. Objective and Focus of the Assessment

The general objective of social assessment (SA) is to provide service for the optimized design and effective implementation of the whole project. By identifying the stakeholders, the assessment team will monitor and assess all kinds of social impacts of the invested project, provide recommendations for the implementation of the construction of optimized project, promote stakeholders to take part in the project activities effectively and minimize the social risks of the construction project.

This social assessment is focused on the main executers of the project (farmers). Through analysis on the four major stakeholders (project organization, project executers, project technical supporters and other public related (see Annex 2), we found that the executers’ (farmers’) willingness and attitude to participation is decisive for the effective implementation of the project. Moreover, in interviewing the stakeholders, the social assessment team gave special attention to the disadvantaged groups such as women and impoverished family groups.

2. Methodology of Investigation and Study

Methodologies adopted in this social assessment include material analysis, experts and cadres symposium, focus group survey, sampling, tracking investigation, open semi-structural interview and project impact matrix analysis, so as to assure different kinds of stakeholders and farmers in the project village would take part in the project voluntarily, fairly and actively.

(1) Material Analysis

- Sampling range: 30 townships of 2 cities and 6 counties within the project area.
- Investigation contents: information about the status of social and economic development, population and poverty, and agricultural non-point pollution (fertilizer pollution, pesticide pollution and livestock and poultry waste pollution) of the administrative units in each project site, which would help fully collect the macro information about the background of the project
implementation in the project site.

(2) Experts and Cadres SA Survey Interviews and Discussion

- Attendances: main leaders of governments at different levels, persons in charge of relevant departments, members of village committees and agricultural technology experts. Special attention should be given to the staff of grass-root project implementing agencies.
- Times of interviews scheduled: 22 in all (covering 10 townships of 2 cities and 6 counties within the project sites).
- Investigation contents: heeding project organizers’ and managers’ understanding, opinions and recommendations to the project, collecting problems that may be faced in the process and listening to the experts’ recommendation on the implementation of the project.

13 symposiums at different levels have been held by now (see Annex 3).

(3) Focus Group Survey

The assessment team selects some representative agencies as individuals and cooperatives among all the objects for an overall and in-depth survey of the project executor s (farmers). The purpose of doing this is to understand the general properties and laws of similar things through direct and in-depth survey and study of individual models.

- Sampling range: related stakeholders (crop farmers, women, cooperatives, enterprises and agrotechnical stations) selected from all the project townships and representatives with project intent selected from the livestock farmers.
- Number of samples: 4 project townships each with 8-10 individuals from crop farmers including large crop farmers and individual farmers, 1-2 women, 8-10 livestock farmers, 2-3 cooperatives, 3-4 enterprises, 1-2 agrotechnical stations and 1-2 agricultural material stores.
- Sampling method: SA team would select model townships and issue requirements for choosing objects to relevant departments of the model townships, and then discuss and choose the objects for interview.
Following means would be adopted in focus group survey:

a. Villager Group Meeting

Under the organization of local governmental departments, representative models for interview would be gathered to a brief villager group meeting. At the meeting, the basic information of WB project and the purpose of the meeting would be explained, local villagers’ understanding, support level, opinion and recommendations would be understood, in-depth interview be made and questionnaires be filled in.

b. Semi-structural In-depth Interview

Making an operation outline for one-on-one semi-structural field interview to representative objects (see Annex 4 for the interview outline). The interview contents include basic information of production of life, conventional application of pesticide and chemical fertilizer, current cost structure, and opinions on the subside standards and system.

Calendar of Agricultural Activities: Daily Life and Seasonal Activities
(including farming, cooking, relaxing, entertainment and communication etc.)

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<tr>
<th>Time</th>
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<td>Activity</td>
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</table>

Calendar of Seasonal Activities
(including soil tilling, crop planting, fertilizing, pesticide spraying, harvesting and so)

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<tr>
<td>Farming activities</td>
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<td>Fertilizing</td>
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c. Field Visit

Making direct visit to the fields and livestock breeding farms to observe the
status of crops, agricultural equipment, land use and the neighboring environment, collect information from the survey objects in time and make record and quick judgment assessment.

(4) Questionnaire

Based on different phases of the project implementation, multi-level questionnaires were designed for this social assessment. On the basis of in-depth interview, the assessment team made questionnaires for relevant groups covering different kinds of stakeholder groups (see Annex 5 for the questionnaires).

By now, 3 rounds of questionnaire distribution and survey have been carried out. Each questionnaire was designed in light of the progress of the project (see Annex 6 for the detailed information about each round of questionnaire distribution and collection).

(5) Sampling Survey

The project team gave much attention to the sampling survey, trying to choose randomly some individuals or agencies from the whole survey objects as samples and deduce the overall situation through sample survey and study.

- Sampling method: Accompanied by local staff familiar with local situation, choosing right time to make field visits to townships and villages, conversing with farmers randomly, asking them to fill out the questionnaires and collecting them on the spot.

- Number of samples: 5-8 individuals chosen from each project township, focusing on women at home and poverty groups.
Annex II: Annex I SA Survey Methodology

- Prepare work plan and outlines
- Relevant cases analysis
- Project object definition
- Social economic status of project site
- Basic information of project
- Primary identification of stakeholders
- Primary identification of project impacts
- Status survey and study
- Stakeholders-survey social adaptability assessment
- Field visit
- Office visit
- Stakeholders symposium
- Questionnaires distribution and collection
- Adaptability among project stakeholders
- Provincial project management office
- Governmental depart. at city/county levels
- Project executors
- Attitude to participate project
- Project demands adaptability
- Cooperatives and village committees
- Project feasibility
- Project Adjustment suggest
- Enterprises
- Farmers
- Governmental depart. at city/county levels
- Project executors
- Attitude to participate project
- Project demands adaptability
- Cooperatives and village committees
- Project feasibility
- Project Adjustment suggest
### Annex III. List of SA Survey Interviews Carried Out

<table>
<thead>
<tr>
<th>Serial No.</th>
<th>Time</th>
<th>Place</th>
<th>Numbers of interview objects</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2012.9.20</td>
<td>Agricultural Bureau of Huizhou City</td>
<td>10 officials from municipal agricultural department</td>
<td>Understanding the status of local ANP, consulting the progress of local project and listening to agricultural department’s opinion on the project.</td>
</tr>
<tr>
<td>2</td>
<td>2012.10.12</td>
<td>Agricultural Bureau of Huizhou City</td>
<td>50 officials from Municipal Project Office, Municipal Agricultural Bureau and management unit of the project</td>
<td>Reporting work of current phase of WB loan Huizhou ANP project to the municipal leaders, focusing on the issues of baselines, organization and propaganda.</td>
</tr>
<tr>
<td>3</td>
<td>2012.10.13</td>
<td>Government of Huiyang District</td>
<td>35 persons including competent leaders from the Government of Huiyang District, project managers and cropping and breeding farmers representatives</td>
<td>Understanding the status of project progress in Huiyang District, giving special attention to baseline investigation. The next focus is to fulfill the works town to farming households.</td>
</tr>
<tr>
<td>4</td>
<td>2012.10.14</td>
<td>Guangboda Planting Professional Cooperative Farm</td>
<td>Leaders of cooperatives and cooperative members representatives, 20 in total</td>
<td>Understanding the organization structure and operation model of cooperatives, promoting integrated prevention and control as well as integrated purchase and sales, and giving attention to providing technical training to the farmers.</td>
</tr>
<tr>
<td>5</td>
<td>2012.11.7</td>
<td>Township Government of Changning, Boluo</td>
<td>Officials from township government and local cropping farmers, 7 in total.</td>
<td>Understanding the status of local ANP, consulting the progress of local project and listening to agricultural department’s opinion on the project.</td>
</tr>
<tr>
<td>6</td>
<td>2012.11.7</td>
<td>Village Committee of Shuikou Street, Huicheng District</td>
<td>Staff of neighborhood office and local cropping farmers, 6 in total.</td>
<td>Understanding the status of local ANP, consulting the progress of local project and listening to agricultural department’s opinion on the project.</td>
</tr>
<tr>
<td>7</td>
<td>2012.9.21</td>
<td>Agricultural Bureau of Jiangmen City</td>
<td>13 officials from municipal agricultural department</td>
<td>Officials of relevant department of Jiangmen City introduced local situation of NPS, recognizing that current situation is very serious and discussed the difficulties and hinges faced in project implementation.</td>
</tr>
<tr>
<td>8</td>
<td>2012.10.15</td>
<td>Agricultural Bureau of Jiangmen City</td>
<td>About 45 officials from Jiangmen Municipal Agricultural Bureau and Environmental Protection Bureau.</td>
<td>Understanding the progress of current phase of the project, focusing on the issues of baselines, organization and propaganda.</td>
</tr>
<tr>
<td>Serial No.</td>
<td>Time</td>
<td>Place</td>
<td>Numbers of interview objects</td>
<td>Contents</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>---------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>9</td>
<td>2012.10.15</td>
<td>Municipal Government of Enping City</td>
<td>Project managers of Enping City and representatives of local cropping farmers, 20 in total.</td>
<td>Focusing on production and farming methods, mode of production organization and sale, typical crops systems and the final project participants.</td>
</tr>
<tr>
<td>10</td>
<td>2012.10.15</td>
<td>Municipal Government of Taishan City</td>
<td>Official from agricultural department of Taishan City and representatives of local farmers, 20 in total.</td>
<td>Understanding the progress of the project, identifying the baseline investigation of each project site, and devoting more efforts to project propaganda.</td>
</tr>
<tr>
<td>11</td>
<td>2012.10.16</td>
<td>Municipal Government of Kaiping City</td>
<td>Project managers of Kaiping City and representatives of local cropping farmers, 20 in total.</td>
<td>Understanding the progress of the project and the key points and difficulties of the project, giving attention to the baseline investigation, enhancing up and down connection and intensifying propaganda.</td>
</tr>
<tr>
<td>12</td>
<td>2012.11.8</td>
<td>Township Government of Niujiang Township, Enping City</td>
<td>Officials from township government, members of Niujiang Township Green Land Vegetable and Rice Professional Cooperative and local farmers, 8 in total.</td>
<td>Understanding crop rotation of rice-rice-potatoes, specific implementation of integrated prevention and control and the situation of water supply.</td>
</tr>
<tr>
<td>13</td>
<td>2012.11.8</td>
<td>Agricultural Bureau of Encheng Street, Enping City</td>
<td>Officials from the Project Management Office of Kaiping City and representatives of local cropping farmers, 20 in total.</td>
<td>Focusing on production and farming methods, mode of production organization and sale, typical crops systems and the final project participants.</td>
</tr>
<tr>
<td>13</td>
<td>2012.11.27-28</td>
<td>Zhujiang Hotel of Guangzhou</td>
<td>Officials from provincial and municipal project management offices, representatives of local townships and representatives of cooperatives.</td>
<td>Interview on project supplementary standards and implementation mechanisms.</td>
</tr>
</tbody>
</table>
Social Impact Assessment Report of World Bank Project

a. 惠州市农业局座谈会现场

b. 博罗县龙华镇溢丰养殖场新建沼气池

c. 项目区种植户填公参调查表

d. 平潭镇光辉村粮食高产示范点固废

e. 平潭镇光辉村粮食高产示范点背负喷雾器

f. 平潭镇光辉村粮食高产示范点秸秆焚烧

g. 良井镇矮光村项目点有机肥堆肥处

h. 良井镇矮光村项目点喷灌作业
惠城区庄式猪场固液分离机
惠城区庄式猪场好氧处理池
惠城区庄式猪场排污许可证
惠城区庄式猪场座谈会现场
博罗县杨村镇配方肥销售网点自动配肥机
博罗县广博大种植专业合作联社机构组成
江门市农业局座谈会现场
台山市冲蒌镇黄布浪电排站水稻田示范区
q. 台山市冲蒌镇岐山猪场饲料拌和罐
r. 台山市冲蒌镇岐山猪场沼气池
s. 恩平市绿田蔬菜水稻合作社灌溉水渠
t. 台山市冲蒌镇竹洛村水稻田现场
u. 惠阳区测土配方施肥示范区
v. 惠阳区平潭镇全国粮食高产创建示范点
w. 农村信息直通车工程信息发布栏
x. 水稻机械化宣传栏
## Annex IV  Questionnaires Distribution and Recalling in Each Phase

<table>
<thead>
<tr>
<th>Time</th>
<th>Distribution mode</th>
<th>Project phases and investigated point</th>
<th>Number of questionnaires distributed and recalled</th>
<th>Opinion of project team</th>
</tr>
</thead>
<tbody>
<tr>
<td>The 1st time</td>
<td>• Making field investigation and distributing (few) questionnaires to crop and breeding farmers; • Entrusting governments to distribute questionnaires.</td>
<td>In the preparatory phase of the project, investigating in a wide range the basic information of the crop and breeding farmers as well as their understanding of the project and their willingness to participation.</td>
<td>• Covering 30 townships, 50 copies per township, 1,500 copies in total. • 1,000 copies in total have been recalled from 15 townships. Among them, 600 copies are effective, accounting for 66.6%.</td>
<td>The quality of the filled-out questionnaires is less than ideal with phenomenon of fail and false.</td>
</tr>
<tr>
<td>(2012.9.20)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The 2nd time</td>
<td>• Field visit to selected interview objectives. • One-by-one in-depth interview and questionnaire investigation</td>
<td>In the initial phase of preparing subsidy standard, investigating farmers’ customs in pesticide and chemical fertilizer application as well as the information about the application quantity, cost and current subsidies of pesticide and fertilizer.</td>
<td>• 40 copies of questionnaires have been distributed to 4 selected townships. Among them, 10 copies were distributed to breeding farmers, 5 copies to enterprises and 5 to cooperatives. • All recalled</td>
<td>The data are comparatively reliable and detailed, but quite uneven in costs and application quantity.</td>
</tr>
<tr>
<td>(2012.11.7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The 3rd time</td>
<td>• Field visit to key townships. • One-by-one in-depth interview and questionnaire investigation</td>
<td>In the interim phase of defining key townships and preparing subsidy mechanism and standard, investigating the reasonability of the subsidy mechanism and standard as well as farmers’ willingness to accept them.</td>
<td>• 30 copies have been distributed, including 10 copies to farmers in rice-rice crop rotation, 10 copies to farmers in rice-rice-vegetable crop rotation and 10 copies to farmers in rice-rice-potatoes crop rotation.</td>
<td></td>
</tr>
<tr>
<td>(2012.12.1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## The 4th time (2012.12.1) (2013.2.20—3.)

- Field visit to 6 key townships.
- One-by-one in-depth interview and questionnaire investigation.

In the later phase of the project design:
- Reasonable degree of the latest subsidy design and the willingness to accept by the farmers.

- 500 copies of Q is in progress.

Plan to write the independent brief report.
Annex V. SA Survey Stakeholder Interview Outline

I. Agricultural Offices at Township (Village) Level

(I) Basic situation of project sites
1. Population (quantity, gender, race, religion, occupation, number and proportion of agricultural and non-agricultural population)
2. Distribution and use of the natural resources (land, mine, forests etc.) owned by the said township (village)
3. The said township’s (village’s) economic income and its main sources; the proportion of these sources and their ranks among all the townships of the county.
4. The composition of the subsistence modes (agriculture, non-agriculture, livestock breeding) and its development
5. Economic development level of the said village: per capita income, poverty status, economic rank, development of collective economy.
6. The development history and future plan of the said township (village).
7. Problems and status quo of the said township’s (village’s) infrastructure construction
8. Ecological environment (NPS pollution and its impact to the daily life of local people
9. Composition and operation of the said village’s formal and informal agencies and organizations
10. Experiences of the said village on implementing similar projects

(II) Ethnic Groups (If there is no ethnic group or the ethnic group just takes a little proportion in the project site, this part can be ignored).
1. Minority species, population, proportion and residences in a village
2. Origins of the minorities
3. Minorities’ formal and informal social organizations
4. Main natural resources owned by the minorities and their customs and customary laws to protect the environment
5. Economic development status of the minorities
6. Faith of the minorities
7. Minorities’ production and consumption activities
8. Governments’ assistance to the minorities
9 Communications (intermarriage) between minorities

(III) View of the Project
1. What benefits the project would bring about to the village in your opinion?
2. What kinds of difficulties would be faced in implementation of the project in your opinion?
3. Would the NPS control project impact other activities already started? If so, what kind of impact is it?
4. Are there sufficient conditions for the village to participate the project (funds, talents, technology and villagers willingness)?
5. Who will get the most benefits from this project in your opinion?
6. Which elements would impact the implementation of the project in your opinion?
7. What kinds of negative impact the project would create to local area (social, cultural, economic, environmental)?
8. What kinds of countermeasures could reduce the negative impact of the project on local area?
9. Are women and minorities willing to participate the project?

II. Crop Farmers (including women and minorities)
1. What crops have you planted? How many acres? How about the harvest? What are the main sales channels?
2. What are the day-to-day farming methods? (preparing calendars of daily life and seasonal activities) including:
   1) Fertilizer: types, quantity, applications and cost
   2) Pesticides: types, quantity, applications and cost

Calendar of daily life (including farming activities, cooking, relaxing, entertainment and communication etc.)

Calendar of seasonal activities (according to the lunar calendar, including soil tilling, crop planting, fertilizing, pesticide spraying, harvesting and so on)
3. How about the ANP in your hometown and your village? What kind of countermeasure is adopted?

4. Have formula fertilizer been used through formula fertilizer station? How about the result?

5. Do you know this project? What time, where and how? What more information do you want to know?

6. If it is necessary for you to change your customs in fertilizer/pesticide application and the added cost would be given subsidies accordingly, do you want to participate this project? How much subsidies to the added cost would be more appropriate do you think?

7. How about the market prices and sales prospect of your green and organic agricultural products? Do you think this project would lead to a growth of sales of the products?

8. What impact would this project exert on your production activities and life in the future? (positive and negative)

9. Do you approve or oppose this project? If oppose, tell the reason.

10. Do you have any suggestion on the project?

11. What impact would this project have on women’s production activities and life? What are their requirements and recommendations on the project? (only female would be asked)

12. What impact would the project exert on the production mode, lifestyle and customs of your ethnic group? What’s your recommendation? (Only persons of ethnic groups would be asked)

III. Breeding Farms of Scale

1. How large is your breeding farm? How about the species of the livestock and poultry? How about the yield and annual income?

2. How about the NPS pollution of your family farm and village? What countermeasures are there?

3. How the livestock and poultry faeces from your breeding farm are treated? How about the results?

4. If wastewater treatment facilities (methane-generating pits) are already constructed,
how about the construction area and the costs? How about the daily capacity of wastewater treatment? Can they meet the requirements?

5. Is there any plan to further improve the wastewater treatment facilities? How about the investment amount and construction contents?

6. Do you know this project? What time, where and how? What more information do you want to know?

7. What impact would this project have on the production activities and life of your breeding farm in the future? (positive and negative)

8. Do you approve or oppose this project? If oppose, tell the reason.

9. If the project needs you to assume a part of the construction cost accordingly in addition to the financial subsidies and technical support provided by WB, are you still willing to participate it? How much subsidies would be more appropriate do you think?

10. Do you have any suggestion on the project?

IV. Farmers Economic Cooperative

1. How large the cooperative in scale? Who are the main members? What conditions a farmer need to meet for joining the cooperative?

2. What services would the cooperative provide to the main members? What is the daily operation mode? What is the source of the operation and management funds? How about the results of operation?

3. What obligations should the main cooperative members bear?

4. What is the main fertilization technology used by the cooperative? How about the frequency and quantity of fertilization? What kinds of fertilizers are used? How about the cost, yield and income?

5. Does the state provide any guidance and preferential policies for this type of cooperatives?

6. Do you know this project? What time, where and how? What more information do you want to know?

7. Do you think what kind of role a cooperative may take in the project team? What’s your recommendation?
8. Would a cooperative like to participate the project if were invited to be an organization and management agency of the Pesticide Reduction and Pests Control Project or Conservation Tillage Project? What are the requirements?

V. Producers (chemical fertilizer, pesticide)
1. What are the main species of the products? What advanced technologies are adopted?
2. What are the main components of customers? How to establish contact with the customers and others?
3. Does the state provide guidance and preferential policies for these producing enterprises? How about the results? Do you have any improvement recommendation?
4. What are the main difficulties and obstacles met in the process of production?
5. Do you know this project? What time, where and how? What more information do you want to know?
6. Do you think what role may be taken by the said enterprise? Have you any recommendation?

VI. Agro-tech Promotion Center (Agricultural Service Center)
1. How many staff in the center? What are the main functions of each staff?
2. Who are the main service objects? How about their attitude to participation?
3. What are the main service contents? How about the service results? What kinds of technologies are well accepted?
4. How about the operation mode? How to raise the funds in need?
5. Do the state and province provide guidance and preferential policies for the agricultural service centers? What are the results? Do you have any recommendation on improvement?
6. Do you know this project? What time, where and how? What more information do you want to know?
7. Do you think what role may be taken by the agro-tech promotion centers in the project team? Do you have any recommendation?
Annex VI. Questionnaires at Stages

- **Stage I**

SA Questionnaire on WB Loan Guangdong Agricultural NPS Control Project

- **Gender**: male female
- **Domicile**: local non-local
- **Age**: 20—30—40—50—60—
- **Occupation**: farm enterprise household
- **Race**: Han Ethnic Group ______

1. Curren family population: A.<3 B.3-5 C.6-9 D.>10

2. Last year’s income about_____ yuan, Daily expense a year about_____ yuan
   - F.5000-8000 G.8000-10000 H.10000-20000 I.20000-50000 J.>50000

3. The largest income source of your family_____（single choice）
   - A.farming B.breeding C.handcraft D.small workshop E.commerce F.temperary works
   - G.wage H.others（write please）_____

4. Have you received agro-tech promotion service and relevant training?
   - A.never B.yes（what kinds___________）

5. Where are your technology from?（multi-choice）
   - A.government-organized training B.self-study C.tour study D.experiences in farming and breeding

6. The main supply channels of the fertilizer, pesticide or feedstuff you used.
   - A.agricultural materials company B.plant conservation station C.individual dealing point
   - D.others（write pleas）_____

7. Do you think what are the main obstacles for you to get rich?
   - A.short of investment funds B.short of technology related C.short of space for production of scale
   - D.short of good marketing channels E.others

8. Do you know the WB ANP control project?
   - A.yes B.no

9. Are you willing to participate the ANP control project? A.yes B.no
   - C.no care

10. Do you think what impact would be brought about by the NPS pollution control project?（multi-choice）
A. increasing income and upgrading living standard  B. promoting farm productivity  C. generating good agricultural brand effect  D. controlling ANP and improving rural eco-environment  E. reducing diseases and epidemics  F. creating job opportunities and improving social security  G. others ________________

11. Do you think this project would or would not bring about any negative impact to your family or local development?
   A. yes    B. no    C. uncertain    D. don’t know

12. What improvement do you hope the most along with the implementation of the project?
   What are your recommendations _____________________________________________

If you are a crop farmer, fill in following contents please:

① Land area you cultivate __________ mu.
   Main crops 1)______2) ______ respective annual yield about 1)______2) ______

② Ownership of the land you cultivate ____.
   A. state-owned    B. collective-owned    C. private-owned

③ Your cultivating mode is 
   A. mechanized    B. manual    C. mechanized+manual
   If mechanization, what kinds of machines are used?
   A. Purchased by yourself at a price of ____ yuan  B. rented with annual rent of ____ yuan  C. others

④ Amount of fertilizer need to be used each mu about______.
   and the amount of pesticides about______.
   How do you apply fertilizer? (multi-choice)
   A. applying large amount of chemical fertilizer  B. mixing farmhouse fertilizer with chemical one  C. microbial fertilizer  D. organic fertilizer  E. formula fertilizer  F. long-acting slow-release fertilizer
   Time of chemical fertilization____ and interval of fertilization______.

⑤ Pesticide spraying methods (multi-choice)
   A. hand sprayer  B. airplane cloud drift  C. others
   Time of pesticide spraying ____ and interval of spraying ______.

⑥ Has the irrigation water been polluted?
   A. yes  B. no  C. don’t know

⑦ What measures have you adopted to prevent and control farm pests and diseases? (multi-choice)
   (2) using highly toxic pesticide with high residues  B. using bio-pesticide  C. using high-effective and low-toxic new pesticide  D. using pesticide in the process of tillage, cultivation and breeding etc.  E. using biotechnology and gene technology.
   (3) F. using physical measures like light, electricity, microwave, ultrasound and radiation etc.

⑧ Do you think about the development trend of crop production?
   A. production of scale  B. mechanized operation  C. others _______
SA Questionnaire on WB Loan Guangdong Agricultural NPS Control Project
(for crop farmers)

Domicile: _____ municipality (prefecture) _____ county/city/district
__________ township/town/______ village/neighborhood committee

Investigator: ___________________________ Time: 2012.xx.xx

I. Basic information of the family (fill in the information or put “√” against your choice)

<table>
<thead>
<tr>
<th>Name:</th>
<th>Gender:</th>
<th>Age:</th>
<th>Race:</th>
<th>Occupation: (1) farmer (2) worker (3) owner of enterprise (4) employee (5) household woman (6) other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1) young (2) middle aged (3) elder (4) women (5) employee</td>
</tr>
</tbody>
</table>

Educational level: (1) illiteracy (2) junior school (3) middle school (4) secondary specialized school (5) junior college school (6) university and higher

Number of family members: (1) <3 (2) 3-5 (3) 6-9 (4) >10

Number of main labor hands of the family is ____, mainly composed of _____

Last year’s income of your family is about____ yuan, daily expense is about____ yuan.

|---------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------|

II. Your understanding level to the project (put “√” against your choice)

1. Do you know about the WB ANP control project?
   A. yes      B. no

1. Where did you know about this project?
   A. government propaganda or notice   B. agro-tech promotion center
   C. neighborhood                     D. others____

3. Are you willing to participate the NPS pollution control project?
   A. yes      B. no      C. not care

4. Have you been enrolled in the project?
   A. yes      B. no      C. don’t know how to participate the project

5. What impact do you hope the project would bring about? (multi-choice)
   A. raising yield and increase income   B. improving production technologies such as those in
fertilization and pesticide application.  C. lifting mechanization level
D. increasing subsidies   E. reducing diseases and epidemics   F. creating job opportunities
and improving social security   G. enhancing ecological protection awareness

6. Have you any problem and recommendation about the project?

(You can put out your problems and recommendation in these aspects like subsidies and
technology promotion etc.)

III. Cultivation
1. Land area of your farm is_______ mu. The most important crop is ______. Annual
yield is about ______. There are ______ times a year.
2. The crop rotation mode is: A. rice-rice   B. rice-rice-potatoes   C. rice-rice-vegetable
D. vegetable-rice-vegetable   E. maize-maize-wheat/beam   F. others______
3. The land you are cultivating is______. A. self-owned    B. rented
4. The cultivation mode you adopt is _____. A. whole mechanization    B. manual    C. mechanization+manual
The machines you use are_____________. A. self-bought with a cost of____ yuan  B. rented  with annual rent of _____ yuan.
5. Have you joined the rural cooperative?   A. yes    B. no
6. How do you dispose the crop straws? A. smashing and returning to the field    B. using as
covering materials   C. burning in field   D. using as household firewood   E. others
7. How do you think about the development trend of crop production?  A. production of
scale    B. mechanized operation    C. others

| Time periods of farming activities each day: ___o’clock to ___ o’clock and___ o’clock to
| Specific farming activities |
|___ o’clock | | |
|What period is the most idle within a day? | | |
| 1 | You would apply about ____ kg. of chemical fertilizer each time to the crop and the expense is about ______. |
| 2 | What kinds of chemical fertilizer would you apply? ________ A. formula fertilizer  B. slow release fertilizer  C. common fertilizer  D. other |
| 3 | Usual fertilization time is__________ |
| 4 | How do you determine fertilization time? A. based on experiences  B. based on the notice of agro-tech station  C. others__________ |
| 5 | How do you fertilize? (multi-choice) A. applying large amount of chemical fertilizer  B. mixing farmhouse fertilizer with chemical one  C. microbial fertilizer  D. organic fertilizer  E. formula fertilizer  F. long-acting slow-release fertilizer |
| 6 | Where do you buy chemical fertilizer? A. agro-tech promotion station  B. agricultural material companies/dealers  C. fertilizer companies  D. others______ |
| 7 | Your fertilization technology is learned from__________ A. agro-tech promotion stations  B. agricultural material companies/dealers  C. fertilizer companies  D. large farms/leading producers  E. self-study |
| 8 | Are there subsidies to chemical fertilizer? A. yes  B. no If yes, the subsidy amount is ________ yuan per mu. Are you satisfied with the amount of subsidies? A. yes  B. no, because__________ The subsidy amount you expect is_____ yuan per mu. |
| 9 | Would you like to accept new fertilization technology? A. yes  B. no If no, what’s the reason? A. cost  B. benefits  C. customs |

| 1 | The land you cultivate needs about ________ kg of pesticide? The time of fertilization is__________ |
| 2 | The fertilization mode you adopt is A. manual spraying  B. automatic spraying  C. other |
| 3 | Are there subsidies to pesticide? A. yes  B. no If yes, the amount of subsidies is__________ yuan per mu. |
| 4 | Have you adopted physical and biological prevention and control measures against crop pests? A. yes  B. no If yes, they are ________________ |
| 5 | Would you like to invite a company for your pesticide application? A. yes  B. no, because__________________________ If yes, you will pay_____ yuan. |
| 6 | Do you have any more problems and recommendations on pesticide? ____________________ |
SA Questionnaire on WB Loan Guangdong Agricultural NPS Control Project
(for breeding farmers)

Domicile: ____ municipality (prefecture) ____ county/city/district
_____________ township/town/____ village/neighborhood committee

Investigator: _______________ Time: 2012.xx.xx

II. Basic information of the family (fill in the information or put “√” against your choice)

<table>
<thead>
<tr>
<th>Name:</th>
<th>Gender:</th>
<th>Age:</th>
<th>Race:</th>
<th>Occupation:</th>
<th>Educational level:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1) farmer</td>
<td>(1) illiteracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(2) worker</td>
<td>(2) junior school</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(3) owner of enterprise</td>
<td>(3) middle school</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(4) employee</td>
<td>(4) secondary specialized school</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(5) household woman</td>
<td>(5) junior college school</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(6) other</td>
<td>(6) university and higher</td>
</tr>
</tbody>
</table>

Number of family members: (1) <3 (2) 3-5 (3) 6-9 (4) >10

Number of main labor hands of the family is ____, mainly composed of ____

(1) young (2) middle aged (3) elder (4) women (5) employee

Last year’s income of your family is about____ yuan, daily expense is about____ yuan.


II. Your understanding level to the project (put “√” against your choice)

1. Do you know about the WB ANP control project?
   A. yes      B. no

1. Where did you know about this project?
   A. government propaganda or notice   B. agro-tech promotion center
   C. neighborhood   D. others____

3. Are you willing to participate the NPS pollution control project?
   A. yes      B. no      C. not care

4. Have you been enrolled in the project?
   A. yes      B. no      C. don’t know how to participate the project

5. What impact do you hope the project would bring about? (multi-choice)
   A. raising yield and increase income   B. improving production technologies such as those in fertilization and pesticide application.
   C. lifting mechanization level   D. increasing subsidies   E. reducing diseases and epidemics   F. creating job opportunities and improving
6. Have you any problem and recommendation about the project? 
________________________________________
(You can put out your problems and recommendation in these aspects like subsidies and technology promotion etc.)

III. Breeding
1. The land area of your breeding farm is _______ mu, including the construction area of _______ M², the fish pound area of____ M² and the farm land of____ mu.
   The main species of livestock and poultry are _______________ . The annual yield is about______.

2. The land you of your at present is_____. A. self-owned     B. rented

   The machines you use are ______________. A. self-bought with a cost of____ yuan   B. rented with annual rent of____ yuan.

4. Main sources of the feed are:
   A. commodity feed     B. farmhouse residues      C. mixture of commodity feed and farmhouse residues

5. Have your family constructed methane-generating pits?  A. yes, ____pits, _____ M³ in total, with a construction cost of____ yuan     B. no

6. The methane generated by the pits is mainly used for   A. household consumption(cooking etc.)     B. production (heating etc.)     C. other______.

7. If the methane is used for power generation? A. yes, a _____KW generator     B. no
   If yes, is the power supply sufficient or not? A. sufficient, how to exhaust the surplus methane? _________     B. insufficient

8. How to dispose the animal manure and wastewater of the breeding farm?
   A. piling and discharging randomly     B. putting into methane-generating pits for resource recycle      C. producing organic fertilizer     D. other innocuous treatment

9. Have you adopted ecological breeding mode?
   A. yes     B. no

10. Have you constructed ecological cycle system (wastewater treatment facilities)?
    A. yes, equipment investment amounting to______ yuan     B. no

11 Your technologies are learned from_______.
   A. government-organized training      B. self-study
   C. tour study     D. experiences in breeding operation
12. Would you like to accept new breeding technologies?  A. yes  B. no
   If no, what's the reason?  A. cost  B. benefits  C. customs

13. How do you think about the development trend of the future production?
   A. production of scale  B. mechanized operation  C. others

14. Do you have a plan to expand your breeding farm?  A. yes  B. no

15. Do you have sufficient financial support?  A. yes, with estimated investment of _____ yuan  B. no

16. If the project needs you to assume a part of the construction cost accordingly in addition to the financial subsidies and technical support provided by WB, are you still willing to participate it?
   A. yes  B. no, because________________
   Do you think how much subsidies would be more appropriate? ___% 

17. Do you think what is the main obstacle to hinge your development at present?
   A. short of investment funds  B. short of technology related  C. short of space for production of scale  D. short of good marketing channels  E. others

18. Do you hope in which aspects this project would bring about benefit to you?_________________________
Stage III (3 copies, taking Niujiang Township of Enping City for example)

SA Questionnaire on Niujiang Township, Enping City
(Crop system: Rice-Rice-Potatoes)

I. Basic information (fill in the information or put “√” against your choice)

<table>
<thead>
<tr>
<th>Name or title of enterprise:</th>
<th>Scale of cultivation:</th>
<th>village/neighborhood committee:</th>
</tr>
</thead>
</table>

II. Chemical fertilizers you usually use and the price (per mu per time)

<table>
<thead>
<tr>
<th>Varieties</th>
<th>Urea</th>
<th>Compound fertilizer</th>
<th>Phosphorus fertilizer</th>
<th>Potash fertilizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount (kg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit price (yuan/kg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total price</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

III. Are you willing to adopt new fertilization technologies and accept subsidies accordingly

<table>
<thead>
<tr>
<th>Varieties of technologies</th>
<th>Fertilization standard</th>
<th>Cost of new technology</th>
<th>Amount of subsidies</th>
<th>Yes</th>
<th>No (Please answer question 4 and question 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Formula fertilizer</td>
<td>According to the standards of 40kg/mu/time for rice and 100kg/mu/time for potatoes, 180kg of formula fertilizer is in need for 3 times</td>
<td>About 576 yuan/year</td>
<td>Annual subsidy rate of 25% (144 yuan)</td>
<td>Year on year reduction of 5%</td>
<td></td>
</tr>
<tr>
<td>2. Slow release fertilizer</td>
<td>According to the standards of 40kg/mu/time for rice and 120kg/mu/time for potatoes, 200kg of slow release fertilizer is in need for 3 times</td>
<td>About 640 yuan/year</td>
<td>1st year subsidy 25% (160 yuan)</td>
<td>Year on year reduction 5%</td>
<td></td>
</tr>
</tbody>
</table>

Subsidy mode
Report cultivation area to the township agriculture office --- buy fertilizer at the assigned stores by showing discount coupons --- sign on the list.

Specific subsidy standard
A participant can enjoy a discount 25% the first year, 20% the 2nd year, 15% the 3rd year, for 5 years consecutively the most.
IV. If you don’t like to adopt new fertilization technology, what’s the main reason? 
(multi-choice)  
A. worrying about the effect of new fertilizer  B. inconvenience of buying fertilizer with discount coupons  C. low amount of subsidies  D. others ________

V. If disagreeing with the amount of subsidies, what proportion can you agree with to the minimum?  
A. 30%  B. 40%  C. 50%  D. other ___%

VI. With respect to above mentioned subsidy method and amount, do you have any better suggest?

VII. Are you willing to adopt new pesticide technology and accept subsidies for disease-resistant varieties of seeds?

<table>
<thead>
<tr>
<th>Pesticide subsidy</th>
<th>Standard</th>
<th>Mode</th>
<th>Yes</th>
<th>No (reasons)</th>
<th>Any more better methods and proposals?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease-resistant varieties subsidy</td>
<td>Rice</td>
<td>For disease-resistant varieties of rice seeds, the subsidies would be 5 yuan per mu, per time, per year for 2 years</td>
<td>⃣ Report cultivation area to the township agricultural office; ⃣ The office issues vouchers for buying disease-resistant varieties of rice seeds; ⃣ Buy rice seeds from the assigned stores with vouchers that can deduct cash directly.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

VII. What kind of pesticide you use normally? The name: 1. ________ (dosage/mu/time)  2. ________ (dosage/mu/time)  3. ________ (dosage/mu/time)

IX. Are you willing to accept following subsidies and use biological and high-effective and low-toxic pesticide?

<table>
<thead>
<tr>
<th>Varieties of fertilizer</th>
<th>Subsidy standard</th>
<th>Subsidy mode</th>
<th>Yes</th>
<th>No (reasons)</th>
<th>Do you have any other better mode and suggest</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological fertilizer and high-toxic fertilizer</td>
<td>Rice 2 times of spraying a year, 240 yuan per mu, subsidies account for 1/3 of the total cost, amounting to 80 yuan/mu per year.</td>
<td>⃣ Report cultivation area to the township agricultural office; ⃣ The office issues discount vouchers for buying pesticide; ⃣ Buy the listed</td>
<td></td>
<td></td>
<td></td>
<td>No subsidies would be offered to those enterprises, cooperative, large-scale and small crop farmers who have participated the integrated</td>
</tr>
</tbody>
</table>
X. Are you willing to accept the subsidies to pesticide package waste recovery and treatment?

<table>
<thead>
<tr>
<th>Subsidy items</th>
<th>Subsidy standard</th>
<th>Subsidy mode</th>
<th>Yes</th>
<th>No (reasons)</th>
<th>Any more better methods and proposals?</th>
</tr>
</thead>
<tbody>
<tr>
<td>subsidies to pesticide package waste recovery and treatment</td>
<td>Rice 4 yuan per mu, per year</td>
<td>Integrated prevention and control companies, cooperatives and large-scale vegetable farms can negotiate with pesticide package waste recovery and treatment companies to settle their accounts of the recovery directly</td>
<td>Yes</td>
<td>No (reasons)</td>
<td>Any more better methods and proposals?</td>
</tr>
</tbody>
</table>

XI. The pesticide sprayers you usually use are

A. motorized jet sprayer   B. hand sprayer   C. knapsack sprayer
D. other________

XII. Are willing to accept the subsidies for pesticide equipment purchase? (Please make choice based on your actual situation)

1) You belong to

A. an integrated prevention and control company   B. a cooperative   C. a large-scale vegetable market   D. a large-scale crop farm   E. a small crop farm

2) Does currently-used motorized jet sprayer enjoy subsidies?

A. yes, ________ yuan       B. no

<table>
<thead>
<tr>
<th>Varieties</th>
<th>Subsidy standard</th>
<th>Subsidy mode</th>
<th>Yes</th>
<th>No (reasons)</th>
<th>Any more better methods and proposals?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorized jet sprayer</td>
<td>Unit price 1500 yuan, subsidy 1/2, 750 yuan/set</td>
<td>(1)Report cultivation area to the township agricultural office; (2)The office issues discount vouchers for buying pesticide equipment; (3)Buy the listed pesticide equipment from assigned</td>
<td>Yes</td>
<td>No (reasons)</td>
<td>Any more better methods and proposals?</td>
</tr>
<tr>
<td>Hand sprayer</td>
<td>Unit price 120 yuan, subsidy 1/2, 60 yuan/set</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
XIII. Are you willing to accept following subsidies?

<table>
<thead>
<tr>
<th>Item of subsidies</th>
<th>Subsidy standard</th>
<th>Subsidy mode</th>
<th>Yes</th>
<th>No (reasons)</th>
<th>Any more better methods and proposals?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidies for pest-trapping board</td>
<td>Potatoes 20 boards per mu, 2.5 yuan per board, 1 time a year (about 50 yuan/year)</td>
<td>① Report cultivation area to the township agricultural office; ② The office issues vouchers for buy the boards ③ Buy boards with vouchers that can deduct cash directly.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

XIV. Are you willing to accept following subsidies for receiving integrated prevention and control service?

<table>
<thead>
<tr>
<th>Item of subsidies</th>
<th>Subsidy standard</th>
<th>Subsidy mode</th>
<th>Yes</th>
<th>No (reasons)</th>
<th>Any more better methods and proposals?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidies for integrated prevention and control service</td>
<td>Rice 40 yuan/mu each time</td>
<td>① Report cultivation area to the township agricultural office; ② The office issues vouchers for integrated prevention and control service; ③ Crop farmers deduct cash directly with the vouchers after receiving the service provided by the integrated prevention and control company provide.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
● Stage IV （2 copies, one for larger producer and one for small producer）

世行项目社评问卷①：供合作社、公司和大户（种植面积>=100亩）填写
SA Questionnaire①：For cooperatives, enterprises and large farmers
(planting area >=100mu)

问卷编号: ___________ 调查地点: _______市_______县/市/区_______镇
调查员: _______________ 调查时间: 2013年__月__日

1、基本情况（请填写信息或在选项上打“√”）：Basic information
● 若为合作社或公司负责人，请填写下表:

<table>
<thead>
<tr>
<th>企业或合作社名称: name of the cooperatives, enterprises</th>
<th>所属村/居委会: village</th>
<th>员工/社员数量: number of workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>填写人姓名: name</td>
<td>职务: Post</td>
<td>性别: Gender</td>
</tr>
</tbody>
</table>

● 若为个体农户，请填写下表:

<table>
<thead>
<tr>
<th>姓名: name</th>
<th>性别: Gender</th>
<th>年龄: Age</th>
<th>所属村/居委会: village</th>
</tr>
</thead>
</table>

家庭总人口数 population: ___________人, 其中: 全职农民_______人; fulltime farmer _______人 a full-time job outside the farm

2012年家庭总收入 Total income of the family: _______元, 其中: 种植收入为 _______元

1.1 种植与土地情况 Cultivation and land use

<table>
<thead>
<tr>
<th>2012年总耕作面积: _______亩，其中: 自有土地面积_______亩; 租用面积_______亩</th>
</tr>
</thead>
</table>

2012年种植作物信息 Crop Information in 2012

<table>
<thead>
<tr>
<th>主要作物种类: crop</th>
<th>种植面积 (亩): Acreage</th>
<th>畚产量 (公斤): Yield per mu</th>
<th>总收入 (元): Total income (yuan)</th>
<th>总成本 (元): Total costs (元)</th>
</tr>
</thead>
<tbody>
<tr>
<td>包括种子、化肥、农药、人工、地租等 including seeds, fertilizers, pesticides, labor, machinery rental, land rental</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

例如: 水稻

2. 对于环境污染的态度（请填写信息或在选项上打“√”）Attitudes towards the Environment

2.1 在您看来，本村面临的最紧迫的两个问题是什么？（选择两项）
In your view, what are the two most pressing problems facing your village?
A. 作物缺乏销售渠道    B. 环境污染    C. 农业产量低    D. 作物受害虫侵扰
严重
E. 有限的非农就业机会   F. 缺乏的农业劳动力   G. 土地丢荒严重   H. 其他

2.2 在您看来，哪两项是本村面临的紧迫的环境问题？（选择两项）
In your view, what are the two most pressing environmental problems facing your village?
A. 卫生设施缺乏   B. 饮用水水质差   C. 垃圾处理不善   D. 农业化学品的水污染
E. 猪场废水排放   F. 森林退化   G. 水土流失   H. 生活污水排放   I. 其他：

3. 化肥使用情况（请填写信息或在选项上打“√”）Fertilizer use

3.1 2012年您或贵公司（合作社）有没有使用过配方肥？
Did you or your enterprise (cooperative) use formula fertilization in 2012?
A. 有（请回答题3.2 move to 3.2）   A. 没有（请回答题3.3 move to 3.3）

3.2 请问使用的配方肥的用量和成本是多少？What was the amount and total price for each crop:

<table>
<thead>
<tr>
<th>作物名称 crops</th>
<th>例如：水稻 For example: rice</th>
</tr>
</thead>
<tbody>
<tr>
<td>每造每亩施用量（公斤）Amount</td>
<td>40</td>
</tr>
<tr>
<td>总成本（元/造·亩）Total cost</td>
<td>200</td>
</tr>
</tbody>
</table>

请继续回答 3.3

3.3 2012年您或贵公司（合作社）有没有使用过缓（控）释肥？In 2012, did you use slow release fertilizers?
A. 有（请回答题 3.4）   A. 没有（请回答题 3.5）

3.4 请问使用的缓（控）释肥的用量和成本是多少？What was the amount and total price for each crop:

<table>
<thead>
<tr>
<th>作物名称</th>
<th>例如：马铃薯</th>
</tr>
</thead>
<tbody>
<tr>
<td>每造每亩施用量（公斤）</td>
<td>140</td>
</tr>
<tr>
<td>总成本（元/造·亩）</td>
<td>360</td>
</tr>
</tbody>
</table>

请继续回答 3.5

3.5 2012年您或贵公司（合作社）有没有使用过有机肥？In 2012, did you or your enterprise (cooperative) use any organic fertilizer (manure)?
A. 有（请回答题 3.6）   A. 没有（请回答题 3.7）

3.6 请问使用的有机肥的用量和成本是多少？What was the amount and total price for each crop:

<table>
<thead>
<tr>
<th>作物名称</th>
<th>如：蔬菜</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 有机肥种类

<table>
<thead>
<tr>
<th>有机肥种类</th>
<th>鸡粪</th>
</tr>
</thead>
<tbody>
<tr>
<td>每造每亩施用量（公斤）</td>
<td>50</td>
</tr>
<tr>
<td>总成本（元/造·亩）</td>
<td>100</td>
</tr>
</tbody>
</table>

3.7 除了配方肥、控释肥和有机肥，请问您或贵公司（合作社）2012 年还使用了哪些肥料？Which chemical fertilizers did you or your enterprise (cooperative) use in 2012 and what were the prices?

<table>
<thead>
<tr>
<th>肥料种类</th>
<th>尿素</th>
<th>复合肥</th>
<th>磷肥</th>
<th>钾肥</th>
<th>其他：___</th>
</tr>
</thead>
<tbody>
<tr>
<td>每造每亩施用量（公斤）</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>总成本（元/造·亩）</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

请继续回答第 4 部分

4、农药使用情况（请填写信息或在选项上打 “√”）Pest Management

4.1 2012 年您或贵公司（合作社）有没有参与统防统治？In 2012, did you or your enterprise (cooperative) engage a company for integrated pest prevention and control?

A. 有（请回答题 4.2）   A. 没有（请回答题 4.3）

4.2 请问您或贵公司（合作社）参与统防统治的费用是每造每亩________元

If yes, how much did it cost you?

4.3 2012 年请问您或贵公司（合作社）有没有使用过高效低毒农药？In 2012, did you apply biological pesticides
A. 有（请回答题 4.4）   A. 没有（请回答题 4.5）

4.4 请问 2012 年您或贵公司（合作社）使用的高效低毒农药的成本？If yes, how much did it cost you?

<table>
<thead>
<tr>
<th>农药名称</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>每亩每次施用量（ml）</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>成本（元/亩）</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.5 除了高效低毒农药，请问 2012 年您或贵公司（合作社）还使用过哪些的农药？In 2012, what other type of pesticides did you use?

<table>
<thead>
<tr>
<th>农药名称</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>每亩每次施用量（ml）</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>成本（元/亩）</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

以下这段话请调查员告诉受访者：[Interviewer, read this statement to the farmer.]

国家和广东省的领导对目前农药化肥的流失所造成的土壤和水体污染非常关注，因此广东省农业厅制定了一套更好的施肥和病虫害管理方法，目的是保产
5、对于补贴的意愿 Willingness to participate

5.1 请根据您种植的作物系统，查看以下肥料补贴列表

<table>
<thead>
<tr>
<th>序号</th>
<th>作物</th>
<th>技术类别</th>
<th>补贴标准</th>
<th>补贴方式</th>
<th>使用者责任</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Varieties of technologies</td>
<td>Amount of subsidies</td>
<td>way of subsidy</td>
<td>The responsibility of the user</td>
</tr>
<tr>
<td>1</td>
<td>蔬菜 Vegetable</td>
<td>水肥一体化 Integrated management of water and fertilizer</td>
<td>按招标价五年共补贴 50% 50% subsidy of the tender price</td>
<td>分阶段：Phased  1）完成安装验收，报销 40%； 2）五年项目结束后正常使用，报销余下 10%</td>
<td>1 负责维护、防盗和日常使用； 2、回收农药包装废弃物</td>
</tr>
<tr>
<td></td>
<td></td>
<td>诱虫灯 moth-killing lamp</td>
<td>按招标价五年共补贴 50%</td>
<td>一次性报销 50%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>黏虫板 sticking plate</td>
<td>按招标价共补贴 50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>遥感飞机喷雾 Remote sensing aerial spraying（面积 1000 亩以上推荐使用）</td>
<td>按招标价五年共补贴 70%</td>
<td>分阶段 Phased:  1）完成安装验收，报销 60%； 2）五年项目结束后正常使用，报销余下 10%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>玉米 maize</td>
<td>水肥一体化</td>
<td>按招标价五年共补贴 50%</td>
<td>分阶段：Phased  1）完成安装验收，报销 40%； 2）五年项目结束后正常使用，报销余下 10%</td>
<td>1 负责维护、防盗和日常使用； 2、回收农药包装废弃物</td>
</tr>
<tr>
<td></td>
<td></td>
<td>诱虫灯</td>
<td>按招标价五年共补贴 50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>桔秆回田技术 Technology of Straw back to the field</td>
<td>按招标价五年共补贴 80%</td>
<td>分阶段：Phased  1）完成安装验收，报销 40%； 2）五年项目结束后正常使用，报销余下 40%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>昆虫天敌 Natural enemies of insects</td>
<td>按招标价共补贴 80%</td>
<td>户主先购买，防治效果达标后报销 80%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>水稻 Rice</td>
<td>统防统治 integrated pest prevention</td>
<td>每亩每造补贴 10 元（已参加的不纳入）</td>
<td></td>
<td>1 负责维护、防盗和日常使用；</td>
</tr>
</tbody>
</table>
请问您是否愿意接受上述补贴标准呢？Would you be willing to accept this subsidy to participate in the project?
A. 愿意，(如果愿意，请回答题 5.4)；B. 不愿意，(如果不愿意，请回答题 5.2)

5.2 请您于下表选择您能接受的最低补贴标准（请填写信息或在选项上打 “√”）
Please choose the lowest subsidy standard which you can accept

<table>
<thead>
<tr>
<th>您的作物类型</th>
<th>技术类别</th>
<th>能接受的最低补贴标准</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>水肥一体化</td>
<td>A.55% B.60% C.__%</td>
</tr>
<tr>
<td></td>
<td>诱虫灯</td>
<td>A.55% B.60% C.__%</td>
</tr>
<tr>
<td></td>
<td>粘虫板</td>
<td>A.55% B.60% C.__%</td>
</tr>
<tr>
<td></td>
<td>枯杆回田技术</td>
<td>A.85% B.90% C.__%</td>
</tr>
<tr>
<td></td>
<td>昆虫天敌</td>
<td>A.85% B.90% C.__%</td>
</tr>
<tr>
<td></td>
<td>速感飞机喷雾</td>
<td>A.75% B.80% C.__%</td>
</tr>
<tr>
<td></td>
<td>配方肥</td>
<td>A.55% B.60% C.__%</td>
</tr>
<tr>
<td></td>
<td>控释肥</td>
<td>A.30% B.35% C.__%</td>
</tr>
<tr>
<td></td>
<td>统防统治</td>
<td>A.15 元 B.20 元 C.__元</td>
</tr>
</tbody>
</table>

5.3 请问您不愿意接受 5.1 题的补贴标准的理由是：If you answered NO to question 5.1, please specify the reason:
A. 我对环境保护不敢兴趣；B. 新的技术需耗费太多的精力和时间  C. 拟定的补贴标准太低
D. 担心新技术达不到理想的效果  E. 我不了解关于该项目的信息  F. 我担心不能保产

5.4 请问您是否愿意接受上述补贴方式？Would you be willing to accept this subsidy way to participate in the project?
A. 愿意 (如果愿意，请回答 5.6); B. 不愿意 (如果不愿意，请回答 5.5)

5.5 请问您不愿意接受上述补贴方式的理由是 If you answered NO to question 5.4, please specify the reason:
A. 补贴操作过程比较繁琐 Subsidy application procedures are rather complicated;
B. 担心分阶段后不能拿到余下的补贴 Worry that the relevant subsidy will not be provided;
C. 担心指定农资店比较远，不方便 Worry that the agriculture input store is too far and inconvenient;
D. 回收农药包装废弃物有困难 It's difficult to collect the pesticide packing wastes;
E. 过程信息不够公开透明 The subsidy application process is not transparent enough;
F. 其他 other ______

5.6 您对补贴标准和补贴方式的建议:

________________________________________
Your suggestions about subsidy standards and subsidy way?
世行项目社评问卷②: 供种植散户填写（种植面积为 1--99 亩）
SA Questionnaire②: For small households (planting area 1 – 99mu)

问卷编号: No.____ 调查地点: Location_市 City_县/市/区 County/City/District

调查员: Interviewer_____ 调查时间 Time: 2013 年 月 日---Day---Month,

1. 基本情况（请填写信息或在选项上打“√”）: Basic information

<table>
<thead>
<tr>
<th>姓名: Name</th>
<th>性别: Sex</th>
<th>年龄: Age</th>
<th>所属村/居委会: Village</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- 家庭人口 Number of household members: ____人 persons，including 其中:
- 能务农或在外打工的家庭劳力人数 Household member able to work on the farm or
  outside the farm: ____人 persons
- 在家务农的家庭成员人数 Household members who worked on the farm: ____人 persons
- 全职外出打工的家庭成员人数 Household members with full-time jobs outside the farm:
  ____人 persons

[调查员: c 和 d 之和应小于 b, 否则要答题者说明。Interviewer: the sum of c and d should be less than b. If not, clarify with respondent.]
- 家中有无在外做兼职工作的成员？Does any household member have a non-farming part-time job?

如果有，日工资是----元/天 If yes, what is the daily wage: ___Yuan /day

1.1 Household income 家庭收入

（2）2012 年家庭总收入: Total family income in 2012_____元 yuan，其中 including:

（3）种植收入为 farming income_______元 yuan

（4）非务农总收入 total income from non-farm work _____元 yuan

[调查员: b 和 c 之和应不超过 a, 否则要答题者说明。Interviewer: the sum of b and c should not exceed a. If it exceeds a, clarify with the respondent.]

1.2 Cultivation and land use 种植与土地情况

a. 2012 年总耕作面积: Total crop land in 2012_______亩 mu，其中:

b. including self-own land 自有土地面积_______亩 mu;

c. rented land 租用面积_______亩 mu

[b 和 c 之和应不超过 a, 若需要请答题者说明。Interviewer, b+c should not exceed a. Clarify with respondent, if needed.]

1.3 Crop information in 2012. Please indicate the main crops you grew in 2012.

<table>
<thead>
<tr>
<th>主要作物种类 Main crop</th>
<th>种植面积（亩） Area (mu)</th>
<th>亩产量（公斤） Yield per mu (kg)</th>
<th>Price sold (kg)</th>
<th>总收入（元） Total income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early paddy 早稻</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Late paddy 晚稻</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1.4 Farm Labor 务农劳力
2012年你雇佣劳动力了吗？In 2012, did you hire any farm labor? 有Yes ___，没有No___ [go to next question]
如果有If yes, how many people did you hire? 请了多少人？__人 persons
每天每人工资多少At what daily rate? ___ yuan per person per day
总共请了多少个工日For how many man days in total ___人/日 man days
[调查员 Interviewer: 即指 2012年时请的人数乘以每人工作的天数 this means the number of people hired times the number of days each person worked in 2012]
雇工的主要任务是What were the main tasks of the hired labor? ______________

1.5 Production Costs 生产成本
2012年总成本（元）包括种子、化肥、农药、人工、地租、维护 ______元
Total cost in 2012, including seeds, fertilizers, pesticides, labor, land rental, and maintenance. ______元 Yuan
2012年化肥总费用，包括粪肥 Total cost of fertilizers (including manure) in 2012 ___元 Yuan
2012年农药总费用 Total cost of pesticides in 2012 ___元 Yuan

2、对于环境污染的态度
Attitudes towards the Environment. [调查员 Interviewer: 请写下回答内容 please write down the respondent’s answers]

2.1 在您看来，本村面临的最紧迫的三个问题是什么？可以列举任何方面的问

In your view, what are the three most pressing problems facing your village.
You may name problems of any nature.

______________________________
______________________________
______________________________

2.2 在您看来，本村面临的最紧迫的两个环境或生态问题是什么？请侧重环境
3、化肥使用情况 Fertilizer use

Please indicate which fertilizers and the fertilizer quantities that you used for your main crops in 2012. Specify the amount in kilograms per harvest. 请说明 2012 年你所种植的主要作物使用的化肥及其数量，注明每造的化肥使用公斤数量。[调查员：如果农户一年种植某种作物，比如玉米两造或者三造，只要其说明一造的化肥使用公斤数量即可，而不是全年的数。Interviewer: in cases where the farmers grows a crop, for example maize, twice or three times during the year, he should give the kilogram for only one harvest, not the entire year.]

<table>
<thead>
<tr>
<th>主要作物种类</th>
<th>尿素</th>
<th>复合肥</th>
<th>磷肥</th>
<th>钾肥</th>
<th>其他:</th>
<th>有机肥</th>
<th>配方肥</th>
<th>缓释肥</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main crop</td>
<td>Urea</td>
<td>Compound fertilizer</td>
<td>Phosphate</td>
<td>Potassic fertilizer</td>
<td>Other:</td>
<td>Organic fertilizer</td>
<td>Formula fertilizer</td>
<td>Slow release fertilizer</td>
</tr>
<tr>
<td></td>
<td>(公斤/每造 kg/crop)</td>
<td>(公斤/每造 kg/crop)</td>
<td>(公斤/每造 kg/crop)</td>
<td>(公斤/每造 kg/crop)</td>
<td>(公斤/每造 kg/crop)</td>
<td>(公斤/每造 kg/crop)</td>
<td>(公斤/每造 kg/crop)</td>
<td>(公斤/每造 kg/crop)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Early paddy</th>
<th>Late paddy</th>
<th>马铃薯</th>
<th>玉米</th>
<th>梅菜</th>
<th>瓜类</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early rice</td>
<td>Late rice</td>
<td>Potato</td>
<td>Maize</td>
<td>Vegetable</td>
<td>Melon</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Early paddy</th>
<th>Late paddy</th>
<th>马铃薯</th>
<th>玉米</th>
<th>梅菜</th>
<th>瓜类</th>
</tr>
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<tbody>
<tr>
<td>Early rice</td>
<td>Late rice</td>
<td>Potato</td>
<td>Maize</td>
<td>Vegetable</td>
<td>Melon</td>
</tr>
</tbody>
</table>
4、农药使用情况 Pest Management.

请注明 2012 年你使用的病虫害防治技术或农药名称，注明每造的使用量（不是年使用量）
Please indicate the pest control technology or pesticide brands that you used for your main crops in 2012. Indicate quantities per crop (not year)

<table>
<thead>
<tr>
<th>主要作物种类 Main crop</th>
<th>农药名称 Insert brand name (毫升/亩 ml/mu)</th>
<th>农药名称 Insert brand name (毫升/亩 ml/mu)</th>
<th>农药名称 Insert brand name (毫升/亩 ml/mu)</th>
<th>农药名称 Insert brand name (毫升/亩 ml/mu)</th>
<th>农药名称 Insert brand name (毫升/亩 ml/mu)</th>
<th>农药名称 Insert brand name (毫升/亩 ml/mu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early paddy 早稻</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Late paddy 晚稻</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>马铃薯 Potato</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>玉米 Maize</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>梅菜 vegetable for preservation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>瓜类 Melon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>淮山粉葛 Chinese yam &amp; arrow root</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>叶菜 Leafy vegetables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>荔枝 Lichi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.1 2012 年您有没有参与统防统治？In 2012, did you engage a company for integrated pest prevention and control?
A. 有 Yes (请回答题 4.2 If yes, please answer question 4.2)  
B. 没有 No (请回答题 4.3 If no, please answer question 4.3)

4.2 如果有，是为哪种作物参加统防统治的？________
If yes, for which crops did you use the service?
请问您的费用是每造每亩________元, What is the cost per crop per mu? _____ Yuan

What was the total cost of this service for you in 2012?2012 年你参加统防统治的总费用是多少? _______________元 Yuan

4.3 2012 年请问您有没有使用过高效低毒农药? In 2012, did you apply high efficiency and low toxicity pesticides? [调查员：向答题者出示并读卡片，解释高效低毒农药 Interviewer: show and read a card to the respondent explaining what high efficiency low toxicity pesticides are.]
A. 有 Yes (请回答题 4.4 If yes, please answer question 4.4) B. 没有 No (请回答题 4.5 If no, please answer question 4.5)

4.4 在 2012 年, 你的哪种作物使用过高效低毒农药? On which crops did you use high efficiency and low toxicity pesticides in 2012? [调查员：记录作物名称 Interviewer, write down the crop names.]

_________________, _______________, ______________________

4.5 在 2012 年你用过生物农药吗? In 2012 did you use biological pesticides? [调查员：请出示卡片并解释生物农药 Interviewer: show and read a card explaining what biological pesticides are.]
A. 有 Yes (请回答题 4.6 If yes, please answer question 4.6) B. 没有 No (请回答题 4.7 If no, please answer question 4.7)

4.6 2012 年哪种作物你使用了生物农药 On which crops did you use biological pesticides in 2012? [调查员：记录作物名称 Interviewer, write down the crop names.]

_________________, _______________, ______________________

5. Project Description 项目介绍

以下这段话请调查员告诉受访者：[Interviewer, read this statement to the farmer.]

Both the national and provincial government give high attention to the contamination of soil and water by leakage of pesticides and fertilizers, so Guangdong Agriculture Department has developed better fertilizer and pest management technologies to reduce environmental contamination with precondition of yield guarantee. A project to promote these technologies will begin in early 2014. For the small producers (1-99mu) the project activities are: Better fertilization (either formula fertilizer or slow-release fertilizer) and better pest management (a combination of recommended biological pesticide and highly efficient low toxic pesticide). Participation is completely voluntary. Households can sign up for either better fertilization or better pest management or both.

The Provincial Agricultural Department is currently developing a subsidy standard for each of these technologies. These subsidies will be reflected in the discounted price when the farmer goes to the agricultural input supply store to buy the fertilizer and the pesticide. Participating farms may not use on their land any other
fertilizers if they selected a better fertilization technology or any other pesticide if they select the better pest management technology. Also participating farmers must strictly apply the prescribed doses at prescribed times. They will be given training on proper application methods. If a household is found to be not compliant with the methods it will be excluded immediately from the project. Furthermore, in each village, a verification system will be put in place. If it is found that all participating farmers in a village are compliant, the village will be given a reward.

对于补贴的意愿 Willingness to accept
So far the subsidy standards have not been decided. The Department of Agriculture wishes information on your willingness to accept. The below table provides the market price, application standard, approximate cost of the new fertilizer and pesticide technologies. Please review the table and for each crop you grow, indicate the minimum level of subsidy that you are willing to accept. You may also indicate that you do not wish to apply a new technology to one, two or all of your crops, regardless of the subsidy offered. The Department of Agriculture needs honest expression of your preferences. In indicating the preferred subsidy levels, please also keep in mind that the Department of Agriculture’s budget is limited. Therefore, if the participants require too high a subsidy, the project will most likely not be implemented.

You will be asked first about your preferences regarding the fertilization methods and then the pest control method.

5.1 Fertilizer technologies 施肥技术
水稻、土豆、玉米 For paddy, potato and maize, [调查员：只提及答题者有的作物 interviewer, mention only the crop the respondent grows]，有三个选项。可选补贴后的配方肥, 或者缓释肥, 或者维持现状。you have three choices. You can either select formula fertilizer at a subsized price, or slow-release fertilizer at a subsidize d price, or you can continue to apply your current practice at the current, unsubsidized market prices. Please look at the table for each crop and tell us level of subsidy you would require to opt for formula fertilization and what level of subsidy you would require for slow-release fertilization. If you would not opt for either of the new technologies regardless of how high the subsidy is, please tick the relevant box. If you would not select either of the new technologies, please tick both boxes. This would mean that you will stay with your current technology. Repeat this selection for the other crops.

[Interviewer, show each relevant table to the respondent.]
水稻 Paddy

<table>
<thead>
<tr>
<th>技术类别</th>
<th>肥料用量标准</th>
<th>新技术成本</th>
<th>Which of these levels of subsidy are you willing to accept? 你愿意接受的补贴水平是哪种？</th>
</tr>
</thead>
<tbody>
<tr>
<td>缓（控）释肥</td>
<td>40kg/造·亩 kg/harvest.mu</td>
<td>160 元/造·亩 yuan/crop.mu</td>
<td>0% [0元] 10% [16元] 20% [32元] 30% [48元] 40% [64元] 50% [80元] 60% [96元] 70% [112元] 80% [128元] 90% [144元] 100% [160元]</td>
</tr>
</tbody>
</table>

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer: write down the response.]

马铃薯 Potato

<table>
<thead>
<tr>
<th>技术类别</th>
<th>肥料用量标准</th>
<th>新技术成本</th>
<th>你愿意接受的补贴水平是哪种？ Which of these levels of subsidy are you willing to accept? 你愿意接受的补贴水平是哪种？</th>
</tr>
</thead>
<tbody>
<tr>
<td>配方肥</td>
<td>100kg/造·亩 kg/ harvest.mu</td>
<td>360 元/造·亩 yuan/ harvest.mu</td>
<td>0% [0元] 10% [36元] 20% [72元] 30% [108元] 40% [144元] 50% [180元] 60% [216元] 70% [252元] 80% [288元] 90% [324元] 100% [360元]</td>
</tr>
</tbody>
</table>

无论补贴多少，我不愿意使用该新技术 I don’t want to apply this technology regardless of the subsidy level offered.
能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer, write down the response.]

### 玉米 Maize

<table>
<thead>
<tr>
<th>技术类别</th>
<th>肥料用量标准</th>
<th>新技术成本</th>
<th>你愿意接受的补贴水平是哪种? Which of these levels of subsidy are you willing to accept? [每种作物和技术——选择 Select one only for each crop and each technology]</th>
</tr>
</thead>
<tbody>
<tr>
<td>配方肥</td>
<td>100kg/造·亩 kg/harvest.mu</td>
<td>360 元/造·亩 yuan/harvest.mu</td>
<td>0% [0 元] 10% [36 元] 20% [72 元] 30% [108 元] 40% [144 元] 50% [180 元] 60% [216 元] 70% [252 元] 80% [288 元] 90% [324 元] 100% [360 元]</td>
</tr>
<tr>
<td>缓（控）释肥</td>
<td>70kg/造·亩 kg/harvest.mu</td>
<td>280 元/造·亩 yuan/harvest.mu</td>
<td>0% [0 元] 10% [28 元] 20% [56 元] 30% [84 元] 40% [112 元] 50% [140 元] 60% [168 元] 70% [196 元] 80% [224 元] 90% [252 元] 100% [280 元]</td>
</tr>
</tbody>
</table>

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer: write down the response.]

### 对于梅菜、山药、叶菜和荔枝，只有配方肥适用。请参照你自己的作物，说明你能接受参与项目的最低补贴标准。你也可以指出，无论补贴多少，你不愿意在某一种作物上使用配方肥。For vegetables for preservation (梅菜), melons, Chinese yam, leafy vegetables, and lichi only formula fertilizers are applicable. Please indicate the minimum subsidy level you would be willing to accept for each crop you grow. If you are not willing to apply formula fertilization of a crop regardless of the subsidy offered, please indicate. [调查员，请将相应
作物表格出示给答题者，忽略其他作物 Interviewer, the respondent should only respond regarding the crop that he grows. Skip the other crops.]

梅菜 vegetable for preservation

<table>
<thead>
<tr>
<th>技术类别 Varieties of technologies</th>
<th>肥料用量标准 Application standard</th>
<th>新技术成本 Cost of new technology</th>
<th>Which of these levels of subsidy are you willing to accept? 你愿意接受的补贴水平是哪种？</th>
</tr>
</thead>
<tbody>
<tr>
<td>配方肥 Formula fertilizer</td>
<td>40kg/造・亩 kg/ harvest.mu</td>
<td>144 元/造・亩 yuan/ harvest.mu</td>
<td>0% [0 元] 10% [14 元] 20% [28 元] 30% [42 元] 40% [57 元] 50% [72 元] 60% [86 元] 70% [101 元] 80% [115 元] 90% [130 元] 100% [144 元]</td>
</tr>
</tbody>
</table>

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer: write down the response.]

瓜类 Melon

<table>
<thead>
<tr>
<th>技术类别 Varieties of technologies</th>
<th>肥料用量标准 Application standard</th>
<th>新技术成本 Cost of new technology</th>
<th>Which of these levels of subsidy are you willing to accept? 你愿意接受的补贴水平是哪种？</th>
</tr>
</thead>
<tbody>
<tr>
<td>配方肥 Formula fertilizer</td>
<td>50kg/造・亩 kg/ harvest.mu</td>
<td>180 元/造・亩 yuan/ harvest.mu</td>
<td>0% [0 元] 10% [18 元] 20% [36 元] 30% [54 元] 40% [72 元] 50% [90 元] 60% [108 元] 70% [126 元] 80% [144 元] 90% [162 元] 100% [180 元]</td>
</tr>
</tbody>
</table>

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer: write down the response.]
淮山粉葛 Chinese Yam

<table>
<thead>
<tr>
<th>技术类别</th>
<th>肥料用量标准</th>
<th>新技术成本</th>
<th>Which of these levels of subsidy are you willing to accept? 你愿意接受的补贴水平是哪种？</th>
<th>I don't want to apply this technology regardless of the subsidy level offered 无论补贴多少，我不愿意使用该新技术</th>
</tr>
</thead>
<tbody>
<tr>
<td>配方肥</td>
<td>100kg/造·畝</td>
<td>360元/造·畝</td>
<td>0% [0元] 10% [36元] 20% [72元] 30% [108元] 40% [144元] 50% [180元] 60% [216元] 70% [252元] 80% [288元] 90% [324元] 100% [360元]</td>
<td></td>
</tr>
</tbody>
</table>

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer: write down the response.]

叶菜 Leafy vegetables

<table>
<thead>
<tr>
<th>技术类别</th>
<th>肥料用量标准</th>
<th>新技术成本</th>
<th>Which of these levels of subsidy are you willing to accept? 你愿意接受的补贴水平是哪种？</th>
<th>I don't want to apply this technology regardless of the subsidy level offered 无论补贴多少，我不愿意使用该新技术</th>
</tr>
</thead>
<tbody>
<tr>
<td>配方肥</td>
<td>100kg/造·畝</td>
<td>360元/造·畝</td>
<td>0% [0元] 10% [36元] 20% [72元] 30% [108元] 40% [144元] 50% [180元] 60% [216元] 70% [252元] 80% [288元] 90% [324元] 100% [360元]</td>
<td></td>
</tr>
</tbody>
</table>

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer: write down the response.]

荔枝 Lichi

<table>
<thead>
<tr>
<th>技术类别</th>
<th>肥料用量标准</th>
<th>新技术成本</th>
<th>Which of these levels of subsidy are you willing to accept? 你愿意接受的补贴水平是哪种？</th>
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</tr>
</thead>
<tbody>
<tr>
<td>配方肥</td>
<td>100kg/造·畝</td>
<td>360元/造·畝</td>
<td>0% [0元] 10% [36元] 20% [72元] 30% [108元] 40% [144元] 50% [180元] 60% [216元] 70% [252元] 80% [288元] 90% [324元] 100% [360元]</td>
<td></td>
</tr>
</tbody>
</table>
能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer: write down the response.]

<table>
<thead>
<tr>
<th>配方肥</th>
<th>150kg/亩</th>
<th>540元/亩</th>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formula fertilizer</td>
<td>kg/harvest.mu</td>
<td>yuan/harvest.mu</td>
<td>0元</td>
<td>54元</td>
<td>108元</td>
<td>162元</td>
<td>216元</td>
<td>270元</td>
<td>324元</td>
<td>378元</td>
<td>432元</td>
<td>486元</td>
<td>540元</td>
</tr>
</tbody>
</table>

补贴多少，我不同意使用该新技术

是否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer: write down the response.]

---
5.2 Recommended biological pesticide and high efficient low toxic pesticide.

Please indicate the minimum subsidy level you would be willing to accept to use this technology for each of the crops you grow. Note the subsidy is paid per crop NOT per year. Please indicate the minimum subsidy level you would be willing to accept for each crop you grow. If you are not willing to this technology to a crop regardless of the subsidy offered, please indicate. Interviewer, the respondent should only respond regarding the crop that he grows. Skip the other crops. Show the respondent the relevant tables.

<table>
<thead>
<tr>
<th>新技术成本</th>
<th>Which of these levels of subsidy are you willing to accept?</th>
<th>我愿意接受的补贴水平是哪种?</th>
<th>I don’t want to apply this technology regardless of the subsidy level offered 无论补贴多少，我不愿意使用该新技术</th>
</tr>
</thead>
<tbody>
<tr>
<td>玉米 Maize</td>
<td>60元/造 * 亩</td>
<td>0% [0 元]</td>
<td>10% [6元]</td>
</tr>
</tbody>
</table>

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer: write down the response.]

| 马铃薯 Potato | 180元/造 * 亩 | 0% [0元] | 10% [18元] | 20% [36元] | 30% [54元] | 40% [72元] | 50% [90元] | 60% [108元] | 70% [126元] | 80% [144元] | 90% [162元] | 100% [180元] |

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer: write down the response.]
叶菜 leafy vegetable

<table>
<thead>
<tr>
<th>新技术成本</th>
<th>Cost of new technology</th>
<th>Which of these levels of subsidy are you willing to accept?</th>
<th>你愿意接受的补贴水平是哪种？</th>
<th>I don’t want to apply this technology regardless of the subsidy level offered. 无论补贴多少，我都不愿意使用该新技术。</th>
</tr>
</thead>
<tbody>
<tr>
<td>180元/造·亩</td>
<td>[0元]</td>
<td>[18元]</td>
<td>[36元]</td>
<td>[54元]</td>
</tr>
</tbody>
</table>

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer write down the response.]

瓜类 melons

<table>
<thead>
<tr>
<th>新技术成本</th>
<th>Cost of new technology</th>
<th>Which of these levels of subsidy are you willing to accept?</th>
<th>你愿意接受的补贴水平是哪种？</th>
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<tbody>
<tr>
<td>180元/造·亩</td>
<td>[0元]</td>
<td>[18元]</td>
<td>[36元]</td>
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</tr>
</tbody>
</table>

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer write down the response.]

淮山 Chinese yam

<table>
<thead>
<tr>
<th>新技术成本</th>
<th>Cost of new technology</th>
<th>Which of these levels of subsidy are you willing to accept?</th>
<th>你愿意接受的补贴水平是哪种？</th>
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</thead>
<tbody>
<tr>
<td>180元/造·亩</td>
<td>[0元]</td>
<td>[18元]</td>
<td>[36元]</td>
<td>[54元]</td>
</tr>
</tbody>
</table>

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer write down the response.]

梅菜 vegetables for preservation

<table>
<thead>
<tr>
<th>新技术成本</th>
<th>Cost of new technology</th>
<th>Which of these levels of subsidy are you willing to accept?</th>
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</tr>
</thead>
<tbody>
<tr>
<td>180元/造·亩</td>
<td>[0元]</td>
<td>[18元]</td>
<td>[36元]</td>
<td>[54元]</td>
</tr>
</tbody>
</table>

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer write down the response.]

115
新技术

<table>
<thead>
<tr>
<th>新技术成本</th>
<th>新技术成本</th>
<th>新技术成本</th>
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<th>新技术成本</th>
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<th>新技术成本</th>
<th>新技术成本</th>
<th>新技术成本</th>
<th>新技术成本</th>
</tr>
</thead>
<tbody>
<tr>
<td>180 元/造·亩 harvest.mu</td>
<td>0% 0元</td>
<td>10% 18元</td>
<td>20% 36元</td>
<td>30% 54元</td>
<td>40% 72元</td>
<td>50% 90元</td>
<td>60% 108元</td>
<td>70% 126元</td>
<td>80% 144元</td>
<td>90% 162元</td>
<td>100% 180元</td>
</tr>
</tbody>
</table>

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer: write down the response.]

荔枝 litchi

<table>
<thead>
<tr>
<th>新技术成本 Cost of new technology</th>
<th>Which of these levels of subsidy are you willing to accept? 你愿意接受的补贴水平是哪种?</th>
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</tr>
</thead>
<tbody>
<tr>
<td>180 元/造·亩 harvest.mu</td>
<td>0% 0元</td>
<td>10% 18元</td>
</tr>
</tbody>
</table>

能否告知选择的主要原因 Could you please let us know the most important reason for your selection. [调查员请记录 Interviewer write down the response.]

5.3 上述化肥和农药的补贴计划采取以下的补贴方式：The subsidy arrangement for the above-mentioned fertilizer and pesticide subsidy plan is as below:

自愿报名 Application on voluntary basis——审查公示补贴对象 public disclosure of the verified applicants for subsidy——发放 IC 卡和《作物生产档案》 Issuance of IC card and <Crop Production Files>——凭 IC 卡、《作物生产档案》和上次使用后农药包装废弃物到指定农资店按折扣价购买 purchase at discounted price in the designated agricultural input supply store with IC card, <Crop Production Files> and the pesticide packing wastes of previous application ——在资料册上签名 sign off in the name list.

请问您是否愿意接受？Whether you accept or not？
A. 愿意 Yes; B. 不愿意 No(如果不愿意, 请回答题 5.4) If no, please answer question 5.4)

5.4 请问您不愿意接受上述补贴方式的理由是 The reason you don't accept the above-mentioned subsidy arrangement is as below:
A. 补贴操作过程比较繁琐 Subsidy application procedures are rather complicated;
B. 担心不能拿到的补贴 Worry that the relevant subsidy will not be provided;
C. 担心指定农资店比较远，不方便 Worry that the agriculture input store is too far and inconvenient;
D. 回收农药包装废弃物有困难 It's difficult to collect the pesticide packing wastes;
E. 过程信息不够公开透明 The subsidy application process is not transparent enough;
F. 其他 other ______

5.5 Your suggestions about subsidy standards and subsidy arrangement? _ ______