

**World Bank Financed Zhejiang Rural Area
Wastewater Management Project**

Social Assessment Report of the Zhejiang Rural Area Wastewater Management Project

Zhejiang Provincial PMO

National Research Center for Resettlement, Hohai University

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Abbreviations

| | | |
|------|---|----------------------------------|
| AH | - | Affected Household |
| AP | - | Affected Person |
| FGD | - | Focus Group Discussion |
| FSR | - | Feasibility Study Report |
| HD | - | House Demolition |
| IA | - | Implementing Agency |
| LA | - | Land Acquisition |
| M&E | - | Monitoring and Evaluation |
| PMO | - | Project Management Office |
| RAP | - | Resettlement Action Plan |
| RIB | - | Resettlement Information Booklet |
| SA | - | Social Assessment |
| WWTP | - | Wastewater Treatment Plant |

Units

Currency unit = Yuan (RMB)

US\$1.00 = RMB6.33

1 hectare = 15 mu

1 Foreword

1.1 Background of the Project

In order to improve rural domestic wastewater treatment facilities and the rural environment, and promote new countryside building, the Zhejiang Provincial Government has applied for a loan with the World Bank for the Zhejiang Rural Area Wastewater Management Project (hereinafter, the "Project"). The gross investment in the Project is USD382.63 million, equivalent to CNY2.31493 billion yuan, in which that of the Anji Subproject is USD113.28 million, that of the Fuyang Subproject USD105.4 million, that of the Tiantai Subproject USD94.21 million and that of the Longquan Subproject USD65.74 million. In addition, there is a technical assistance investment of USD400 million, equivalent to CNY24.2 million.

The Project involves Anji County in northern Zhejiang, Fuyang City in the suburb of Hangzhou Municipality, Tiantai County in Taizhou Municipality, and Longquan City in Lishui Municipality. The Project will improve the rural infrastructure greatly, narrow urban and rural gaps in public services, and promote beautiful countryside building. In addition, the Project is an effective exploration in establishing a new rural wastewater treatment model, and may provide a reference for other parts of Zhejiang Province and other provinces.

1.2 Tasks of SA

This SA aims to identify the positive and negative impacts of the Project, evade potential social risks, protect the rights and interests of all stakeholders, and promote their equal participation in the Project through literature review, field survey, FGD and questionnaire survey. On this basis, the main tasks of this SA are:

1. Identifying primary stakeholders, and learning their needs and interests;
2. Learning the Project's potential impacts, including positive and negative impacts, and identifying social risks of the Project;
3. Learning attitudes of women and the poor to the Project, and identifying the Project's impacts on them;
4. Strengthening public participation to optimize the project design, and establishing information disclosure and grievance redress mechanisms; and
5. Developing social and gender action plans to evade risks and realize the project objectives.

In addition, during public consultation, the public will fully understand the background, objectives and implementation plan of the Project, and participate in it through project information dissemination, experience sharing, etc.

1.3 Methods of SA

During June17-July 13, 2013, the SA team was delegated by the provincial PMO to conduct fieldwork in the project cities/counties using the following methods:

1. Literature review

Background literatures related to the Project were collected, including the proposals, feasibility study reports and construction drawings of the subprojects, statistical yearbooks, poverty reduction and women's development plans, LA and HD policies, etc.

2. Questionnaire survey

The questionnaire survey covered 37 villages in the project cities/counties. 450 copies were distributed in total, with 421 valid copies recovered, accounting for 93.6%, including 114 copies from

Anji County, accounting for 27.1%; 134 copies from Fuyang City, accounting for 31.9%; 80 copies from Tiantai County, accounting for 19.0%; and 93 copies from Longquan City, accounting for 22.0%. See

Table 1-1 Distribution of Samples in the Questionnaire Survey **Error! Reference source not found..**

Table 1-1 Distribution of Samples in the Questionnaire Survey

| City/county | Number of copies | Valid copies | |
|----------------|------------------|--------------|-------------|
| | | N | Percent |
| Anji County | 120 | 114 | 95.0 |
| Fuyang City | 140 | 134 | 95.7 |
| Tiantai County | 90 | 80 | 88.9 |
| Longquan City | 100 | 93 | 93.0 |
| Total | 450 | 421 | 93.6 |

The questionnaire database was established and analyzed using the IBM SPSS 20.0 software. See

Table 1-2.

Table 1-2 Information on Valid Samples

| Indicator | Values |
|--------------------------|--|
| Gender | Male, 50.6%; female, 49.4% |
| Age | Average 48 years, ranging from 16 to 86 years |
| Urban/rural | Rural, 91.0%; urban, 9.0% |
| Head of household | Yes, 68.2%; no, 31.8% |
| Educational level | illiterate, 4.8%; primary school, 15.0%; junior high school, 34.7%; senior high school/secondary technical school, 25.2%; junior college or above, 20.3% |
| Occupation | Civil servant, 6.2%; worker of public institution, 8.6%; worker of state-owned enterprise, 6.7%; self-employer, 8.8%; freelancer, 8.1%; retiree, 2.6%; student, 1.4%; farmer, 46.4%; employee, 9.5%; other, 1.7% |

3. In-depth interview

Personal in-depth interviews were designed to further learn production and living conditions of the affected population, the Project's positive and negative impacts on them, potential risks, their attitudes to, suggestions on and expectations for the Project. During June 17-July 13, 2013, the SA team conducted in-depth interviews with 82 rural residents, including 36 women, accounting for 43.9%. See

Table 1-3.

Table 1-3 Summary of In-depth Interviews

| City/county | Number of interviewees | Females | |
|----------------|------------------------|-----------|-------------|
| | | N | Percent |
| Anji County | 25 | 11 | 40 |
| Fuyang City | 17 | 8 | 47.06 |
| Tiantai County | 20 | 9 | 45 |
| Longquan City | 20 | 9 | 45 |
| Total | 82 | 36 | 43.9 |

4. FGD

In order to further understand needs and suggestions of local residents (including the poor, women, etc.), 37 FGDs were held in total, with 273 participants in total, including 85 women, accounting for 31.14%; 27 poor persons, accounting for 9.90%; and 76 old people, accounting for

27.84%. See

Table 1-4.

Table 1-4 Summary of FGDs

| City/county | Number of FGDs | Participants | | | |
|----------------|----------------|--------------|------------|--------------|------------|
| | | Women | Old people | Poor persons | Total |
| Anji County | 12 | 26 | 24 | 9 | 82 |
| Fuyang City | 11 | 25 | 22 | 5 | 70 |
| Tiantai County | 8 | 19 | 16 | 7 | 77 |
| Longquan City | 6 | 16 | 14 | 6 | 44 |
| Total | 37 | 85 | 76 | 27 | 273 |

5. Key informant interview

The SA team interviewed key informants at the city/county, township/sub-district, and village/community levels to learn stakeholders' attitudes to and suggestions on the Project. At the city/county level, interviewees are mainly heads of land and resources bureaus, construction bureaus, women's federations, poverty reduction offices, ethnic and religious affairs bureaus, civil affairs bureaus, etc; at the township/sub-district level, interviewees are mainly heads of township governments/sub-district offices; at the village/community level, interviewees are mainly members of village/community committees. 129 key informants were interviewed in total, including 39 in Anji County, accounting for 29.48%; 34 in Fuyang City, accounting for 26.36%; 31 in Tiantai County, accounting for 24.03%; and 26 in Longquan City, accounting for 20.16%. See

Table 1-5.

Table 1-5 Summary of Key Informant Interviews

| City/county | Township heads | Village officials | Government officials | Enterprise heads | Total |
|----------------|----------------|-------------------|----------------------|------------------|------------|
| Anji County | 11 | 12 | 7 | 8 | 38 |
| Fuyang City | 10 | 11 | 7 | 6 | 34 |
| Tiantai County | 9 | 9 | 7 | 6 | 31 |
| Longquan City | 9 | 6 | 7 | 4 | 26 |
| Total | 39 | 38 | 28 | 24 | 129 |

6. Field survey

The SA team conducted a field survey on proposed sites of WWTPs, waterworks, pump stations, and water supply and sewer lines in the project villages, and local economic and social conditions.

See **Appendix 1** for details on the fieldwork.

1.4 Key Concerns of SA

The key social concerns of this SA are:

1. Identifying primary stakeholders, and learning their needs for and attitudes to the Project;
2. Identifying potential social risks, such as willingness to connect to wastewater collection systems;
3. Analyzing impacts on the poor, especially willingness and ability to pay wastewater treatment charges;
4. Analyzing impacts on women and their needs;

5. Information disclosure and public participation, including project awareness and degree of support; and
6. Including social factors in the project design and proposing measures to evade or reduce negative impacts.

2 Overview of the Project Area

2.1 Identification of the Project Area

The Project involves Anji County, Fuyang City, Tiantai County and Longquan City. See **Error!** Reference source not found..



Figure 2-1 Schematic Map of the Project

2.2 Socioeconomic Profile

2.2.1 Geographic Location

Among the project cities/counties, Anji County is located in northern Zhejiang and the Tai Lake basin, Fuyang City located in the suburb of Hangzhou Municipality and the lower Qiantang River, Tiantai County located in eastern Zhejiang and the upper Jiaojiang River, and Longquan City located in southern Zhejiang and the upper Oujiang River. The locations of all the project cities/counties are ecologically significant.

2.2.2 Economy

Among the 4 project cities/counties, Fuyang City has the highest GDP of 54.18 billion yuan, while Longquan City has the lowest GDP of 8.565 billion yuan. In the project area, the average income of urban residents is higher than that of rural residents. The fiscal revenues and income levels of Fuyang City and Anji County in northern Zhejiang are much higher than those of Tiantai County and Longquan City eastern and southern Zhejiang. The income levels of rural residents of Fuyang City and Anji County are higher than the provincial average by about 10%, while the income

levels of urban and rural residents of Tiantai County and Longquan City are below the provincial medians. See

Table 2-1 Key Socioeconomic Indicators of the Project Cities/Counties (2012).

Table 2-1 Key Socioeconomic Indicators of the Project Cities/Counties (2012)

| Division | Land area (km ²) | Per capita net income of rural residents (yuan) | Per capita disposable income of urban residents (yuan) | GDP (00 million yuan) | Fiscal revenue (00 million yuan) | Local fiscal revenue (00 million yuan) |
|-------------------|------------------------------|---|--|-----------------------|----------------------------------|--|
| Zhejiang Province | 101,800 | 34550 Median: 30613 | 14552 Median: 12787 | 34606 | 6408 | 3441 |
| Anji | 1886 | 32120 | 16141 | 245.23 | 36.3 | 21.08 |
| Fuyang | 1808 | 32739 | 17397 | 541.8 | 78.5 | 42 |
| Tiantai | 1462 | 27691 | 11333 | 150.2 | 19.8 | 11.1 |
| Longquan | 3059 | 27930 | 9127 | 85.65 | 7.58 | 4.64 |

Source: Statistical Bulletin 2012 on National Economic and Social Development of Zhejiang Province, Report on the Work of the Tiantai County Government in 2013, Report on the Work of the Longquan Municipal Government in 2013, Statistical Bulletin 2012 on National Economic and Social Development of Anji County, Statistical Bulletin 2012 on National Economic and Social Development of Fuyang City

2.2.3 Population

According to the Statistical Yearbook 2012 of Zhejiang Province, at the end of 2011, Zhejiang Province had a registered population of 47.8131 million, including 24.2693 million males, accounting for 50.76%; 23.5493 million females, accounting for 49.24%; an agricultural population of 3279.43, accounting for 68.59%; nonagricultural population 15.0188 million, accounting for 31.41%. Population density was 469.68 persons/km².

At the end of 2011, the project area had a registered population of 1.99 million, including 1.0166 million males, accounting for 51.09%; 973,400 females, accounting for 48.91%; an agricultural population of 1.5911 million, accounting for 79.96%; and a nonagricultural population of 398,900, accounting for 20.04%. Population density was 242.44 persons/km², much lower than the provincial average. See

Table 2-2.

Table 2-2 Key Population Indicators of the Project Cities/Counties (2011)

| Indicator | Zhejiang Province | Project area | Anji County | Fuyang City | Tiantai County | Longquan City |
|--|-------------------|--------------|-------------|-------------|----------------|---------------|
| Number of households (0,000) | 1618.04 | 66.13 | 15.48 | 22.07 | 19.38 | 9.2 |
| population (0,000) | 4781.31 | 199 | 45.97 | 65.39 | 58.63 | 29.01 |
| Males (0,000) | 2426.93 | 101.66 | 22.97 | 33.06 | 30.67 | 14.96 |
| Females (0,000) | 2354.38 | 97.34 | 23.00 | 32.33 | 27.96 | 14.05 |
| Population density (persons/km²) | 469.68 | 243.28 | 243.78 | 361.62 | 411.08 | 94.83 |
| Agricultural population (0,000) | 3279.43 | 159.11 | 35.33 | 51.40 | 47.64 | 24.74 |

Source: Statistical Yearbook 2012 of Zhejiang Province, Statistical Yearbook 2012 of Fuyang City, Statistical Yearbook 2012 of Tiantai County, Statistical Yearbook 2012 of Anji County, Statistical Yearbook 2012 of Longquan City

2.2.4 Ethnic Minorities

In Zhejiang Province, minority population is generally scattered and locally centralized. Among the 53 ethnic minorities in Zhejiang, only She, Hui and Manchu are aboriginal, while most people of the other ethnic minorities have migrated to Zhejiang by work, business or marriage. Zhejiang has a minority population of 399,700, accounting for 0.84% of provincial population, in which She

population accounts for 42.8% of minority population. Among the project cities/counties, there are 21 ethnic minorities with a total population of 13,600 in Anji County, accounting for 2.9% of the county's population; there are 34 ethnic minorities with a total population of 31,000 in Fuyang City, accounting for 0.79% of the city's population; there are 23 ethnic minorities with a total population of nearly 9,000, accounting for 3.15% of the city's population, in which She population accounts for over 98% of minority population; there are 31 ethnic minorities with a total population of 974 in Tiantai County, accounting for 0.25% of the county's population, in which Miao and Buyi population accounts for 25.15% and 23.31% of minority population respectively.

None of the project cities/counties is an area inhabited centrally by minority population. Local minority population has no difference from mainstream population in terms of social welfare, rights, security, culture and customs, and will enjoy the same benefits from the Project as the Han people. In addition, the Project will not have any negative impact on their production or lives

Table 2-3 Minority Population of the Project Cities/Counties

| City/county | Number of ethnic minorities | Population (0,000) | Percent |
|-----------------------|------------------------------------|---------------------------|----------------|
| Anji County | 21 | 1.36 | 2.9 |
| Fuyang City | 34 | 3.1 | 0.79 |
| Tiantai County | 31 | 0.0974 | 0.25 |
| Longquan City | 23 | 0.9 | 3.15 |

3 Public Participation Process

3.1 Identification of Stakeholders

Stakeholders mean individuals or groups who can affect or be affected by the objectives of the Project, and include primary and secondary stakeholders. The stakeholders of the Project have been identified as follows:

1. Primary stakeholders

Primary stakeholders are residents in the project area, including those directly benefiting from and adversely affected by the Project, where direct beneficiaries are urban and rural residents within the service area of the Project, and those adversely affected include affected persons and vulnerable groups.

2. Secondary stakeholders

Secondary stakeholders include the owners, design, construction and supervising agencies, and government departments concerned.

1) PMOs: The provincial PMO is responsible for the coordination, management, supervision, guidance and monitoring in project implementation; the local PMOs are responsible for the coordination, management, supervision, guidance and monitoring in subproject implementation.

2) Owners: responsible for subproject construction, operation and maintenance

3) Government departments concerned and village/community committees: including environmental protection bureaus, water resources bureaus, women's federations, civil affairs bureau, development and reform commissions, land and resources bureaus, poverty reduction offices, responsible for assisting in project implementation

3.2 Public Participation Process

Since July 2012, the provincial and local PMOs have conducted a series of information disclosure and public participation activities together with government departments concerned. In addition, at the preparation stage, the FSR, RAP, SA and EIA agencies also disclosed project information, and conducted adequate public participation and consultation.

1. Project information disclosure

1) At the pre-identification stage in 2012, the local PMOs and candidate village committees disclosed project information and village selection criteria by means of village congress, brochure, banner, etc. In the 37 project villages, 100% of villagers agreed to participate in the Project.

2) From October 2012 to August 2013, the local PMOs disclosed project information to local residents, and collected their attitudes and comments.

3) In June-July 2013, the RAP preparation agency disclosed project information, resettlement policies and restoration measures during the sampling socioeconomic survey.

4) In June-July 2013, the SA agency conducted a field survey to learn local economic and social conditions, and collected comments and suggestions by means of questionnaire survey, in-depth interview and FGD.

5) From July 2012 to date, project updates have been released on government websites.

2. Field survey

The SA team conducted a field survey on proposed sites of WWTPs, waterworks, pump stations, and water supply and sewer lines in the project villages, and local economic and social conditions. During the survey, the SA team learned expected resettlement modes, communicated compensation and resettlement policies, and consulted on preliminary resettlement programs.

3. Questionnaire survey

During June17-July 13, 2013, the SA team conducted a questionnaire survey on local environment, wastewater treatment, domestic water, public participation, etc. in 37 villages in the project cities/counties. 450 copies were distributed in total, with 421 valid copies recovered, accounting for 93.6%.

4. In-depth interview

During June17-July 13, 2013, the SA team conducted in-depth interviews with 82 rural residents, including women, old people and the poor, to learn their production and living conditions, positive and negative impacts of the Project, potential risks, attitudes to, suggestions on and expectations for the Project, and perceptions of wastewater treatment.

5. FGD

During June17-July 13, 2013, the SA team held 37 FGDs in the project cities/counties in total, with 273 participants in total, including 85 women, 27 poor persons and 76 old people, to learn local residents' needs and suggestions.

6. Key informant interview

The SA team interviewed key informants at the city/county, township/sub-district, and village/community levels to learn stakeholders' attitudes to and suggestions on the Project. At the city/county level, interviewees are mainly heads of land and resources bureaus, construction bureaus, women's federations, poverty reduction offices, ethnic and religious affairs bureaus, civil affairs bureaus, etc; at the township/sub-district level, interviewees are mainly heads of township governments/sub-district offices; at the village/community level, interviewees are mainly members of village/community committees. 129 key informants were interviewed in total.

Table 3-1 Summary of Public Participation Activities

| Method | Time | Venue | Activities | Participants |
|--------------------------------|-----------------------|---------------------------------------|--|---|
| Project information disclosure | 2012 | Project villages | Information disclosure Willingness survey | PMOs, township and village officials, residents |
| | Oct. 2012 – Aug. 2013 | Project villages | Disclosing project information, and collecting attitudes to and comments on the Project | PMOs, owners, township and village officials, residents, FSR agency |
| | Jun – Jul. 2013 | Project villages | Sampling socioeconomic survey | Village committees, PMOs, owners, RAP agency |
| | Jun – Jul. 2013 | Project villages | Collecting comments and suggestions from local residents | Village committees, PMOs, owners, SA agency |
| | Oct. 2013 | Government websites | Releasing project updates | PMOs, local residents |
| Field survey | Jun – Jul. 2013 | Proposed sites | Communicating on project preparation, and proposing suggestions on design optimization | Bank mission, FSR, RAP, SA and EIA agencies |
| Questionnaire survey | Jun – Jul. 2013 | Project villages and residents' homes | 450 copies distributed in total, with 421 valid copies recovered, accounting for 93.6% | Local residents, SA agency |
| In-depth interview | Jun – Jul. 2013 | Project villages and residents' homes | 82 rural residents, including 36 women, old people and poor persons | Local residents, SA agency |
| FGD | Jun – Jul. 2013 | Project villages | 37 FGDs, with 273 participants in total, including 85 women, 27 poor persons and 76 old people | Local residents, SA agency |
| Key informant interview | Jun – Jul. 2013 | Agencies concerned, project villages | 129 men-times with heads of agencies concerned | City/county departments concerned, SA agency |

3.3 Key Findings

1. Project awareness

Among the 421 respondents, only 92.3% have heard of the Project. For those aware of the Project, the main information sources are village/community committees (40.0%), followed by TV, broadcast, newspaper, Internet, etc. (22.9%), and then by the government (19.6%). The RIB and field survey are also important means for local residents to know about the Project. Although the PMOs, owners and design agency have given publicity on the Project, information disclosure and public participation should still be further strengthened during project implementation.

2. Attitude to the Project

Only 36.1% of the respondents think local domestic wastewater has been treated, and 52.73% think local domestic wastewater is discharged without treatment; only 32.3% of the respondents are satisfied with local wastewater collection and treatment, while most of them are dissatisfied or neither satisfied nor dissatisfied; 47.5% of the respondents think wastewater collection and treatment is the most urgent aspect to be improved.

During interviews, local residents also expressed grievances about local hygiene, especially about domestic wastewater treatment. Since wastewater is discharged directly without treatment, there is strong odor everywhere in summer. This shows that local residents have strong needs for the Project. 97.4% of the respondents support the Project, where the support rate of Anji County is 93%, that of Fuyang City 97.8%, and those of Tiantai County and Longquan City 100%. See

Table 3-2 Local Wastewater Treatment and Project Support Rates.

Table 3-2 Local Wastewater Treatment and Project Support Rates

| Perceptions | | Anji County | | Fuyang City | | Tiantai County | | Longquan City | | Total | |
|-------------------------|-------------|-------------|---------|-------------|---------|----------------|---------|---------------|---------|-------|---------|
| | | N | Percent | N | Percent | N | Percent | N | Percent | N | Percent |
| Is wastewater treated? | Yes | 48 | 42.11 | 52 | 38.8 | 22 | 27.5 | 30 | 32.3 | 152 | 36.1 |
| | No | 50 | 43.86 | 61 | 45.5 | 56 | 70.0 | 55 | 59.1 | 222 | 52.73 |
| | Don't know | 16 | 14.03 | 21 | 15.7 | 2 | 2.5 | 8 | 8.6 | 47 | 11.16 |
| Support for the Project | Support | 107 | 93.9 | 130 | 97.1 | 80 | 100.0 | 93 | 100.0 | 410 | 97.4 |
| | Not support | 2 | 1.8 | 1 | 0.7 | 0 | 0.0 | 0 | 0.0 | 4 | 1.0 |
| | Don't know | 5 | 4.3 | 3 | 2.2 | 0 | 0.0 | 0 | 0.0 | 7 | 1.7 |

3. Improving urban and rural drainage systems, water supply dependability and water quality

64.85% of the respondents use tap water, and 35.15% use well, lake or river water. Only urban residents and a small number of rural residents use tap water from waterworks, while most rural residents use tap water from self-constructed water supply works, where water quality and amount are highly seasonal, so they have a strong expectation for the improvement of water supply facilities.

In addition, well, lake or river water is still used in some villages, but is polluted by untreated domestic wastewater, so villagers expect to use tap water as soon as possible.

Table 3-3 Domestic Water Sources in the Project Area

| Domestic water | Anji County | | Fuyang City | | Tiantai County | | Longquan City | | Total | |
|---------------------------|-------------|---------|-------------|---------|----------------|---------|---------------|---------|-------|---------|
| | N | Percent | N | Percent | N | Percent | N | Percent | N | Percent |
| Tap water | 88 | 77.19 | 130 | 97.01 | 53 | 66.25 | 72 | 77.42 | 273 | 64.85 |
| Well, lake or river water | 26 | 22.81 | 4 | 2.99 | 27 | 33.75 | 21 | 22.58 | 148 | 35.15 |

4. Needs for participation in project construction

The participation of local residents in the construction, operation and maintenance of the Project is a main form of public participation, and a good opportunity to develop their environmental awareness and sense of responsibility, and increase their income.

1) Need to participate in project construction: 76.0% of the respondents (68.42% in Anji County, 74.63% in Fuyang City, 86.25% in Tiantai County and 73.16% in Longquan City) are willing to participate in project construction, such as working on construction sites and transporting raw materials; only 62 respondents are unwilling, accounting for 14.7%, and the main reasons for being unwilling to participate are already having stable income and being elderly; 9.3% will depend.

2) Need to participate in subsequent operation and management: The questionnaire survey shows that 90.5% of the respondents think they are obligated to participate in the operation and maintenance of treatment systems. If paid, 83.6% of the respondents are willing to participate in the operation and maintenance of treatment systems; 98.4% of the respondents are willing to change own habits to extend the service life of wastewater treatment systems. About the operation and maintenance mode of wastewater treatment systems, 49.2% of the respondents think systems should be maintained by villages, and 48.9% think systems should be maintained by specialized companies.

Table 3-4 Perceptions of Project Participation among Samples

| Perceptions | | Anji County | | Fuyang City | | Tiantai County | | Longquan City | | Total | |
|--|--------------------------|-------------|---------|-------------|---------|----------------|---------|---------------|---------|-------|---------|
| | | N | Percent | N | Percent | N | Percent | N | Percent | N | Percent |
| Jobs at the construction and operation stages | Willing | 77 | 67.5 | 104 | 77.6 | 65 | 81.3 | 74 | 79.6 | 320 | 76.0 |
| | Unwilling | 22 | 19.3 | 16 | 12.0 | 10 | 12.5 | 14 | 15.1 | 62 | 14.7 |
| | Don't know | 15 | 13.2 | 14 | 10.4 | 5 | 6.3 | 5 | 5.4 | 39 | 9.3 |
| Obligation to participate in the operation and maintenance of treatment systems | Yes | 99 | 86.8 | 115 | 85.8 | 78 | 97.5 | 89 | 95.7 | 381 | 90.5 |
| | No | 6 | 5.3 | 5 | 3.6 | 0 | 0.0 | 2 | 2.2 | 13 | 3.1 |
| | Not clear | 9 | 7.9 | 14 | 10.4 | 2 | 2.5 | 2 | 2.2 | 27 | 6.4 |
| Willingness to participate in the operation and maintenance of treatment systems if paid | Willing | 93 | 81.6 | 112 | 83.6 | 73 | 91.2 | 74 | 79.6 | 352 | 83.6 |
| | Unwilling | 12 | 10.5 | 13 | 9.7 | 1 | 1.3 | 14 | 15.1 | 40 | 9.5 |
| | Don't know | 9 | 7.9 | 9 | 6.7 | 6 | 7.5 | 5 | 5.4 | 29 | 6.9 |
| Operation and maintenance mode of wastewater treatment systems | By village | 54 | 47.4 | 69 | 51.5 | 52 | 65.0 | 32 | 34.4 | 207 | 49.2 |
| | By specialized companies | 58 | 50.9 | 62 | 46.3 | 28 | 35.0 | 58 | 62.4 | 206 | 48.9 |
| | Other | 2 | 1.8 | 3 | 2.2 | 0 | 0.0 | 3 | 3.2 | 8 | 1.9 |
| Changing own habits to extend the service life of equipment | Very willing | 49 | 43.0 | 52 | 38.8 | 26 | 32.5 | 21 | 22.6 | 148 | 35.2 |
| | Willing | 63 | 55.2 | 78 | 58.2 | 53 | 66.3 | 72 | 77.4 | 266 | 63.2 |
| | Not quite willing | 1 | 0.9 | 0 | 0.0 | 1 | 1.2 | 0 | 0.0 | 2 | 0.5 |
| | Unwilling | 0 | 0.0 | 1 | 0.8 | 0 | 0.0 | 0 | 0.0 | 1 | 0.2 |
| | Don't care | 1 | 0.9 | 3 | 2.2 | 0 | 0.0 | 0 | 0.0 | 4 | 1.0 |

4 Social Impact Analysis

4.1 Positive Impacts

1. Improving rural wastewater collection and treatment systems to improve the living environment

Although wastewater treatment systems are available in some project villages, they are inefficient and rarely utilized due to small scale or backward technique. Due to the absence of wastewater treatment systems in other villages, domestic wastewater is discharged after simple treatment or without treatment, resulting in environmental pollution. The questionnaire survey shows that only 36.15% think local domestic wastewater is treated (42.11% in Anji County, 38.8% in Fuyang City, 27.5% in Tiantai County and 32.3% in Longquan City), and 64.1% think local domestic wastewater is discharged without treatment (46.49% in Anji County, 45.5% in Fuyang City, 70% in Tiantai County and 59.1% in Longquan City). Only 32.3% of the respondents are satisfied with local wastewater collection and treatment (42.1% in Anji County, 42.6% in Fuyang City, 16.3% in Tiantai County and 19.4% in Longquan City), while most of them are dissatisfied or neither satisfied nor dissatisfied. During interviews, local residents also expressed grievances about local hygiene, especially about domestic wastewater treatment. Since wastewater is discharged directly without treatment, there is strong odor everywhere in summer. See

Table 4-1.

Table 4-1 Perceptions of and Satisfaction with Local Wastewater Treatment

| Item | City/ county | Anji County | | Fuyang City | | Longquan City | | Tiantai County | | Total | |
|--|-------------------|-------------|---------|-------------|---------|---------------|---------|----------------|---------|-------|---------|
| | | N | Percent | N | Percent | N | Percent | N | Percent | N | Percent |
| Is wastewater treated? | Yes | 48 | 42.11 | 52 | 38.8 | 30 | 32.3 | 22 | 27.5 | 152 | 36.1 |
| | No | 53 | 46.49 | 61 | 45.5 | 55 | 59.1 | 56 | 70.0 | 225 | 53.4 |
| | Don't know | 13 | 11.4 | 21 | 15.7 | 8 | 8.6 | 2 | 2.5 | 44 | 10.5 |
| Satisfaction with current wastewater treatment | Very satisfied | 9 | 7.9 | 6 | 4.5 | 1 | 1.1 | 3 | 3.8 | 19 | 4.5 |
| | Satisfied | 39 | 34.2 | 51 | 38.1 | 17 | 18.3 | 10 | 12.5 | 117 | 27.8 |
| | Neither, nor | 33 | 28.9 | 42 | 31.3 | 46 | 49.5 | 10 | 12.5 | 131 | 31.1 |
| | Dissatisfied | 26 | 22.8 | 30 | 22.4 | 29 | 31.2 | 45 | 56.3 | 130 | 30.9 |
| | Very dissatisfied | 7 | 6.1 | 5 | 3.7 | 0 | 0 | 12 | 15.1 | 24 | 5.9 |

The Project will improve rural wastewater collection and treatment systems, prevent the disorderly discharge of domestic wastewater, reduce odor arising from wastewater discharge, and improve the living environment greatly. The questionnaire survey shows that 81.24% of the respondents think the Project will improve the living environment (79.8% in Anji County, 80.6% in Fuyang City, 78.8% in Tiantai County and 86% in Longquan City).

Mr. Zhang, Penghu Village, Anji County (45 years)

There is a wastewater transfer station near our village, but it is almost out of service, so that every family discharges wastewater disorderly, resulting a strong odor, especially on rainy days. Everyone has strong grievances about the current situation of wastewater treatment.

2. Improving water supply facilities to meet water demand

With the growth of the urban population of the project cities/counties, water demand will rise greatly, which requires a higher water supply capacity. The existing equipment of some waterworks

cannot meet this demand. For example, the Nandayang Waterworks has been operating for 11 years, and some equipment is seriously damaged and aged. In addition, well, lake or river water is still used in some villages, so villagers have a strong expectation for tap water. The Project will improve water supply capacity and supply high-quality water to residents.

3. Improving local water quality to reduce waterborne diseases

The survey shows that except a few villages, domestic wastewater in most villages is discharged to private septic tanks or directly without treatment. The questionnaire survey shows that 89.4% of the respondents' houses have no septic tank (84.5% in Anji County, 96.9% in Fuyang City, 82.4% in Tiantai County and 89.9% in Longquan City). However, septic tanks would pollute groundwater due to wastewater penetration. In addition, some septic tanks are uncovered, so that wastewater therein would be flushed away by rain. The spillage of wastewater is likely to give rise to flies, mosquitoes and bacteria, and result in diseases, such as cold, fever and stomach upset. For this reason, among negative impacts arising from current wastewater treatment, 61.28% of the respondents choose "giving rise to flies and mosquitoes", and 75.53% choose "soil and water pollution". See

Table 4-2.

Table 4-2 Perceptions of Negative Impacts in Local Wastewater Treatment

| Negative impact | | Anji County | | Fuyang City | | Longquan City | | Tiantai County | | Total | |
|-------------------------------------|-----|-------------|---------|-------------|---------|---------------|---------|----------------|---------|-------|---------|
| | | N | Percent | N | Percent | N | Percent | N | Percent | N | Percent |
| Odor | Yes | 55 | 48.3 | 86 | 64.2 | 57 | 61.3 | 46 | 57.5 | 244 | 57.96 |
| | No | 59 | 51.8 | 48 | 35.8 | 36 | 38.7 | 34 | 42.5 | 177 | 42.04 |
| Giving rise to flies and mosquitoes | Yes | 62 | 54.4 | 93 | 69.4 | 52 | 55.9 | 51 | 63.8 | 258 | 61.28 |
| | No | 52 | 45.6 | 41 | 30.6 | 41 | 44.1 | 29 | 36.3 | 163 | 38.72 |
| Soil and water pollution | Yes | 85 | 74.6 | 106 | 79.1 | 71 | 76.3 | 56 | 70.0 | 318 | 75.53 |
| | No | 29 | 25.5 | 28 | 20.9 | 22 | 23.7 | 24 | 30.0 | 103 | 24.47 |

The Project will help reduce water pollution and prevent domestic wastewater from coming into contact with clean water, thereby improving local residents' health and reducing waterborne diseases, especially for the poor. The questionnaire survey shows that 71.02% of the respondents think the Project will reduce water pollution (76.3% in Anji County, 65.7% in Fuyang City, 78.8% in Tiantai County and 65.6% in Longquan City), and 55.58% the Project will reduce diseases (50% in Anji County, 52.2% in Fuyang City, 56.3% in Tiantai County and 66.7% in Longquan City).

Ms Wang, Xiaohuangnan Village, Longquan City (35 years)

Villagers here drink spring water. There is a wastewater treatment tank in the village, but most households are not connected to the tank but discharge wastewater directly to outdoor ditches, resulting in a strong odor, which smells sick.

4. Promoting economic development and generating jobs

The Project will promote local economic development by improving the local environment and attracting investment. In addition, the Project will create better conditions for tourism development and generate more job opportunities for local residents. 84.8% of the respondents think the Project will promote local economic development (88.6% in Anji County, 83.6% in Fuyang City, 81.3% in Tiantai County and 84.9% in Longquan City).

In addition, some unskilled jobs will be generated at the construction and operation stages,

such as material transport and catering services during construction, and the operation and maintenance of wastewater treatment systems. The local PMOs will urge the IAs to make such jobs first available to local laborers, especially women, old people and the poor. The questionnaire survey shows that 73.16% of the respondents are willing to do jobs generated by the Project at the construction and operation stages (68.42% in Anji County, 74.63% in Fuyang City, 86.25% in Tiantai County and 65.59% in Longquan City).

5. Improving environmental awareness and promoting environmental protection

With the progress of society, people's environmental awareness is improving. The Project will improve the local environmental infrastructure practically and also elevate local residents' environmental awareness. At the preparation stage, the local PMOs distributed the RIB, and the owners and design agency also gave publicity on the Project, so that local residents' environmental awareness was elevated unconsciously while they learned about the Project. With the completion and operation of the Project, its excellent environmental benefits will further deepen local residents' environmental awareness and promote rural environmental protection work.

6. Promoting the implementation of the Action Plan for Beautiful Countryside Building of Zhejiang Province

The Project is consistent with the Action Plan for Beautiful Countryside Building of Zhejiang Province (2011-2015), and will help improve the rural ecological environment by establishing rural domestic wastewater collection and treatment systems, and long-term operation and management mechanisms.

4.2 Negative Impacts

1. LA and HD

121.742 mu of collective land will be acquired permanently, affecting 99 households with 346 persons; 556.698 mu of collective land will be occupied temporarily, affecting 257 households with 818 persons. LA and HD will affect the AHs' income and livelihoods to varying degrees. The questionnaire survey shows that 92.87% of the respondents support land occupation (89.5% in Anji County, 90.3% in Fuyang City, 98.8% in Tiantai County and 95.7% in Longquan City), and 66.8% think land occupation should be compensated for (78.1% in Anji County, 75.4% in Fuyang City, 53.8% in Tiantai County and 51.6% in Longquan City). This shows that though local residents highly support land occupation, they are also concerned about compensation. If the AHs' losses are not appraised and compensated for reasonably, they may impede project construction or even damage wastewater treatment facilities after project completion. The resettlement of the AHs is an important factor to ensure successful project implementation.

Table 4-3 Attitudes of Local Residents to Land Occupation

| Attitude | | Anji County | | Fuyang City | | Tiantai County | | Longquan City | | Total | |
|----------------------------|-------------|-------------|---------|-------------|---------|----------------|---------|---------------|---------|-------|---------|
| | | N | Percent | N | Percent | N | Percent | N | Percent | N | Percent |
| Land occupation | Support | 102 | 89.5 | 121 | 90.3 | 79 | 98.8 | 89 | 95.7 | 391 | 92.87 |
| | Not support | 6 | 5.3 | 5 | 3.7 | 1 | 1.3 | 1 | 1.1 | 13 | 3.1 |
| | Don't care | 6 | 5.3 | 8 | 6.0 | | | 3 | 3.2 | 17 | 4.04 |
| Is compensation necessary? | Yes | 89 | 78.1 | 101 | 75.4 | 43 | 53.8 | 48 | 51.6 | 281 | 66.8 |
| | No | 7 | 6.1 | 17 | 12.7 | 18 | 22.5 | 20 | 21.5 | 62 | 14.7 |
| | Don't care | 18 | 15.8 | 16 | 11.9 | 19 | 23.8 | 25 | 26.9 | 78 | 18.5 |


2. Disturbance to daily life during construction

According to the project design, water supply and sewer lines will be constructed along roads,

which will inevitably affect local residents' work and daily life, such as traffic inconvenience, dust and noise pollution. Local residents think that such impacts are temporary and acceptable, but the project benefits will be prolonged.

3. Damaging interior decoration

Sewer lines have been installed in most houses and can be connected directly to sewer lines constructed in the Project without damaging walls and interior decoration. For houses in which sewer lines are not or improperly installed, sewer lines have been installed or reconstructed, thereby damaging walls and interior decoration. Most local residents can accept this, but some are worry about this and expect such damages to be minimized during construction.

 **Mr. Liu, Jilongshan Village, Dongzhou Sub-district, Fuyang City (31 years)**

My house was decorated with a lot of money. It is good to construct the sewer network, and we all support it. I worry about ground excavation and wall damage. I don't want my decoration to be damaged. Please be sure to pay attention to this during construction.

4. Operation and management risks

The Project is a public welfare project. As per the Bank's advice, rural wastewater treatment systems will be handed over to villages when put into operation, and village committees will be responsible for their operation and maintenance. Subsequent operation and maintenance is particularly important for the sustainability of the Project. If necessary funds and techniques are not available, there will be no return on the huge investment in project design and construction, which is a great waste. Some local residents are concerned about this, because some existing wastewater treatment tanks are rarely utilized due to poor maintenance.

5. Increasing the financial pressure of relatively undeveloped village collectives

At the operation stage, operating expenses such as electricity charges will be incurred. If village collectives have to bear such expenses, they will be exposed to extra financial pressure, especially for relatively undeveloped ones.

6. Ability to pay of vulnerable groups

The survey shows that local residents have high overall willingness to pay water charges. Based on calculation, the prevailing water rates (including water supply and wastewater treatment charges) are affordable for local ordinary households, but may be unaffordable for the poor.

5 Poverty Analysis

5.1 Low-income Population Analysis

5.1.1 Population

Zhejiang Province is the first province that eliminates poor counties and townships of China. In recent years, per capita income has been rising and poor population dropping quickly. In 2013, Zhejiang had a poor rural population of 4.1744 million, in which the population below the provincial poverty line of 4,600 yuan was 3.1749 million, accounting for 9.68% of provincial agricultural population.

Among the project cities/counties, the percentages of poor rural population Longquan City and Tiantai County are much higher than those of Anji County and Fuyang City, and also the provincial average of 9.68%. See Table 5-1.

Table 5-1 Rural Low-income Population

| Division | Poor rural households (0,000) | Poor rural population | Percent to rural population (%) |
|-------------------|-------------------------------|-----------------------|---------------------------------|
| Zhejiang Province | 134.07 | 317.49 | 9.68 |
| Anji County | 13739 | 29614 | 7.59 |
| Fuyang City | 5042 | 10626 | 2.05 |
| Tiantai County | 42678 | 112855 | 25 |
| Longquan City | 25736 | 78199 | 32 |

5.1.2 Distribution

Tiantai County and Longquan City rank 5th and 19th among the top 20 county-level cities/counties in Zhejiang in terms of the number of poor rural households.

5.1.3 MLS

At the end of 2012, Zhejiang Province had a registered MLS population of 675,000, including an urban population of 78,000 and a rural MLS population of 597,000, and MLS expenditure was 1.76 billion yuan, a year-on-year growth of 13.8%.

In the project area, there are 19,757 MLS households with 34,827,368 persons, accounting for 5.44% of provincial MLS population, including 18,265 rural MLS households with 32,459 persons and 1,492 urban MLS households with 2,368 persons. Among the project cities/counties, the percentage of rural MLS population to rural population ranges from 3.26% (Longquan City) to 1.42% (Tiantai County), and the percentage of urban MLS population to urban population ranges from 11.64% (Longquan City) to 1.1% (Anji County). See **Error! Reference source not found.**

Table 5-2 Local MLS Information (2012)

| Division | Rural MLS | | | Urban MLS | | |
|-------------------|-----------|------------|---------------------------------|-----------|------------|---------------------------------|
| | HHs | Population | Percent to rural population (%) | HHs | Population | Percent to urban population (%) |
| Zhejiang Province | / | 597,000 | 1.82 | / | 78,000 | 0.52 |
| Project area | 18265 | 32459 | 2.04 | 1492 | 2368 | 0.59 |
| Anji County | 5555 | 8237 | 2.33 | 788 | 1169 | 1.1 |
| Fuyang City | 4342 | 9415 | 1.83 | 173 | 325 | 2.32 |
| Tiantai County | 3856 | 6748 | 1.42 | 196 | 377 | 3.43 |
| Longquan City | 4512 | 8059 | 3.26 | 335 | 497 | 11.64 |

Source: Statistical Bulletin 2012 on National Economic and Social Development of Zhejiang Province; city/county civil affairs bureaus

The MLS standards of the project cities/counties are as shown in Table 5-3.

Table 5-3 Local MLS Information (2013)

| Item | Anji County | Fuyang City | Tiantai County | Longquan City |
|--|-------------|-------------|----------------|---------------|
| Urban MLS standard (yuan/capita/month) | 480 | 510 | 480 | 432 |
| Rural MLS standard (yuan/capita/month) | 360 | 375 | 338 | 294 |

Source: city/county civil affairs bureaus

5.2 Demand Analysis of the Poor

The poor population in the project area has almost the same needs as other local residents, but there are some key concerns:

1. The unskilled jobs generated at the construction and operation stages should be first made available to poor population. The questionnaire survey shows that 97.8% of the MLS respondents are willing to do jobs generated by the Project.

2. It can be seen from the analysis of ability to pay of the poor (see Section 0) that the overall percentage of water supply and wastewater treatment charges to their household income is much higher than that of ordinary households, and additional charges after project completion will further increase their financial burden and aggravate their poverty. Most poor residents expect preferential policies for low-income households to alleviate their financial burden.

5.3 Impacts of the Project on the Poor

Relatively poor villages and residents are often disadvantaged in utilizing compensation fees, benefiting from the Project, and adapting to new production and living patterns during resettlement for LA and HD, thereby their poverty may be aggravated. Additional charges after project completion will further increase the financial burden of poor households.

However, the project design will ensure that poverty will not be aggravated and the poor can benefit equally from the Project in the following aspects:

1. Generating job opportunities to increase their income

First, the Project will generate some temporary or permanent jobs at the construction and operation stages, such as working on construction sites and transporting raw materials, which will be first made available to the poor to increase their income.

Second, the Project will improve the local environment, promote tourism development, and generate some jobs indirectly, such as catering, accommodation and cleaning, so that the poor can get employed and earn more money.

2. Improving the living environment and reducing medical expenses

The poor are more likely to be ill due to low living standard and poor living environment, and their diseases are likely to worsen due to their inability to pay medical expenses. The Project will improve local water supply and drainage facilities, and reduce water pollution and waterborne diseases, thereby reducing their medical expenses.

3. Promoting local economic development to alleviate poverty

The Project will promote local economic development by improving the local environment and attracting investment. In addition, the Project will create better conditions for tourism development and generate more job opportunities for local residents, especially the poor, such as hotel attendants, cleaners, waiters, cooks and taxi drivers.

6 Willingness and Ability to Pay

6.1 Willingness to Pay

Willingness to pay is a subjective mental state of the APs of being willing or not to pay wastewater treatment charges under the Project. The data for the analysis below is from the 421 valid copies of the questionnaire, including 114 copies from Anji County, 134 copies from Fuyang City, 80 copies from Tiantai County, and 93 copies from Longquan City.

6.1.1 Willingness to Pay of Residents in Different Areas

The questionnaire survey shows that 79.33% of the respondents are willing to pay more wastewater treatment charges, with an average of 8.92 yuan. Among those willing to pay more (81.58% in Anji County, 76.12% in Fuyang City, 85% in Tiantai County and 76.34% in Longquan City), the average amount of monthly wastewater treatment charges willing to be paid is 9.58 yuan in Anji County, 10.8 yuan in Fuyang City, 9.63 yuan in Tiantai County and 7.9 yuan in Longquan City.

Table 6-1 Willingness to Pay Wastewater Treatment Charges (Monthly)

| City/country | Willingness | 2 yuan | 5 yuan | 10 yuan | 15 yuan | 20 yuan | Total | Percent |
|----------------|-------------|--------|--------|---------|---------|---------|-------|---------|
| Anji County | Yes | 18 | 24 | 19 | 19 | 13 | 93 | 81.58 |
| | No | 3 | 2 | 5 | 4 | 7 | 21 | 18.42 |
| Fuyang City | Yes | 21 | 27 | 9 | 13 | 32 | 102 | 76.12 |
| | No | 4 | 2 | 8 | 10 | 7 | 31 | 23.13 |
| Tiantai County | Yes | 15 | 12 | 18 | 15 | 8 | 68 | 85.00 |
| | No | 0 | 2 | 1 | 7 | 2 | 12 | 15.00 |
| Longquan City | Yes | 13 | 23 | 22 | 12 | 1 | 71 | 76.34 |
| | No | 1 | 2 | 6 | 8 | 5 | 22 | 23.66 |

6.1.2 Household Income and Willingness to Pay

Household income affects willingness to pay to some extent. The questionnaire survey shows that respondents with higher willingness to pay have household monthly income of 20,001 yuan, where 96% of the respondents with household monthly income of 20,001-30,000 yuan and 93.33% of those with household monthly income of over 30,000 yuan are willing to pay. It can be seen from

Table 6-2 that willingness to pay is positively correlated to income to some extent. The reason may be that the amount of wastewater treatment charges and their percentage to household income are low.

Table 6-2 Willingness to Pay Wastewater Treatment Charges by Income Level (Monthly)

| Amount paid | 1,000 yuan or below | | 1,001-3,000 yuan | | 3,001-6,000 yuan | | 6,001-10,000 yuan | | 10,001-20,000 yuan | | 20,001-30,000 yuan | | Over 30,000 yuan | |
|-------------|---------------------|-------|------------------|-------|------------------|-------|-------------------|-------|--------------------|-------|--------------------|------|------------------|------|
| | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| 2 yuan | 1 | 0 | 14 | 2 | 26 | 3 | 16 | 2 | 3 | 1 | 3 | 0 | 4 | 0 |
| 5 yuan | 1 | 0 | 25 | 3 | 31 | 2 | 19 | 2 | 6 | 1 | 3 | 0 | 1 | 0 |
| 10 yuan | 0 | 1 | 14 | 3 | 28 | 10 | 25 | 4 | 6 | 2 | 11 | 0 | 7 | 0 |
| 15 yuan | 0 | 0 | 22 | 6 | 21 | 14 | 6 | 8 | 4 | 0 | 5 | 1 | 1 | 0 |
| 20 yuan | 0 | 0 | 2 | 6 | 15 | 11 | 6 | 3 | 5 | 0 | 2 | 0 | 1 | 1 |
| Total | 2 | 1 | 77 | 20 | 121 | 40 | 72 | 19 | 24 | 4 | 24 | 1 | 14 | 1 |
| Percent | 66.67 | 33.33 | 79.38 | 20.62 | 75.16 | 24.84 | 79.12 | 20.88 | 85.71 | 14.29 | 96.00 | 4.00 | 93.33 | 6.67 |

6.1.3 Educational Level and Willingness to Pay

Respondents of all education levels have high willingness to pay. Generally, the correlation between educational level and willingness to pay is weak. Specifically, the group with the highest

willingness to pay (90%) is illiterates, followed by junior high school (80.82%) and senior high school/secondary technical school (80.95%).

Table 6-3 Willingness to Pay Wastewater Treatment Charges by Educational Level

| Amount paid | Illiterate | | Primary school | | Junior high school | | Senior high school/secondary technical school | | Junior college or above | |
|-------------|------------|-------|----------------|-------|--------------------|-------|---|-------|-------------------------|-------|
| | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| 2 yuan | 2 | 0 | 7 | 1 | 25 | 2 | 20 | 2 | 13 | 3 |
| 5 yuan | 7 | 0 | 12 | 1 | 34 | 6 | 22 | 1 | 11 | 0 |
| 10 yuan | 6 | 0 | 15 | 3 | 30 | 5 | 19 | 3 | 21 | 9 |
| 15 yuan | 2 | 0 | 9 | 3 | 20 | 12 | 17 | 10 | 11 | 4 |
| 20 yuan | 1 | 2 | 5 | 7 | 9 | 3 | 7 | 4 | 9 | 5 |
| Total | 18 | 2 | 48 | 15 | 118 | 28 | 85 | 20 | 65 | 21 |
| Percent | 90.00 | 10.00 | 76.19 | 23.81 | 80.82 | 19.18 | 80.95 | 19.05 | 75.58 | 24.42 |

6.1.4 Occupation and Willingness to Pay

The questionnaire survey shows that respondents with different occupations differ in willingness to pay insignificantly. Those with higher willingness to pay are civil servants (96.55%) and retirees (91.67%), while those with lower willingness to pay are self-employers (70.27%) and freelancers (69.23%), and the willingness to pay of respondents with other occupations is within the range of 80-90%.

Table 6-4 Willingness to Pay Wastewater Treatment Charges by Occupation (Monthly)

| Amount paid | Civil servant | | Worker of public institution | | Worker of state-owned enterprise | | Self-employer | | Freelancer | |
|-------------|---------------|------|------------------------------|-------|----------------------------------|-------|---------------|-------|------------|-------|
| | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| 2 yuan | 5 | 0 | 6 | 2 | 8 | 0 | 6 | 2 | 3 | 0 |
| 5 yuan | 5 | 0 | 8 | 0 | 9 | 0 | 8 | 1 | 7 | 0 |
| 10 yuan | 9 | 0 | 10 | 2 | 4 | 4 | 5 | 4 | 4 | 4 |
| 15 yuan | 7 | 1 | 9 | 3 | 4 | 1 | 4 | 1 | 3 | 4 |
| 20 yuan | 2 | 0 | 4 | 2 | 3 | 2 | 3 | 3 | 1 | 0 |
| Total | 28 | 1 | 37 | 9 | 28 | 7 | 26 | 11 | 18 | 8 |
| Percent | 96.55 | 3.45 | 80.43 | 19.57 | 80.00 | 20.00 | 70.27 | 29.73 | 69.23 | 30.77 |
| Amount paid | Retiree | | Student | | Farmer | | Employee | | Other | |
| | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| 2 yuan | 1 | 0 | 2 | 0 | 29 | 4 | 6 | 0 | 1 | 0 |
| 5 yuan | 5 | 0 | 0 | 0 | 36 | 5 | 7 | 2 | 1 | 0 |
| 10 yuan | 3 | 0 | 1 | 0 | 43 | 6 | 9 | 0 | 3 | 0 |
| 15 yuan | 1 | 1 | 0 | 1 | 26 | 17 | 4 | 0 | 1 | 0 |
| 20 yuan | 1 | 0 | 0 | 0 | 16 | 10 | 1 | 3 | 0 | 1 |
| Total | 11 | 1 | 3 | 1 | 124 | 25 | 27 | 5 | 6 | 1 |
| Percent | 91.67 | 8.33 | 75.00 | 25.00 | 83.22 | 16.78 | 84.38 | 15.63 | 85.71 | 14.29 |

6.1.5 Age and Willingness to Pay

Age is also strongly correlated to willingness to pay, but overall differences are small.

Table 6-5 Willingness to Pay Wastewater Treatment Charges by Age Group (Monthly)

| Amount paid | Below 18 years | | 18-44 years | | 45-59 years | | 60 years or more | |
|-------------|----------------|----|-------------|----|-------------|----|------------------|----|
| | Yes | No | Yes | No | Yes | No | Yes | No |
| 2 yuan | 0 | 0 | 34 | 5 | 22 | 2 | 11 | 1 |
| 5 yuan | 0 | 0 | 30 | 3 | 33 | 4 | 23 | 1 |

| | | | | | | | | |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 10 yuan | 1 | 0 | 36 | 10 | 32 | 8 | 22 | 2 |
| 15 yuan | 1 | | 31 | 12 | 15 | 12 | 13 | 4 |
| 20 yuan | 0 | 1 | 14 | 12 | 14 | 5 | 3 | 4 |
| Total | 2 | 1 | 145 | 42 | 116 | 31 | 72 | 12 |
| Percent | 66.67 | 33.33 | 77.54 | 22.46 | 78.91 | 21.09 | 85.71 | 14.29 |

6.1.6 Gender and Willingness to Pay

80.19% of the male respondents are willing to pay, slightly higher than the percentage of the female respondents of 77.68%.

Table 6-6 Willingness to Pay Wastewater Treatment Charges by Gender (Monthly)

| Amount | Male | | Female | |
|---------|-------|-------|--------|-------|
| | Yes | No | Yes | No |
| 2 | 49 | 7 | 18 | 1 |
| 5 | 60 | 7 | 26 | 1 |
| 10 | 71 | 12 | 20 | 8 |
| 15 | 42 | 19 | 17 | 10 |
| 20 | 25 | 16 | 6 | 5 |
| Total | 247 | 61 | 87 | 25 |
| Percent | 80.19 | 19.81 | 77.68 | 22.32 |

6.2 Ability to Pay

The Research Report on Urban Water Shortage released by the Ministry of Construction in 1995 thinks that it is appropriate that urban domestic water charges account for 2.5-3% of household income. The World Bank thinks that a percentage of 3-5% is feasible. In view of the socioeconomic profile of the project cities/counties, the ability to pay level of residents is fixed at 3% in this SA.

6.2.1 Current Situation of Payment

Since water rates¹ differ from place to place and are fixed in different ways in the project cities/counties, the highest water rate in the project cities/counties is used here. At this rate, annual water charges account for less than 3% of annual household income, so we can assume that local water rates are affordable for local residents. See

Table 6-7.

Table 6-7 Summary of Local Domestic Water Rates

| City/county | Domestic water (yuan/ton) | | |
|-----------------------|---------------------------|---------------------------|-------|
| | Water supply rate | Wastewater treatment rate | Total |
| Anji County | 1.35 | 0.55 | 1.9 |
| Fuyang City | 1.1 | 0.4 | 1.5 |
| Tiantai County | 1.4 | 0.25 | 1.65 |
| Longquan City | 1.6 | 0.4 | 2 |

Source: subproject feasibility reports

6.2.2 Analysis of Ability to Pay

Average household monthly water consumptions in the project cities/counties are 12.7 tons in Anji County, 15.4 tons in Fuyang City, 14.2 tons in Tiantai County and 13.5 tons in Longquan City. Longquan City has the highest percentage of water charges to household income of 0.41%, followed by Tiantai County (0.37%), Anji County (0.34%) and Fuyang City (0.32%). It can be seen

¹ In this report, water charges includes water supply and wastewater treatment charges.

that the percentages in the project cities/counties are much lower than the recommended level of 3%, and the prevailing water rates are affordable for ordinary households. See Table 6-8.

MLS households have lower ability to pay than ordinary households. The current MLS standards of the project cities/counties are 360 yuan per capita per month in Anji County, 510 yuan in Fuyang City, 480 yuan per capita per month in Tiantai County and 432 yuan per capita per month in Longquan City. On this basis, the percentage of water charges to household income is 2.62% in Anji County, 1.54% in Fuyang City, 2.02% in Tiantai County and 1.07% in Longquan City. In Longquan City, each MLS household is exempt from water charges for 5 tons per month; in Fuyang City, each MLS household is granted a water charge subsidy of 50 yuan per annum, where there is no preferential policy in Anji and Tiantai Counties.

Generally, the percentage of water charges to household income of MLS households in the project area is lower than the international warning line but higher than that of ordinary households. In particular, in Anji County, this percentage is 2.62% for MLS households, just slightly below the international warning line, because the water rate of Anji County is relatively high and there is no preferential policy.

Table 6-8 Analysis of Ability to Pay of Ordinary households and the Poor²

| City/county | | Monthly water consumption (ton) | Annual water consumption (ton) | Annual water expenditure | Per capita annual income (yuan) | Average household population | Average annual household income | Percent of water expenditure to household income (%) |
|----------------|--------------|---------------------------------|--------------------------------|--------------------------|---------------------------------|------------------------------|---------------------------------|--|
| Anji County | Ordinary HHs | 12.7 | 152.4 | 289.56 | 28679 | 2.97 | 85176.63 | 0.34 |
| | MLS HHs | 9.8 | 117.6 | 223.44 | 5760 | 1.48 | 8524.8 | 2.62 |
| Fuyang City | Ordinary HHs | 15.4 | 184.8 | 277.2 | 29250 | 2.96 | 86580 | 0.32 |
| | MLS HHs | 12.6 | 151.2 | 176.8 | 6120 | 1.88 | 11505.6 | 1.54 |
| Tiantai County | Ordinary HHs | 14.2 | 170.4 | 281.16 | 24912 | 3.03 | 75483.36 | 0.37 |
| | MLS HHs | 11.3 | 135.6 | 223.74 | 5760 | 1.92 | 11059.2 | 2.02 |
| Longquan City | Ordinary HHs | 13.5 | 162 | 324 | 24904 | 3.15 | 78447.6 | 0.41 |
| | MLS HHs | 4.1 | 85.2 | 98.4 | 5184 | 1.77 | 9175.68 | 1.07 |

Source: 1) questionnaire survey; 2) Statistical Yearbook 2012 of Zhejiang Province

It can be seen that: 1) Since local residents' income will further increase in the future, ordinary households can afford wastewater treatment charges; 2) The collection of wastewater treatment charges has a higher impact on the poor than on ordinary households; 3) Preferential policies for low-income households can relieve their financial burden effectively; and 4) The Anji and Tiantai County Governments should develop preferential policies for vulnerable groups as soon as possible to ensure that they benefit from the Project, and the Fuyang and Longquan Municipal Governments

² In this table, annual water consumption = monthly water consumption *12; annual water expenditure = annual water consumption * water rate; average annual household income = per capita annual income * average household population; percent of water expenditure to household income = water expenditure / household income; MLS households per capita annual income = MLS standard *12

should strengthen the implementation of their prevailing preferential policies.

7 Social and Gender Analysis

7.1 Female Population in the Project Area

At the end of 2011, Zhejiang Province had a registered population of 47.8131 million, including 23.5493 million females, accounting for 49.24%; the project area had a population of 1.9898 million, including 973,400 females, accounting for 48.92%. See

Table 7-1.

Table 7-1 Basic Information of Local Women (2011)

| Division | HHs (0,000) | Population (0,000) | Males (0,000) | Females (0,000) | Percent of females | Gender ratio (females =100) |
|-------------------|-------------|--------------------|---------------|-----------------|--------------------|-----------------------------|
| Zhejiang Province | 1618.04 | 4781.31 | 2426.93 | 2354.38 | 49.24 | 103.1 |
| Project area | 66.13 | 199 | 101.66 | 97.34 | 48.92 | 104.4 |
| Anji County | 15.48 | 45.97 | 22.97 | 23.00 | 50.03 | 99.9 |
| Fuyang City | 22.07 | 65.39 | 33.06 | 32.33 | 49.45 | 102.3 |
| Tiantai County | 19.38 | 58.63 | 30.67 | 27.96 | 47.70 | 109.7 |
| Longquan City | 9.20 | 29.01 | 14.96 | 14.05 | 48.43 | 106.5 |

Source: Statistical Yearbook 2012 of Zhejiang Province

7.2 Women in the Project Area

In order to learn the development of local women, a questionnaire survey on women and interviews with women were conducted. The questionnaire survey involves 208 female respondents, accounting for 49.4%.

1. Age structure

The age group of 31-59 years has the most respondents, accounting for 66.3% of all respondents. Among the female respondents, the largest age group is 31-59 years, followed by 30 years and 60 years or above; among the male respondents, the largest age group is 31-59 years, followed by 60 years or above and 30 years. See

Table 7-2.

Table 7-2 Gender and Age Distribution of the Samples

| Age | Male | | Female | | Total | |
|-------------------|------|---------|--------|---------|-------|---------|
| | N | Percent | N | Percent | N | Percent |
| 30 years or less | 22 | 10.3 | 36 | 17.3 | 58 | 13.8 |
| 31-59 years | 140 | 65.7 | 138 | 66.3 | 278 | 66.0 |
| 60 years or above | 51 | 24.0 | 34 | 16.4 | 85 | 20.2 |
| Total | 213 | 100.0 | 208 | 100.0 | 421 | 100.0 |

2. Educational level

59.1% and 60.6% of the female and male respondents have received junior or senior high school education respectively; 24% and 16.9% of the females and males have received junior college or above education respectively; 11.5% and 22.5% of the females and males have received primary school or below education. It can be seen that there is no significant difference between females and males in educational level, and the overall educational level of females is even slightly higher. See

Table 7-3.

Table 7-3 Gender and Educational Level Distribution of the Samples

| Educational level | Male | | Female | | Total | |
|-------------------------|------|---------|--------|---------|-------|---------|
| | N | Percent | N | Percent | N | Percent |
| Junior college or above | 36 | 16.9 | 50 | 24.0 | 86 | 20.4 |
| Senior high school | 50 | 23.5 | 56 | 26.9 | 106 | 25.2 |
| Junior high school | 79 | 37.1 | 67 | 32.2 | 146 | 34.7 |
| Primary school | 39 | 18.3 | 24 | 11.5 | 63 | 15.0 |
| Illiterate | 9 | 4.2 | 11 | 5.3 | 20 | 4.8 |
| Total | 213 | 100.0 | 208 | 100.0 | 421 | 100.0 |

3. Occupation

The percentages of farmers and freelancers among the female respondents are higher than those of the males, while the percentages of employees, workers of public institutions and self-employers among the female respondents are lower than those of the males, showing a clear gender-based division of labor, where more men work outside and more women stay at home. Most female interviewees do farm work and take care of the family at home, and those employed usually work at nearby enterprises or work outside in the slack season. See

Table 7-4.

Table 7-4 Gender and Occupation Composition of the Samples

| Occupation | Male | | Female | | Total | |
|----------------------------------|------|---------|--------|---------|-------|---------|
| | N | Percent | N | Percent | N | Percent |
| Civil servant | 12 | 5.6 | 10 | 4.8 | 22 | 5.2 |
| Worker of public institution | 24 | 11.3 | 14 | 6.7 | 38 | 9.0 |
| Worker of state-owned enterprise | 14 | 6.6 | 14 | 6.7 | 28 | 6.7 |
| Self-employer | 17 | 8.0 | 15 | 7.2 | 32 | 7.6 |
| Freelancer | 11 | 5.2 | 23 | 11.1 | 34 | 8.1 |
| Retiree | 9 | 4.2 | 5 | 2.4 | 14 | 3.3 |
| Student | 2 | 0.9 | 5 | 2.4 | 7 | 1.7 |
| Farmer | 70 | 32.9 | 87 | 41.8 | 157 | 37.3 |
| Employee | 48 | 22.5 | 31 | 14.9 | 79 | 18.8 |
| Other | 6 | 2.8 | 4 | 1.9 | 10 | 2.4 |
| Total | 213 | 100.0 | 208 | 100.0 | 421 | 100.0 |

4. Social status

Most of the household heads among the respondents are males. 89.2% of the male respondents are household heads, much higher than the percentage of 46.6% among the females. In the question “which family member would attend a meeting related to the Project?”, 83.37% of the respondents choose “man” and only 16.63% choose “woman”. It can be seen that the social status and degree of participation in public affairs of women are still lower than those of men. See Table 7-5.

Table 7-5 Gender and Household Head Distribution of the Samples

| Head of household | Male | | Female | | Total | |
|-------------------|------|---------|--------|---------|-------|---------|
| | N | Percent | N | Percent | N | Percent |
| Yes | 190 | 89.2 | 97 | 46.6 | 287 | 68.2 |
| No | 23 | 10.8 | 111 | 53.4 | 134 | 31.8 |
| Total | 213 | 100.0 | 208 | 100.0 | 421 | 100.0 |

7.3 Women’s Needs for the Project

At the preparation stage, the PMOs, IAs, design agency, SA team and social consultants collected local women’s needs and suggestions by means of FGD and interview, including:

1. Need for the Project

It can be seen from above (see Section 6.2) that there is a clear gender-based division of labor, and the tradition that men handle external affairs and women handle internal affairs is largely maintained. Women are the main force of domestic wastewater disposal. In the question “Who disposes of domestic wastewater most often?”, 75.06% of the respondents choose woman (78.95% in Anji County, 67.16% in Fuyang City, 77.5% in Tiantai County and 79.57% in Longquan City).

Since women do more housework, the Project is much more significant for them. 97.60% of the female respondents support the Project, because the Project will improve the local environment, reduce odor, flies and mosquitoes arising from wastewater discharge, and alleviate their amount of labor in wastewater disposal. See

Table 7-6 and

Table 7-7.

Table 7-6 Division of Labor by Gender in Domestic Sewage Disposal

| Who disposes of wastewater most often? | Anji County | | Fuyang City | | Longquan City | | Tiantai County | | Total | |
|--|-------------|---------|-------------|---------|---------------|---------|----------------|---------|-------|---------|
| | N | Percent | N | Percent | N | Percent | N | Percent | N | Percent |
| Young woman (16-55 years) | 60 | 52.63 | 72 | 53.73 | 61 | 65.59 | 42 | 52.5 | 235 | 55.82 |
| Old woman (55 years or above) | 30 | 26.32 | 18 | 13.43 | 13 | 13.98 | 20 | 25 | 81 | 19.24 |
| Young man (16-55 years) | 18 | 15.79 | 27 | 20.15 | 18 | 19.35 | 7 | 8.75 | 70 | 16.63 |
| Old man (55 years or above) | 6 | 5.26 | 17 | 12.69 | 1 | 1.08 | 11 | 13.75 | 35 | 8.31 |
| Total | 114 | 100 | 134 | 100 | 93 | 100 | 80 | 100 | 421 | 100 |

Table 7-7 Awareness of the Project by Gender

| City/county | Gender | Support | | Not support | | Don't care | |
|----------------|--------|---------|---------|-------------|---------|------------|---------|
| | | N | Percent | N | Percent | N | Percent |
| Anji County | Male | 49 | 91.69 | 2 | 3.7 | 3 | 5.56 |
| | Female | 58 | 96.67 | 0 | / | 2 | 3.33 |
| Fuyang City | Male | 70 | 98.59 | 0 | / | 1 | 1.41 |
| | Female | 60 | 95.34 | 1 | 1.59 | 2 | 3.17 |
| Tiantai County | Male | 41 | 100 | / | / | / | / |
| | Female | 39 | 100 | / | / | / | / |
| Longquan City | Male | 47 | 100 | / | / | / | / |
| | Female | 46 | 100 | / | / | / | / |

2. Need for job opportunities

Some unskilled jobs will be generated at the construction and operation stages. Since most construction sites are close to villages, some local residents expect to get such jobs. 74.04% of the female respondents are willing to participate in project construction, higher than the percentage of the male respondents of 72.3%. See Table 7-8.

Ms Xu, Qianyang Village, Tiantai County (51 years)

My husband works outside, while I do farm work and take care of the family at home. I want to do a job in the Project while still taking care of the family if the workplace is not distant.

Table 7-8 Willingness for Employment of the Samples

| City/county | Gender | Willing | | Unwilling | | Don't know | |
|-------------|--------|---------|---------|-----------|---------|------------|---------|
| | | N | Percent | N | Percent | N | Percent |
| Anji County | Male | 36 | 66.67 | 10 | 18.52 | 8 | 14.81 |

| | | | | | | | |
|----------------|--------|----|-------|----|-------|---|-------|
| | Female | 42 | 70.00 | 12 | 20.00 | 6 | 10.00 |
| Fuyang City | Male | 58 | 81.69 | 6 | 8.45 | 7 | 9.86 |
| | Female | 42 | 66.67 | 12 | 19.05 | 9 | 14.29 |
| Tiantai County | Male | 32 | 78.05 | 7 | 17.07 | 2 | 4.88 |
| | Female | 37 | 94.87 | 0 | 0.00 | 2 | 5.13 |
| Longquan City | Male | 28 | 80.85 | 6 | 12.77 | 3 | 6.38 |
| | Female | 33 | 71.74 | 10 | 21.74 | 3 | 6.52 |

3. Need for public participation

It can be seen from above (see Section 6.2) that the social status of women is still lower than that of men in the project area. According to interviews, local women are generally willing to participate in project activities, such as environmental protection, health knowledge publicity and training, and expect that their needs are further respected in future activities.

7.4 Impacts of the Project on Women

7.4.1 Positive Impacts

1. Reducing women's labor intensity and waterborne diseases

Since domestic wastewater is disposed of by women mainly, they have greater exposure to wastewater. In addition, as discussed earlier, since local women do farm work and take care of the family at home, the local environment is more important to them than to men working outside, so the Project is much more significant for women.

The Project will help improve the local environment, and reduce women's exposure to domestic wastewater and waterborne diseases, such as skin and respiratory diseases, thereby improving women's health and reducing medical expenses. 82.6% of the female respondents think the Project will reduce diseases. In addition, the Project will improve household wastewater collection facilities and reduce women's labor intensity to some extent.

2. Increasing women's job opportunities and income

Some unskilled jobs generated at the construction and operation stages will be first made available to women, the poor and other vulnerable groups.

In addition, the Project will create better conditions for tourism development and generate more job opportunities for local residents, especially women, such as hotel attendants, cleaners, waiters, cooks and taxi drivers.

3. Encouraging women's participation and promoting their development

Women's participation is always encouraged, and the protection of their rights and interests valued in Bank-financed projects. The public participation mechanism under the Project will involve more women in the Project, give them adequate voice, make them realize their own value, and provide them with more development opportunities. In addition, special skills training and environmental publicity for women will help enhance their environmental and health awareness, improve their overall competencies, and promote their long-term development.

7.4.2 Negative Impacts

Although women will benefit from the Project, if social gender sensitivity is insufficient in project design, construction and operation, and women's needs for and suggestions on the Project are neglected, the project benefits would be reduced and risks generated for women, including:

1. Ignorance of needs

Due to traditional and economic factors, the social status of women is still lower than that of men in the project area, so that women's needs and suggestions are often neglected at the design, construction and operation stages. For example, women's needs are neglected in village selection

and indoor sewer line connection; women are unable to sign to receive compensation fees because they are not household heads; women are excluded or their rights not protected during construction.

2. Increased financial burden

LA in the Project may affect the living standard of land-expropriated women directly. If these women are not employed or resettled properly, their income and living standard will be reduced. In addition, the possible rise of wastewater treatment charges may increase the financial burden of housewives, especially for MLS households. In addition, jobs at the construction stage are temporary, and women have to find other jobs after the completion of construction.

8 Social Action Plan and Implementation

8.1 Social Action Plan

The Social Action Plan has been developed in consultation with stakeholders to minimize negative impacts and evade social risks.

1. Reducing LA and HD risks

a) Develop a detailed RAP; and b) Pay particular attention to the income restoration of vulnerable groups in the RAP.

2. Protecting local residents from construction impacts

a) Conduct publicity before construction and conduct construction in stages to minimize impacts on enterprises and stores on roadsides; b) Take measures to control and reduce noise; c) Sprinkle construction roads regularly to prevent flying dust; d) Set up no-horning signs in densely populated areas and avoid overnight construction.

3. Reducing damages to interior decoration

a) Reconstruct indoor sewer lines in consultation with local residents to minimize damages to walls and interior decoration; and b) Compensate for inevitable damages properly.

4. Avoiding operation and management risks

a) Select the operation and maintenance staff of treatment systems in advance and give them specialized training during the trial operation period of 18 months; and b) Keep the staff relatively stable and strengthen education on the sense responsibility.

5. Relieving the financial pressure of relatively undeveloped village collectives

a) Consider operation and maintenance costs in project option selection, and choose the option with lower costs; and b) Fully or partly exempt relatively undeveloped village collectives from operation and maintenance costs.

6. Preferential policies for vulnerable groups

a) Develop preferential policies on water supply and wastewater treatment charges for vulnerable groups; and b) Adjust water rates through a public hearing.

A feasible social action plan has been developed based on the potential social risks of the Project in consultation with the PMOs, IAs, and other and agencies concerned. See Table 8-1.

8.2 Public Participation Plan

The information disclosure and public participation plan has been developed based on the questionnaire survey, FGDs, in-depth interviews, key informant interviews and participatory observation. See Table 8-2.

Table 8-1 Gender and Social Action Plans

| Type of risk | Actions | Actors | Stage | Funding | Monitoring indicators |
|--|---|---|--------------------------------------|--|---|
| 1. LA and HD risks | a) Develop a detailed RAP; and b) Pay particular attention to the income restoration of vulnerable groups in the RAP | PMOs, owners, RAP agency, external M&E agency | Preparation, construction | Project budget | a) RAP; |
| 2. Construction impacts | a) Conduct publicity before construction and conduct construction in stages to minimize impacts on enterprises and stores on roadsides; b) Take measures to control and reduce noise; c) Sprinkle construction roads regularly to prevent flying dust; and d) Set up no-horning signs in densely populated areas and avoid overnight construction. | PMOs, construction agency | Preparation, construction | Budget of the Environmental Management Plan | a) Modes and frequency of publicity; b) Environmental impacts during construction and countermeasures; c) Construction safety management and safety education on workers; d) Number of warning signs set up during construction, and quantities of public facilities restored timely |
| 3. Damages to interior decoration | a) Reconstruct indoor sewer lines in consultation with local residents to minimize damages to walls and interior decoration; and b) Compensate for inevitable damages properly. | PMOs, design agency | Preparation, construction | Project budget | a) Grievances about damages and dispositions |
| 4. Operation and maintenance risks | a) Select the operation and maintenance staff of treatment systems in advance and give them specialized training during the trial operation period of 18 months; and b) Keep the staff relatively stable and strengthen education on the sense responsibility. | Owners, village committees, villagers | Operation | Township finance, village collective finance | a) Time and scope of training b) Stability of operation and maintenance staff. |
| 5. Financial pressure of relatively undeveloped village collectives | a) Consider operation and maintenance costs in project option selection, and choose the option with lower costs; and b) Fully or partly exempt relatively undeveloped village collectives from operation and maintenance costs. | PMOs, owners | Preparation, construction, operation | Township finance, village collective finance | a) Project design b) Relevant government policies |
| 6. Ability to pay of vulnerable groups | a) Develop preferential policies on water supply and wastewater treatment charges for vulnerable groups; and b) Adjust water rates through a public hearing. | Water supply companies, civil affairs bureaus, development and reform commissions | Operation | Government finance | a) Population covered and amounts exempted; b) Time, venue and participants of public hearing |
| 7. Lack of environmental awareness | a) Strengthen local environmental publicity by means of poster, workshop and brochure; schedule publicity in consideration of women's needs, educational levels and comprehension, and conduct publicity in manners acceptable for women; and | Environmental protection bureau, village committees, villagers | Operation | Government finance | a) Time, venue and participants of publicity b) Number of residents commended |

| Type of risk | Actions | Actors | Stage | Funding | Monitoring indicators |
|--|--|--|--------------|--------------------------|---|
| | b) Commend residents with strong water conservation and environmental awareness. | | | | |
| 8. Offering job opportunities to vulnerable groups | a) Make 30% of unskilled jobs first available to local vulnerable groups, including women; b) Ensure that remuneration is not less than the local minimum wage standard, and grant subsidies for environmental supervision; and c) Offer training to women. | PMOs, contractors, village committees, local women | Construction | Budget of the contractor | a) Number and percentage of women and poor residents doing unskilled jobs at the construction stage; b) Number of women and poor residents doing jobs at the operation stage |
| 9. Promoting women's participation and improving their status | a) Ensure that not less than 40% of participants in public participation activities at all stages are women, especially in the village selection and indoor sewer line connection survey; and b) Consider women's needs and characteristics in time, venue and modes. | Design agency, construction agency, owners, PMOs, women's federations, township governments, village committees, local women | Construction | Project budget | a) Number of FGDs held, number of women involved, minutes; b) Time, venue and modes of publicity and training |

Table 8-2 Summary of Public Participation Activities at Different Stages

| Stage | Type | Modes | Implemented by | Participants | Topics covered | Funding source |
|--------------|--|---|------------------------------------|---|---|----------------|
| Preparation | Project information disclosure | TV, broadcast, poster, leaflet, village meeting, village committee notice, Internet | PMOs, village committees | Local residents, township officials, PMOs | Disclosing basic project information; Collecting comments and suggestions; Answering questions | Project budget |
| | Village selection | Village congress, questionnaire survey | PMOs, consulting agency | Villagers, PMOs, consulting agency | Conducting a village selection survey on local residents; The Project can be implemented in a village only if over 80% of villagers support the Project. | Project budget |
| | Participation in project design | Interview, FGD, disclosure | PMOs, consulting agency | Villagers, PMOs, consulting agency, village committees | Encouraging local residents to give comments and suggestions on the project design; Disclosing the preliminary design in the project villages for comments and suggestions | |
| | LA | Villager consultation | village committees, PMOs | Villagers, village committees, PMOs, land and resources bureaus | Confirming land occupation; Entering into compensation agreements through consultation and paying compensation accordingly | Project budget |
| Construction | Construction information disclosure | Village congress, village committee notice, poster, | PMOs, construction agency, village | Villagers, PMOs, construction agency, village committees | Disclosing the construction schedule Disclosing the layout of construction sites Disclosing main construction impacts | / |

| Stage | Type | Modes | Implemented by | Participants | Topics covered | Funding source |
|------------------|--|---|---|--|--|---|
| | | broadcast | committees | | Disclosing safety instructions Disclosing contact information of the construction agency | |
| | Participation in project construction | Village meeting, village congress | PMOs, construction agency, village committees | Villagers, PMOs, construction agency, village committees | Determining jobs available from the Project; Determining selection criteria for construction workers, giving priority to women and the poor; Determining remuneration levels of construction workers, and giving skills and safety training to them | Budget of the contractor |
| | Recruitment of maintenance staff | Recruitment | PMOs, village committees | Villagers, village committees, PMOs | Determining and training system maintenance staff | Special funds, village collective finance |
| Operation | Operation and maintenance | operation and maintenance | village committees | Operation and maintenance staff, village committees | Ensuring the long-term operation of wastewater treatment systems | Special funds, village collective finance |
| | Disclosure of the grievance redress mechanism | TV, broadcast, poster, leaflet, village meeting, village committee notice, Internet | PMOs, government agencies concerned, village committees | PMOs, government agencies concerned, village committees | Disclosing appeal hotlines at appropriate places; handling appeals by means of on-site handling, letter, telephone, etc.; handling appeals or giving replies on spot or within 15 days; paying attention to grievances from vulnerable groups; ensuring the open, fair and transparent implementation of the Project | / |

9 Grievance Redress and M&E

9.1 Grievance Redress

Local residents are direct stakeholders and participants in project preparation and implementation. In order to ensure their active and extensive participation, a transparent and effective grievance redress mechanism has been established, as shown in

Figure 9-1.

Villagers may file grievances and suggestions to village committees, sub-district offices/ township governments, PMOs or competent authorities, which should assign persons to accept, handle and reply to grievances and suggestions from villagers specifically, and register and report the same.

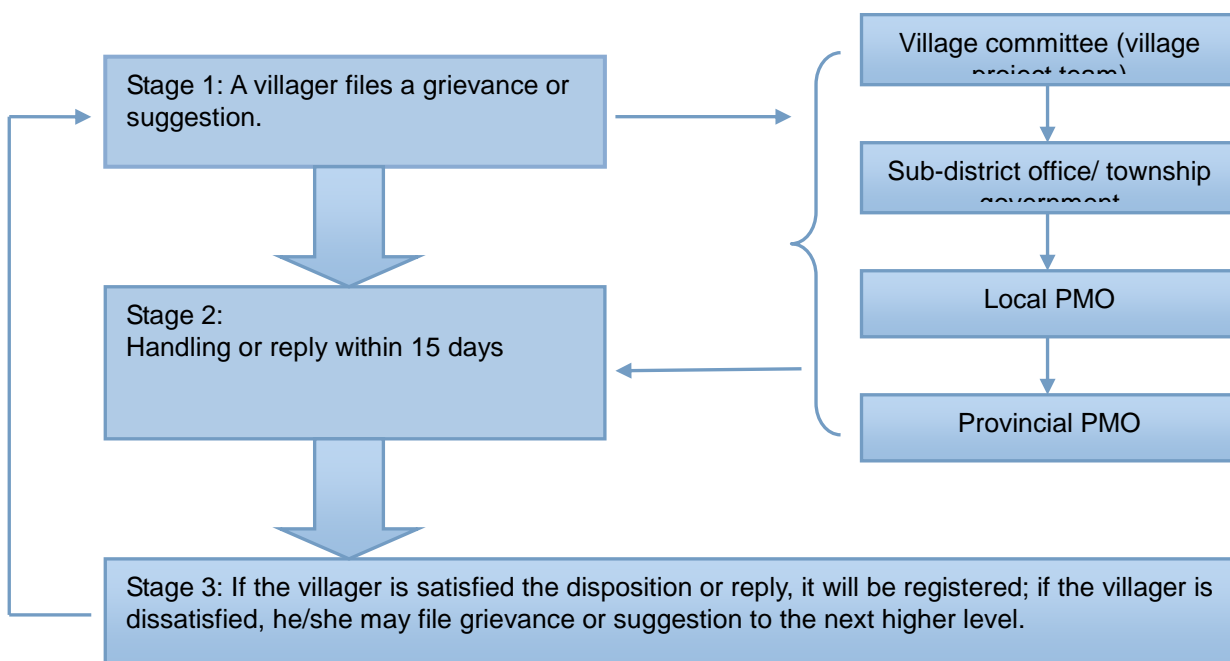


Figure 9-1 Flowchart of Grievance Redress

9.2 M&E

In order to ensure successful project implementation, an M&E mechanism has been established, including internal monitoring and external M&E.

Internal monitoring will be conducted by the local PMOs on the implementation of the Project, Gender Action Plan and Social Action Plan, information disclosure, public participation, fund use, etc.

External M&E will be conducted by the external M&E agency of the RAP, which will conduct follow-up M&E on the implementation of the Social Action Plan, give advice accordingly, and submit M&E reports to the Bank.

Appendix 1: SA Agenda and Scope

| Venue | Time | Method | Subjects/scope | Details | Staff |
|-----------------------|------------|----------------------------|--|---|-----------------------------------|
| Nanjing | Jun. | Literature review | Referring to literatures related to the project area | | SA team |
| Anji County | Jun. 17-22 | 1. Literature review | PMOs, Anji Beautiful Countryside Building Corp., land and resources bureau, construction bureau, labor and social security bureau, statistics bureau, civil affairs bureau, women's federation, poverty reduction office | Subproject proposal and feasibility study report, statistical yearbook, demographic data, poverty reduction and women's development plans, LA and HD policies, etc. | SA team, PMO, government agencies |
| | | 2. Questionnaire | 12 project villages and 6 project townships | 121 copies distributed, 114 valid copies recovered | SA team, PMO |
| | | 3. Key informant interview | Township and village officials Heads of the county land and resources bureau, HD management office, labor and social security bureau, statistics bureau, civil affairs bureau, women's federation Heads of WWTPs and waterworks | 11 men-times of township heads 12 men-times of village officials 7 men-times of government officials 8 enterprise heads | SA team, PMO |
| | | 4. In-depth interview | Residents in 12 project villages, including low-income households | 25 in-depth interviews, including 11 women, accounting for 40% | SA team, APs |
| | | 5. FGD | 12 project villages | 12 FGDs with 82 residents (including 26 women, 24 old people and 9 poor persons) | PMO, SA team |
| | | 6. Field survey | 12 project villages, WWTPs and waterworks | | PMO, SA team |
| Fuyang City | Jun. 24-29 | 1. Literature review | PMOs, Fuyang Urban Construction Investment Group, Fuyang PMOs, land and resources bureau, construction bureau, labor and social security bureau, statistics bureau, civil affairs bureau, women's federation | Subproject proposal and feasibility study report, statistical yearbook, demographic data, poverty reduction and women's development plans, LA and HD policies, etc. | PMO, SA team |
| | | 2. Questionnaire | 11 project villages and 4 project townships | 143 copies distributed, 134 valid copies recovered | PMO, SA team |
| | | 3. Key informant interview | Township and village officials Heads of the municipal land and resources bureau, HD management office, labor and social security bureau, statistics bureau, civil affairs bureau, women's federation Heads of WWTPs and waterworks | 10 men-times of township heads 11 men-times of village officials 7 men-times of government officials 6 enterprise heads | PMO, SA team |
| | | 4. In-depth interview | Residents in 11 project villages, including low-income households | 17 in-depth interviews, including 8 women, accounting for 47.06% | PMO, SA team, communities |
| | | 5. FGD | 11 project villages | 11 FGDs with 70 residents (including 24 women, 22 old people and 5 poor persons) | PMO, SA team |
| | | 6. Field survey | 11 project villages and Fuyang WWTP | | PMO, SA team |
| Tiantai County | Jul. 1-6 | 1. Literature review | PMOs, Tiantai Water Supply Co., Ltd., land and resources bureau, construction bureau, labor and social security bureau, statistics bureau, civil affairs bureau, women's federation | Subproject proposal and feasibility study report, statistical yearbook, demographic data, poverty reduction and women's development plans, LA and HD policies, etc. | PMO, SA team |
| | | 2. Questionnaire | 8 project villages | 90 copies distributed, 80 valid copies recovered | PMO, SA team |

| Venue | Time | Method | Subjects/scope | Details | Staff |
|---------------|-----------|----------------------------|--|---|--------------|
| | | 3. Key informant interview | Township and village officials Heads of the county land and resources bureau, HD management office, labor and social security bureau, statistics bureau, civil affairs bureau, women's federation Tiantai Water Supply Co., Ltd., Chengguan WWTP, Jietou Waterworks | 9 men-times of township heads 9 men-times of village officials 7 men-times of government officials 6 men-times of enterprise heads | PMO, SA team |
| | | 4. In-depth interview | Residents in 8 project villages, including low-income households | 20 in-depth interviews, including 9 women, accounting for 45% | PMO, SA team |
| | | 5. FGD | 8 project villages | 77 residents (including 19 women, 16 old people and 7 poor persons) | PMO, SA team |
| | | 6. Field survey | 8 project villages, booster station and Cangshan WWTP | | PMO, SA team |
| Longquan City | Jul. 8-13 | 1. Literature review | PMOs, Longquan Water Supply and Sewerage Co., Ltd., Longquan Rural Water Supply Station, land and resources bureau, construction bureau, labor and social security bureau, statistics bureau, civil affairs bureau, women's federation | Subproject proposal and feasibility study report, statistical yearbook, demographic data, poverty reduction and women's development plans, LA and HD policies, etc. | PMO, SA team |
| | | 2. Questionnaire | 6 project villages and 5 project townships | 112 copies distributed, 93 valid copies recovered | PMO, SA team |
| | | 3. Key informant interview | Township and village officials Heads of the municipal land and resources bureau, HD management office, labor and social security bureau, statistics bureau, civil affairs bureau, women's federation Longquan Water Supply and Sewerage Co., Ltd., Longquan Rural Water Supply Station, Nandayang Waterworks | 9 men-times of township heads 6 men-times of village officials 7 men-times of government officials 4 men-times of enterprise heads | PMO, SA team |
| | | 4. In-depth interview | Residents in 6 project villages, including low-income households | 15 in-depth interviews, including 6 women, accounting for 40% | PMO, SA team |
| | | 5. FGD | 6 project villages | 44 residents (including 16 women, 14 old people and 6 poor persons) | PMO, SA team |
| | | 6. Field survey | 6 project villages, waterworks and WWTP | | |

Appendix 2: Project Awareness and Attitude Survey Form

| Perceptions | | Anji County | | Fuyang City | | Tiantai County | | Longquan City | | Total | | |
|-------------------------------------|--|--|---------|-------------|---------|----------------|---------|---------------|---------|-------|---------|------|
| | | N | Percent | N | Percent | N | Percent | N | Percent | N | Percent | |
| Perceptions of wastewater treatment | Type of toilet used | Indoor private toilet | 97 | 85.1 | 124 | 92.5 | 60 | 75.0 | 74 | 79.6 | 355 | 84.3 |
| | | Outdoor private toilet | 13 | 11.4 | 4 | 3.0 | 8 | 10.0 | 15 | 16.1 | 40 | 9.5 |
| | | Public toilet | 4 | 3.5 | 6 | 4.5 | 12 | 15.0 | 4 | 4.3 | 26 | 6.2 |
| | Availability of septic tank | Yes | 93 | 84.5 | 124 | 96.9 | 56 | 82.4 | 80 | 89.9 | 353 | 89.4 |
| | | No | 17 | 15.5 | 4 | 3.1 | 12 | 17.6 | 9 | 10.1 | 42 | 10.6 |
| | Location of septic tank | Below the bathroom | 21 | 22.6 | 20 | 16.2 | 21 | 37.5 | 28 | 30.1 | 90 | 25.5 |
| | | Below the house | 14 | 15.1 | 32 | 25.8 | 7 | 12.5 | 31 | 33.3 | 84 | 23.8 |
| | | Below the ground near the house | 56 | 60.2 | 66 | 53.2 | 27 | 48.2 | 21 | 22.6 | 170 | 48.2 |
| | | Not clear | 2 | 2.1 | 6 | 4.8 | 1 | 1.8 | 0 | 0.0 | 9 | 2.5 |
| | Necessity to improve indoor sewer line | Very necessary | 31 | 27.2 | 36 | 29.0 | 24 | 42.6 | 27 | 33.8 | 118 | 33.4 |
| | | Necessary | 48 | 42.1 | 68 | 54.8 | 22 | 39.4 | 42 | 52.5 | 180 | 51.0 |
| | | Not quite necessary | 7 | 6.1 | 11 | 8.9 | 5 | 9.0 | 8 | 10.0 | 31 | 8.8 |
| | | unnecessary | 6 | 5.3 | 4 | 3.3 | 2 | 3.6 | 3 | 3.7 | 15 | 4.2 |
| | | Don't care | 1 | 0.9 | 5 | 4.0 | 3 | 5.4 | 0 | 0.0 | 9 | 2.6 |
| | Expected mode of septic tank improvement | By construction agency | 65 | 69.9 | 97 | 78.2 | 35 | 62.5 | 52 | 65.0 | 249 | 70.5 |
| | | Ourselves with raw materials supplied | 6 | 6.5 | 6 | 4.8 | 4 | 7.1 | 12 | 15.0 | 28 | 7.9 |
| Ourselves with funds supplied | | 15 | 16.1 | 15 | 12.1 | 15 | 26.8 | 16 | 20.0 | 61 | 17.3 | |
| Other | | 7 | 7.5 | 6 | 4.9 | 2 | 3.6 | 0 | 0.0 | 15 | 4.3 | |
| Project awareness | Have you heard of the Project? | Yes | 106 | 93.0 | 124 | 92.5 | 74 | 92.5 | 85 | 91.4 | 389 | 92.3 |
| | | No | 8 | 7.0 | 10 | 7.5 | 6 | 7.5 | 8 | 8.6 | 32 | 7.7 |
| | Information source | TV, broadcast, newspaper, Internet, etc. | 34 | 31.8 | 30 | 23.9 | 9 | 12.3 | 20 | 23.3 | 92 | 22.9 |
| | | Government notice | 27 | 25.8 | 11 | 8.5 | 13 | 16.9 | 28 | 32.6 | 78 | 19.6 |
| | | Village committee | 22 | 21.2 | 45 | 36.6 | 47 | 63.1 | 34 | 39.5 | 148 | 40 |
| | | Others | 22 | 21.2 | 37 | 29.6 | 6 | 7.7 | 4 | 4.7 | 69 | 17.1 |
| | | Other | 0 | 0 | 2 | 1.4 | 0 | 0 | 0 | 0 | 2 | 0.4 |
| Support for the Project | Support for the Project | Support | 106 | 93.0 | 131 | 97.8 | 80 | 100.0 | 93 | 100.0 | 410 | 97.4 |
| | | Not support | 3 | 2.6 | 1 | 0.7 | 0 | 0.0 | 0 | 0.0 | 4 | 1.0 |
| | | Not clear | 5 | 4.4 | 2 | 1.5 | 0 | 0.0 | | | 7 | 1.7 |
| | Are villagers direct beneficiaries? | Yes | 105 | 92.1 | 130 | 97.0 | 80 | 100.0 | 92 | 98.9 | 407 | 96.7 |
| | | No | 2 | 1.8 | 0 | 0.0 | 0 | 0.0 | 1 | 1.1 | 3 | 0.7 |
| | | Not clear | 7 | 6.1 | 4 | 3.0 | 0 | 0.0 | | | 11 | 2.6 |
| Is the Project important | Very important | 32 | 28.1 | 36 | 26.9 | 27 | 33.8 | 28 | 30.1 | 123 | 29.2 | |

| Perceptions | | | Anji County | | Fuyang City | | Tiantai County | | Longquan City | | Total | |
|---------------------------------------|--|--------------------------|-------------|---------|-------------|---------|----------------|---------|---------------|---------|-------|---------|
| | | | N | Percent | N | Percent | N | Percent | N | Percent | N | Percent |
| | for your family? | Important | 57 | 50.0 | 74 | 55.2 | 51 | 63.8 | 61 | 65.6 | 243 | 57.7 |
| | | Somewhat important | 22 | 19.2 | 18 | 13.5 | 1 | 1.2 | 3 | 3.2 | 44 | 10.5 |
| | | Unimportant | 2 | 1.8 | 3 | 2.2 | 0 | 0.0 | 1 | 1.1 | 6 | 1.4 |
| | | Don't care | 1 | 0.9 | 3 | 2.2 | 1 | 1.2 | 0 | 0.0 | 5 | 1.2 |
| Participation in project construction | Are you willing to do jobs under the Project? | Willing | 77 | 67.5 | 104 | 77.6 | 65 | 81.3 | 74 | 79.6 | 320 | 76.0 |
| | | Unwilling | 22 | 19.3 | 16 | 12.0 | 10 | 12.5 | 14 | 15.1 | 62 | 14.7 |
| | | Don't know | 15 | 13.2 | 14 | 10.4 | 5 | 6.3 | 5 | 5.4 | 39 | 9.3 |
| | Obligation to participate in the operation and maintenance of treatment systems | Yes | 99 | 86.8 | 115 | 85.8 | 78 | 97.5 | 89 | 95.7 | 381 | 90.5 |
| | | No | 6 | 5.3 | 5 | 3.6 | 0 | 0.0 | 2 | 2.2 | 13 | 3.1 |
| | | Not clear | 9 | 7.9 | 14 | 10.4 | 2 | 2.5 | 2 | 2.2 | 27 | 6.4 |
| | Willingness to participate in the operation and maintenance of treatment systems if paid | Willing | 93 | 81.6 | 112 | 83.6 | 73 | 91.2 | 74 | 79.6 | 352 | 83.6 |
| | | Unwilling | 12 | 10.5 | 13 | 9.7 | 1 | 1.3 | 14 | 15.1 | 40 | 9.5 |
| | | Don't know | 9 | 7.9 | 9 | 6.7 | 6 | 7.5 | 5 | 5.4 | 29 | 6.9 |
| | Operation and maintenance mode of treatment systems | By villages | 54 | 47.4 | 69 | 51.5 | 52 | 65.0 | 32 | 34.4 | 207 | 49.2 |
| | | By specialized companies | 58 | 50.9 | 62 | 46.3 | 28 | 35.0 | 58 | 62.4 | 206 | 48.9 |
| | | other | 2 | 1.8 | 3 | 2.2 | 0 | 0.0 | 3 | 3.2 | 8 | 1.9 |
| | Changing own habits to extend the service life of equipment | Very willing | 49 | 43.0 | 52 | 38.8 | 26 | 32.5 | 21 | 22.6 | 148 | 35.2 |
| | | Willing | 63 | 55.2 | 78 | 58.2 | 53 | 66.3 | 72 | 77.4 | 266 | 63.2 |
| | | Not quite willing | 1 | 0.9 | 0 | 0.0 | 1 | 1.2 | 0 | 0.0 | 2 | 0.5 |
| | | Unwilling | 0 | 0.0 | 1 | 0.8 | 0 | 0.0 | 0 | 0.0 | 1 | 0.2 |
| Don't care | | 1 | 0.9 | 3 | 2.2 | 0 | 0.0 | 0 | 0.0 | 4 | 1.0 | |

Appendix 3: Fieldwork Photos



Interview at the Fuyang Municipal Civil Affairs Bureau



Villager FGD in Xinzhong Village, Tiantai County



Questionnaire survey in Jingxi Village, Anji County



FGD with officials of the Tianhuangping Town Government, Anji County



Field survey in Tiantai County



FGD at Anji County Water Company