REPORT ON THE ENVIRONMENTAL MANAGEMENT PLAN

7 Communes: Giao Chau, Giao Nhan, Giao Ha, Binh Hoa, Hong Thuan, Hoanh Son Communes in Giao Thuy District and Tho Nghiep Commune in Xuan Truong District, Nam Dinh Province

Assignment:
“CONSULTANT SERVICES: PREPARE INVESTMENT REPORTS, PRIMARY DESIGNS, BID DOCUMENTS AND OTHER SURVEYS UNDER NAM DINH RURAL WATER SUPPLY AND SANITATION PROJECT IN 8 COMMUNES (PHASE 4)”

Submitted to:

NAM DINH PROVINCE RURAL WATER SUPPLY AND SANITATION PROJECT MANAGEMENT
NAM DINH PROVINCIAL PEOPLE’S MANAGEMENT
WORLD BANK IN VIETNAM

THUDO Weico in joint-venture with SEI Consultants

Ha Noi – 2010
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Employer
Nam Dinh rural water & sanitation Project management unit

Key Consultant
Thua Thinh Water Environment & Infrastructure Joint Stock Company

GIÁM ĐỐC
VƯƠNG DUY NAM
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Sub-Consultant
Society, Environment, Infrastructure Consultants Limited Company

Nguyen Xuan Hoan
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ACRONYMS

CPC  Communal People's Committee
CPO  Central Project Office
DANIDA  Danish Development Agency
DPI  Department of Planning and Investment
EMP  Environmental Management Plan
MARD  Ministry of Agriculture and Rural Development
MPI  Ministry of Planning and Investment
PFS  Pre-Feasibility Study
PPMU  Province Project Management Units
RRDRWSSP  Red River Delta Rural Water Supply and Sanitation
RP  Resettlement Plan
SEI  Society, Environment, Infrastructure Consultant Company
TCVN  Vietnam Standard
TOR  Terms of Reference
USD  U.S. dollar
WB  World Bank
CHAPTER 1. GENERAL INTRODUCTION

General Introduction about project

**Project's name:** Nam Dinh province Water supply and Sanitation Project.

**Investor:** Nam Dinh province Rural Water Supply and Sanitation Project management Unit.

**Address:** No 2, Cua Truong street, Nam Dinh city

Clean water and sanitation are essential needs in daily life and become urgent demand in healthy protection and domestic condition improvement for everybody, as well as in industrialization and modernization in our country. Now more than 60% of rural population are using unhygienic water and a half of number of rural households haven't got any latrines. Diseases related to water such as diarrhoea, parasitic worms, and digestive diseases are popular and take the highest rate in popular diseases. Building water supply and sanitation construction now is urgent requirement and has large scale during next years.

The main development goal of the National Rural Water Supply and Sanitation Strategy is to put more contribution into living standard improvement, hunger elimination and poverty reduction in rural communities by making investment into sanitation and water supply schemes or other matters related to people's behaviors and attitude changing toward environmental sanitation improvement and capacity enhancement. In particular, the specific objective of the project are:

- All households could access the concentrated clean water source with the capacity 60l/day - 80l/day.
- Environmental conditions could be improved to change the bad sanitary habits of rural people.
- Living conditions of rural people could be improved, thereby contributing to poverty alleviation in project's communes.

The Government of Vietnam and the World Bank have worked closely and designed the Red River Delta Rural Water and Sanitation Project with an aim of improving clean water supply and rural sanitation situation within the Red River Delta area in 12 provinces. The Project is carried out in accordance with following principals:

- Meeting the demands: Management policy and level of water supply and sanitation services are defined based on the requirements and the payment availability of customers.
- Justice: all the people in the sub-project area could assess the benefits from water supply and sanitation plant.
- Costs and efficiency: Water supply and sanitation system will be designed to provide the appropriate services with the acceptable costs.
- Sustainability: An appropriate operation and maintenance management policy and an acceptable water price to pay for operation, maintenance, repair and debt collection cost will be obtained.

Phase 1 has been commenced since 2005 until 2010 in 4 provinces: Ninh Binh, Nam Dinh, Hai Duong and Thai Binh.

Nam Dinh province belongs to Northern delta area, bordering to provinces and cities: Thai Binh, Ha Nam and Ninh Binh. Transportation system via land, water way and railway in the area is distributed properly. There are many important national roads running across such as Road No. 21, Road No. 10, Road No. 55 and provincial and district road system. Besides, provincial and district roads have been upgraded, making the transportation and exchange among localities in and outside the province more convenient.
The subproject implemented in Nam Dinh will adequately and substantially satisfy clean water supply demand; help community improve household sanitation conditions and strengthen local capacity at commune levels and local community in planning and managing water supply and sanitation schemes. The project initiated new management method to supply water in locality, especially to help improve people’s awareness on clean water, toilets, so that local people will implement new practices and have a better health.

Land use demand

- Works collection and pumping station
  
  lever 1: 300m²

- Water treatment station: 15,000m²

- Booster pumping station: 1,715 m²

- Land construction: 250,000m²

The location of water treatment in Giao Tien commune

.2. The purpose of the report is committed to protecting the environment

The purpose of making environmental commitments are to:

- Assessment of natural conditions as well as socio-economic conditions of sub-projects.
- Predicting the impacts, negative, direct; indirect, immediate and long-term sub-regional projects.
- Make recommendations on technical and management technologies to mitigate the negative impacts of the project during preparation, construction and operation.
- To provide environmental management and monitoring plan;

Commitment to the environment will be the basis for control and management of environmental protection when implementing projects.

Commitment to environmental protection is also made to the investor base (WB) for consideration and approval of financial assistance for the project.
CHAPTER 2. LOCATION PROJECT

2.1. Natural conditions.

2.1.1. Geography

Giao Chau commune

Giao Chau commune is at the center of Giao Thuy district, 5 km far from Ngo Dong town toward the West. North border of Giao Tien commune, East border of Giao Nhan commune, South border of Giao Long commune, West border of Giao Tien commune. According to survey data at the time of April 2009 the Department of Statistics Department of Labor, Invalids and Social Giao Thuy district, the population of the commune is 8437 persons with 2347 households. Giao Chau commune has a total area of 763.9 ha, of which farming land covers 505 ha.

Giao Nhan commune

Giao Nhan is located at the Southeast of Giao Thuy district. The commune has dense river network, favorable for rice cultivation. The commune has Be market, convenient traffic with 482 road and Tien Hai road run through facilitating cultural exchange, economic - and social. Boundaries as follows: North border of Hoanh Son commune, East border of Giao Ha commune, South border of Giao Long, Giao Hai commune, West border of Giao Chau. Total natural area land is 603 ha, of which 464 ha is farming land.

Giao Ha Commune

Giao Ha commune is located at the south of Giao Thuy district. North border of Ngo Dong town, Hoanh Son commune, East border of Binh Hoa commune, South border of Giao Hai and Giao Xuan commune, West border of Gian Nhan commune. Total natural area land of this commune is 629.46 ha, of which farming land are 363 ha.

Binh Hoa Commune

Binh Hoa commune is located in Giao Thuy district. Commune’s area is 625.98m2. The North Binh Hoa is bordered with Ngo Dong town, The East border of Hong Thuan commune, The South border of Giao Xuan and Giao Lac commune, and Giao Ha commune in the West. There are 15 hamlets in the commune. Total natural area land of this commune is 625.98 ha.

Hong thuan Commune

Hong Thuan is 4km far from centre of the district towards Southeast. The North border of Hong Tien commune, The East border of Giao Thanh commune, The South border of Giao Lac commune, The West border of Binh Hoa commune. Population of this commune in 2009 is 16304 people with 4085 households. Total natural area of this commune are 1443.43 ha, of which farming land are 743 ha.

Hoanh son Commune

Hoanh Son commune is located in Giao Thuy district. This commune is bordered with Ngo Dong town and Giao ha commune in the East, Giao Nhan commune in the South, Giao Tien commune in the West, Xuan Phu and Xuan Truong commune in the North. The commune has 586 ha of natural land, of which 367 ha of farming land. The population in 2009 to date is 9418 people, with 2378 households. There were 17 hamlets in this commune.

Tho Nghiep Commune

Tho Nghiep commune is located at the South and 6km far from Xuan Truong district. It is bordered Xuan Phuong commune in the North, Giao Thuy district in the South, Xuan Phu commune in the East and Xuan Phuong commune in the West. The communal area is 7.08km2. There are 23 hamlets in the commune.
2.1.2. Hydrology characteristics

Except Hoanh Son and Tho Nghiep commune is relatively large rivers flow through, 5 communes in the remaining tranches are no major rivers flow through, only some small river for irrigation work for irrigation. In addition, in the Xuan Truong district has large rivers running through the Ninh Co River with relatively large reserves and existing water plant Xuan Truong is exploited to provide water for Xuan Truong town and 6 communes of Xuan Truong district. Therefore, only research and evaluation of surface water in Hoanh Son and Tho Nghiep commune and surface water in the Red River and Ninh Co River.

**Hoanh Son Commune**

1. **Lang River**: Derived from the Red River through Cong Cat. The river flows through the communes of Xuan Tan, Xuan Dai with a total length of about 07 km. Length of river flows through a commune of about 2.9 km, the river is located 100m northeast of the commune. Cross the river about 60 - 65m
   - The largest flow of the river flow is 12.1 m³/s, minimum 4.2 m³/s.
   - The highest water level of +1.6 m. Lowest water level +0.5 m.
   - This is the largest river in the province, used to irrigate nearly half the area of agricultural cultivation in the commune.

2. **So River**: Derived from the Red River through Ngo Dong sewer. Length of river flows through a commune of about 4 km. The width of the river about 30+35 m, the river is narrow at the downstream.
   - The maximum river water level +1.5 m
   - The minimum river water level + 0.7 m
   - Flow of So river smaller than Lang river, the largest flow of 5.6 m³/s, minimum 1.6 m³/s. This is the water drainage to serve the area south of the commune.
   - River influence of tidal regime of the Red River, but when the river salinity of 0.6 to 0.8% will close Ngo Dong sewer, river water should not be nearly as salty.

Lang and So river water quality survey and preliminary evaluation of relatively good and stable. On rainy cloudy water, more water in the dry season. But the river is affected by the tidal regime of the Red River and the salinity was very high. When the sea level rise, the river water quality is affected significantly, it reflected the intensive fields used when river water salinity which were quite severe, many crops die.

Commune also has a large river is the Red River, but as it is analyzed Red River was contaminated with salt water whenever heavy tide. So the Red River can not be used as water sources for water supply systems of the seven communes.

In addition to the main river above, in the Hoanh Son commune have some small inland rivers such as Tai river, Thuan Thanh river is responsible for irrigation combined (mainly drainage) for the area west of the commune. The flow usually small, unstable and shallow in the dry season.

Natural water quality of Tai river, Thuan Thanh river through the survey results and evaluation, were quite serious pollution caused by waste water, agriculture, farming and animal husbandry.

**Tho Nghiep Commune**

The most significant sources of surface water in Tho Nghiep commune is Cat Xuyen river. Cat Xuyen river derived from Red River through the Cho Cat sewer, is the only surface water can be exploited in the commune. But the river is the main task for agricultural irrigation, so the river water quality is
affected greatly by the organic contamination by residents living on both sides is discharged directly into
the river and the toxic chemicals from leaching surface overflowing river whenever there is rain.

River water quality

Water sources are expected to use mainly from the Ninh Co River. The quality of river water flowing
through the local Xuan Ngoc commune, Xuan Truong district, km5 + 224, through surveys and
preliminary evaluation is relatively good and stable. According to hydrological data Ninh Co River which
it collected Consulting Ninh Co River has large reserves and stability. Ninh Co River is a source of raw
water for water plants Xuan Truong. Water turbidity average is 400-500NTU, the largest flood turbidity
can be up to 1000 NTU. Currently Ninh Co River water is not polluted.

✓ The highest water level: +3,7m
✓ The lowest water level: - 0,94m

In the round of 11/2009 and 3 / 2010, consultant has conducted field survey of water sources in Ninh
Co River. To have a basis for selection of water sources, Consultant has conducted surface water
sampling Ninh Co 2 times, once in dry season and a rainy season. Place the water flows through a
Xuan Ngoc commune, Xuan Truong district, km5 + 224.

- On 05/11/2009 has conducted surface water sampling at Ninh Co river the first time (wet
   season).
- On 08/03/2010 has conducted surface water sampling at Ninh Co river the second time (dry
   season).
- Sample of the Environment Institute of Technology, Center for Development of High Technology
  in Hanoi and made the only analysis and microbial digestion. The results of analysis of water
  samples are presented in the following table:

**Table 1: The results of analysis of water Ninh Co river.**

*Water samples taken on 05/11/2009*

<table>
<thead>
<tr>
<th>STT</th>
<th>Targets analysis</th>
<th>Unit</th>
<th>Results of analysis</th>
<th>Maximum limiter enabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>pH</td>
<td></td>
<td>7,18</td>
<td>6,5 - 8,5</td>
</tr>
<tr>
<td>2.</td>
<td>Turbidity</td>
<td>NTU</td>
<td>21</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Color</td>
<td>TCU</td>
<td>28</td>
<td>15</td>
</tr>
<tr>
<td>4.</td>
<td>Total suspended solids (SS)</td>
<td>mg/l</td>
<td>18</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Total dissolved solids (TDS)</td>
<td>mg/l</td>
<td>89</td>
<td>1000</td>
</tr>
<tr>
<td>6.</td>
<td>Total hardness</td>
<td>mg/lCaCO₃</td>
<td>76</td>
<td>300</td>
</tr>
<tr>
<td>7.</td>
<td>NO₂⁻</td>
<td>mg/l</td>
<td>0,002</td>
<td>3</td>
</tr>
<tr>
<td>8.</td>
<td>NH₄⁺</td>
<td>mg/l</td>
<td>0,08</td>
<td>1,5</td>
</tr>
<tr>
<td>9.</td>
<td>Fe total</td>
<td>mg/l</td>
<td>0,67</td>
<td>0,5</td>
</tr>
<tr>
<td>10.</td>
<td>Mn total</td>
<td>mg/l</td>
<td>0,02</td>
<td>0,5</td>
</tr>
<tr>
<td>11.</td>
<td>COD</td>
<td>mg/l</td>
<td>2,6</td>
<td>-</td>
</tr>
</tbody>
</table>
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Note: Maximum limits permitted under applicable hygienic standards for drinking water 1329/2002/BYT/QD Decision of the Minister of Health issued on 18/04/2002.

Conclusion: The sample do not meet sanitary drinking water in terms of physical and chemical (turbidity, color, total iron content).

Table 2: The results of analysis of water Ninh Co river.
(Water samples taken on 08/03/2010)

<table>
<thead>
<tr>
<th>STT</th>
<th>Targets analysis</th>
<th>Unit</th>
<th>Results of analysis</th>
<th>Maximum limiter enabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>pH</td>
<td></td>
<td>7,84</td>
<td>6,5 - 8,5</td>
</tr>
<tr>
<td>2</td>
<td>Smell</td>
<td></td>
<td>No strange smell</td>
<td>No strange smell</td>
</tr>
<tr>
<td>3</td>
<td>Turbidity</td>
<td>NTU</td>
<td>39</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Color</td>
<td>TCU</td>
<td>49</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>Total suspended solids (SS)</td>
<td>mg/l</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Total dissolved solids (TDS)</td>
<td>mg/l</td>
<td>138</td>
<td>1000</td>
</tr>
<tr>
<td>7</td>
<td>Total hardness</td>
<td>mg/lCaCO₃</td>
<td>113</td>
<td>300</td>
</tr>
<tr>
<td>8</td>
<td>NO₂⁻</td>
<td>mg/l</td>
<td>0,163</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>NO₃⁻</td>
<td>mg/l</td>
<td>3,9</td>
<td>50</td>
</tr>
<tr>
<td>10</td>
<td>Cl⁻</td>
<td>mg/l</td>
<td>21</td>
<td>250</td>
</tr>
<tr>
<td>11</td>
<td>NH₄⁺</td>
<td>mg/l</td>
<td>0,12</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>Fe total</td>
<td>mg/l</td>
<td>0,46</td>
<td>0,3</td>
</tr>
<tr>
<td>13</td>
<td>Mn total</td>
<td>mg/l</td>
<td>0,02</td>
<td>0,3</td>
</tr>
<tr>
<td>14</td>
<td>COD</td>
<td>mg/l</td>
<td>2,6</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Asen</td>
<td>mg/l</td>
<td>&lt;0,005</td>
<td>0,01</td>
</tr>
</tbody>
</table>

Note: Maximum limits permitted under applicable hygienic standards for drinking water 1329/2002/BYT/QD Decision of the Minister of Health issued on 18/04/2002.

Conclusion: The sample countries do not meet sanitary drinking water in terms of physical and chemical (turbidity, color, total iron content).

After 2 times taking samples and testing (dry and wet seasons) showed that water samples Ninh Co is an analysis of indicators turbidity, color, do not meet the Sanitation Standard of Drinking water and running. It is still in the allowed limit of Vietnam’s water surface standard TCVN 5942-1995 and Ministry of Construction’s Standard TCXD 233 - 1999, especially industrial waste water Standard A level issued by Ministry of Industry TCVN 5945 - 2005 together with Decision No. 22/2008 dated 18/12/2008 by MoNRE. So Ninh Co River water quality, according to survey and evaluate good and quite stable in abundance, could exploit the process to use for the purpose of living and eating.

Characteristics of Infrastructure

Infrastructure of the commune has built a relatively complete to meet the needs of economic development - the local society. Many roads have been concreted. Many nurseries, kindergartens,
Transportation

Inter-provincial roads 489 and 56, contact the district via the communal areas within the block of sub-project aid was carpet plastic, the road 10 meters, 5.5 meters in plastic, 2 m wide sidewalks on each side. The inter-village roads and lane lines, neighbors have now been invested to renovate and upgrade the carpet has been almost plastic or concrete whole, to meet travel demand of the people.

Housing

The production, economic, cultural and social work is built in the center of the communes, on main roads such as kindergartens, schools, CPC, clinics, culture home. The houses was built from 1-3 storeys.

Houses built with alternative public works building height is mainly 1-3 storey houses. Along the axis of the provincial road 489, 56 provincial roads and main roads in the communes of the newly formed sequences in conjunction with the service. Housing is a popular residential houses in rural areas, the VAC model.

According to sociological surveys carried out on sub-project areas, households have permanent houses (roof tiles, wall tiles), a high proportion (92.9%), the number of semi-permanent small proportion (6.5%). However, the tabernacle of the households, whether or not there still exists despite the proportion less (0.6%).

This suggests that, in recent years, the lives of people in the province of social research in particular and life of people in other rural areas in Vietnam in general has improved markedly, developed speed after more than five years ago, housing is improved and made more beautiful than the face of our country's rural areas.

Chart 1: Comparison rate housing (%)

Electrical energy

07 communes in the sub-project is already built substations are small. Currently, these power stations provides electricity service to residents across the region as well as the demand for electricity for pumping irrigation and agriculture. 100% of the population in sub-project area have electricity use.

- Hong Thuan Commune: power supply for commune is medium-voltage transmission line 10 kV from
Hoa Binh to the substation level of the commune. Currently, there are 6 substations with total capacity of 1220KVA.

- Hoanh Son Commune: power supply for commune is medium-voltage transmission line 10 kV from Dong Ngo town and Giao Tien intermediate stations. There are 4 substations with total capacity of 790KVA in which a station with a capacity of 250KVA and three power stations of 180KVA.

- Binh Hoa Commune: the power supply to the commune from Ngo Dong town, the medium voltage line supply to the substation in the commune is 10 kV lines. Currently, there are 3 communal substations with total capacity of 680KVA, in which two stations have a capacity of 180KVA and a capacity station of 320KVA.

Status subproject area

Status of water supply

The water resources for use and water quality through the prism of the community.

The households in seven communes in the study area used for water main activities include rain water, wells, deep well water, lake / river / pond. This rate is shown in the chart below:

Chart 2: The main source of water used in households

The survey results show that, in total 1776 households surveyed, with 1693 households using rain water (up 95.6%), 1291 household water use deep wells (up 73.3%). Thus, rainwater and dug wells are the two main water sources are used in social surveys. Besides the water wells, water lake / river / pond. According to research results show that 87.5% of households use two sources of water, 23% of households use water from three sources to serve their daily needs.

The rate of households using rain water is not much difference between the communes, most people in the Giao Nhan commune (99.4%), Giao Ha commune (99.2%) and the lowest is in Hong Thuan commune (88.6%). This suggests rain water is familiar, widely used in almost all areas surveyed in the province.

Meanwhile, the rate of water use and deep wells drilled between communes differ significantly.
The highest percentage of households use water wells at Giao Chau commune (81.1%). This is the commune rate of households using deep wells water off the lowest (20%). Meanwhile, deep well water is very popular in the communes Giao Nhan, Giao Ha, Binh Hoa, Tho Nghiep. During the actual survey, Giao Chau commune with the most number of wells, with a total of 1105 households, has 700 households used deep wells water.

When asked for comments on water use for food purposes, 95.2% households think is rain water, don’t distinguish between households with different living standards. Also other water sources like wells, deep wells small rate, respectively 1.6% and 11.3%. One thing worth noting is still 2.1% of households use water pond / lake / river eating purposes, this rate in most Hong Thuan Commune (8%).

Meanwhile, deep well water is used mainly for bathing and washing with 72% of households use. Because the quality of water is not safe so the majority of people only use well water for bathing and washing purposes, only 11.3% of households that use well water for the purpose of eating.

On water use for purposes of cultivation and animal husbandry, the people of the area commune studies use both water sources are lakes / ponds / rivers (27.3%) and deep well water sources / wells (6.3%).

Table 3: The main water resources are allocated for use

<table>
<thead>
<tr>
<th>Water sources</th>
<th>Eat / Drink</th>
<th>Bath / Clothes washing</th>
<th>Crop / Livestock</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of households</td>
<td>%</td>
<td>Number of households</td>
</tr>
<tr>
<td>Water</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Chart 3: The rate of water use and deep wells (%)

![Chart 3: The rate of water use and deep wells (%)](chart.png)
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Water

<table>
<thead>
<tr>
<th>Water sources are used</th>
<th>Clear and clean water</th>
<th>Clear but smell</th>
<th>Not clear and smell</th>
<th>Total households</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of households</td>
<td>%</td>
<td>Number of households</td>
<td>%</td>
</tr>
<tr>
<td>Rainwater (n=1693)</td>
<td>1289</td>
<td>76.1</td>
<td>193</td>
<td>11.4</td>
</tr>
<tr>
<td>Water wells (n=368)</td>
<td>67</td>
<td>18.2</td>
<td>189</td>
<td>51.4</td>
</tr>
<tr>
<td>Deep well water (n=1291)</td>
<td>86</td>
<td>6.7</td>
<td>876</td>
<td>67.9</td>
</tr>
<tr>
<td>Lake / river / pond (n=586)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Comments by the public about water quality reflected their own perceptions as well as the actual status of water they are using. Survey results in seven communes of Nam Dinh showed, about rain water, is 76.1% thought that clear and clean.

Notably, the data table is well water quality (both drilled wells and deep wells) of the majority of households are not good, only 18.2% and 6.7% for that water wells / deep wells is clear and clean. Meanwhile, up to 51.4% for wells drilled is clear but for the smell and 30.4% is not clear and has smell. Similarly to the deep wells. Most households assess the water quality of household used is not well because water contaminated by salt water, or contaminated with iron, or fishy smell... Many peoples think that, during the made agricultural, use of pesticides has also caused many impacts on the environment, particularly the water environment polluted. Some households also evaluate the quality of rain water is not good to use because dust contaminated, or polluted environments also affect the quality of rain water.
capita in the commune of 3.7 m³. Average per person consumption in poor households is 3.14 m³/person/month, while on average each person in the household average 3.57 m³/person/month and rich households is highest 4.39 m³/person/month.

Specifically, the average water consumption per capita by type of household is:

- Poor households: 3.14 m³/person/month
- The average household: 3.57 m³/person/month
- Relatively wealthy households: 4.39 m³/person/month

Water containers in households

Most households surveyed localities have facilities of water, this figure is 97.6%. Mainly used by households are broken brick and securely closed. Cement tank type water is mostly popular and most commonly used by most households, with an average capacity of about 6 m³. If calculated according to the economic relationship, the poor households with tanks with an average volume of about 4-5 m³, the average household is 5-6 m³ and relatively wealthy households in 7 m³.

Left of households using primitive means, such as jars, a few connoisseurs, barrels and buckets that can be small.

The rate of households using a water tank with a cap is quite high, accounting for 93.9%. However, there are still a number of households are not aware of the need for a cap for water tank construction of his family should remain around 6.1% of households use the tank without cap. Don’t use the cap can cause water pollution by using air and dust in the plant leaves, insects, mice, fried ...

Awareness of the household about the safety of water sources.

When asked about water quality family is using, most reviews are not clean, not safe.

Chart 4: Assessment of water quality using

Thus, the majority opinion of households that are using their water is not clean water, not safe (79.1%).

Chart 5: Impressions of water quality
Looking at the chart we can see, a large rate of households that they are using water is polluted by waste / drug plants / toilet (50.8%), don't clear, turbid (39.4%). This also partly reflects the state of the environment has played in the communes studies. "Water wells have limestone deposits, water or sour. Then look is clear, but so long as the red and gold whenever it rains wells were perforated. Rain water flowing on the ground, then soaked into the well. The houses near each other in cages close together, when it rains down the wells affected "(Male, 57, Giao Nhan); Nobody have to go for testing and evaluating water resources here. People only see use in a cool, no smell is as clean water. Instead of well water to seep from the surface, rain water, not treated isn't called clean water. Generally not enough water now, not clean. People desired to have clean water "(Female, 43, Binh Hoa). Notably, the pond / lake / river of households are using pollution. 100% comment think that water in the pond and smell. But the question here is why there are still some households, though the family knowing that their water use as water sources are polluted, but still not safe for bathing and washing purposes, and even a manual wash, rinse vegetables ... As a word of all households now use pond water, "Water for no money, for the sky, its just more used to wash each limb when from work, washing clothes ... but also for where the fear of eating. That the polluted water so that only you need not only from their ancient ancestors had used still alright ..! "Is the reason no money and use the bathroom washing limbs should be aware that although water pollution but people still use, of course, this figure accounts for very few of the households surveyed.

**Present condition of sanitation**

**Current status of sanitation the household**

Most households in area studies are toilets, accounting for 99.2%. Currently only 14/1776 of households without toilets in the family. The reason they give explanations for not building toilets because "no amount is too expensive" (0.5%), "no technical guidelines" (0.3 %)... This is also something to note for local authorities in propagating awareness of people about building latrines, as well as the need to actively support activities to increase the rate use toilets. Reality shows in the communes research there are still families are not aware of the necessity of building toilets for families. Still have the toilet situation indiscriminately, or existing types of toilets are not hygienic, which affect the surrounding environment.

**Chart 6: Rate of toilets**
Chart 7: Rate of toilets between communes in area research

Looking at the chart we can see, Giao Ha commune, Giao Chau commune and Tho Nghiep is three communes most have toilets, the three communes are 100% households have toilets. Giao Nhan commune and Binh Hoa commune is second commune have toilet rates lowest (97.2% and 97.8%).

Status types of toilets in area studies can be clearly seen through the following chart:

Chart 8: Types of toilets in the family (%)
Diversity in the types of toilets used in the communes in Nam Dinh not only shows the level of sanitation, but also reflect the level of wealth, professional characteristics, situation and general living level of local urbanization. In 1762 household have toilets, households have septic tanks highest proportion (42.6%), followed by single vault latrines (20.8%), absorbent toilet flushing (17.3%), toilet double vault latrines (15.4%). The rate of single vault latrines / double vault latrines remains high due to particular in rural areas, households in farming or planting gardens also want to get fertilizer on the farm and farming seasons. Order from a long background that has become a habit not easily changed. This is a very logical reason as most of the communal areas are agricultural research, the economy based on agriculture is essential. But in the future when the economic conditions of households in the whole society was raised, combined with the attention of leaders at all levels, economic assistance - financial institutions ... the type of toilets will be gradually replaced by type toilets better satisfy the requirements of environmental engineering and more.

Along with cognitive problems, the economic situation is also an important factor in the process of building sanitary latrines by the people. If any family can have their conditions, the ability of investors to build toilets in higher standards than those households without access. In other words, poor households will have less chance to reach the kind of convenient services, ensuring sanitary conditions ... and therefore their ability to illness will also be higher.

This project is a matter of interest because one of the objectives of the project is for loans to households for the purpose of construction, improvement of hygienic toilets for the people. With seven local social practice, if so, people in full support and wish to borrow.

Survey results show that, unhygienic environmental impact of toilets in local areas this is still 5.7% of toilet paper thrown indiscriminately, 36.6% had toilets flies , 42.1% had toilets smell, toilet 7.8% distribution rule.

These figures demonstrate the toilets in area studies is one cause of environmental pollution and diseases in the locality. Many toilets still dirty here, not hygiene. Like many rural areas of the Northern Plains, fresh division, also known as distributed in the northern communes of Nam Dinh is also used in agriculture and the rotation frequency should be distributed needs to use the north is inevitable . We can say, is to use distributed north cause environmental pollution, especially if people do not comply with the composting process and time. Short on time composting plus the use of fresh distribution not
only affects the health and safety for the users but also pollute the surrounding environment. Using distributed north can make cysticercosis rates in the region increased. Stood in terms of hygiene, increasing the risk of pollution when distribution was not brewed properly distributed or used fresh. Another cause also contributed to increased pollution of living environment is the distance to the toilet water and shelter. According to calculations, a minimum distance to ensure safety and health standards between the toilet and the water is 10m. But according to survey results still to 26.7% of households now also use the toilet only water source distance under 10 meters. Through investigation, we found that with a typical farming villages, the land at not less often than they cause depends on the area of land, cause awareness of the household is important. When construction of latrines, households have less attention to science, the hygiene of toilets and water sources, usually they just pay attention to usability, convenience of the family own. This has, is affecting their own living environment.

**Status condition of collection, waste treatment and water drainage system**

**Current status collection, waste treatment**

During the investigation, we pay more attention to the treatment of household waste, the way formed such a habit. Characteristics of rural households have large garden area, pond, some family have the farms, pig pens, chicken .... This led to the littering habits of people waste their families and they were not aware that the waste is at risk, germ causing disease for themselves and family members. The survey result showed that 12.3% of households have rubbish pits in the family. For households without landfill, waste treatment form the simplest unpleasant smell when garbage is to use wind kitchen, or lime. Households with no landfill in the family have many forms of waste treatment of the family.

**Chart 9: The selection process of household waste (%)**

![Chart 9: The selection process of household waste (%)](image)

Among the surveyed households, with 29% of households said their garbage away sanitary group collected daily / weekly. As far as we know, is in some communes area of research has a number of villages to establish sanitary waste collection, but there are still some villages / communes without. To refuse collection was created for the purpose of focusing collectors, not to let households rampant littering, to ensure environmental sanitation in the region. 20.8% of households have garbage directly into public landfills to dispose of the commune. However, if the collection focus on that is not treated,
the level of influence it will be great to water, air, soil ... This phenomenon is real concern that local settlement.

Besides, people here also have a habit of littering the field / bush / river / pond / canal (29.4%) or garbage into the cattle pens (9.9%). A small number of households surveyed (accounting 10.9%) had used other forms of waste treatment of his family, particularly the self-burning or burying waste.

**Current status of waste water drainage system**

According to the opinion of the households in the communes of area research is water waste of the people is still one of the sources of pollution and the most affect the environment.

![Chart 10: The drainage system waste from households](image)

Clearly, now is only 13.9% of the waste water is household wastewater into the wastewater drainage system of the village. The remaining 84.7% a huge amount of waste water directly into natural ponds, lakes, rivers, gardens ... The average of wastewater daily is enormous, don't treatment, not concentrated ... will be a direct source of influence on environment and health. Moreover, many households still use pond water, lake ... at risk of contamination from waste water sources to serve daily.

When learning about waste water drainage system of the village, because financial conditions so most of the communes in the project area has no drainage system complete waste. The investment for waste water drainage systems in the communes are not synchronized. As the results showed that 11.9% of people live in areas where sewage trench is dug deep grooves, is built of brick / concrete, 36.1% lived on a trench excavated area (not built). Noting that still up to 26% live in areas without storm drains and 36.4% of self-absorption, flooding the land.

**Table 5: The drainage system of rural waste**

<table>
<thead>
<tr>
<th>Wastewater drainage system of village</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excavated trench (not built)</td>
<td>36.1</td>
</tr>
</tbody>
</table>
problem of pollution from water wells groundwater / drinking water, followed by 50.6% opinions on issues garbage don't collected. Wastewater drainage system of the village does not guarantee causes flooding in the rainy season. This is a serious environmental problem to be solved at the rate of local opinion 53% of the people.

Table 6: Evaluation of the people on the most serious problems to solve environmental

<table>
<thead>
<tr>
<th>Environmental problems to be solved</th>
<th>Rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air pollution / smog</td>
<td>22.2</td>
</tr>
<tr>
<td>Pollution of underground water from wells / water rivers</td>
<td>78.6</td>
</tr>
<tr>
<td>Garbage is not collected and thrown indiscriminately</td>
<td>48.5</td>
</tr>
<tr>
<td>Waterlogging in rainy season</td>
<td>53.2</td>
</tr>
<tr>
<td>Drought in dry season</td>
<td>28.7</td>
</tr>
<tr>
<td>Pollution from manufacturing facilities around</td>
<td>7.2</td>
</tr>
</tbody>
</table>

From the data collected and the actual process of penetration in the communal areas of the survey, the research team aware of the problem of clean water, sanitation, contaminated drinking water is to solve problems in these areas. Garbage is not collected, would be thrown indiscriminately cause flooding in the rainy season, which directly influence water resources and water quality for everyday use.

2.3.4 Objectives of the project

Water supply sub-project area and meet people's needs both in terms of reserves and water quality, improve the health of people in sub-project area.

Raising awareness of people in clean water and sanitation environment. Increase the capacity and institutional in managing the operation and maintenance of water supply systems through training. Building water supply systems are improving the infrastructure and people's livelihoods sub-project area, contributing to stabilize the life of the people in rural areas.

Projects area

The communes of Giao Thuy district and Xuan Truong district was selected to implement the phase 4 project. After discussions with the authorities the local government together with the results from community consultation, the service area's water supply system for the immediate future and extend to 2020 were identified. The system will provide water for residents living in the village and all the administrative offices as well as public buildings in the village.

Sub-project water and sanitation in Nam Dinh including commune 7: Giao Chau, Giao Nhan, Giao Ha, Binh Hoa, Hong Thuan, Hoanh Son and Tho Nghiep.

Project content

Subproject six communes of Giao Thuy district and Tho Nghiep commune of Xuan Truong distric was built on the basis of reports pre-feasibility study RRD-RWSS project has been approved by the
Government of Vietnam and through the World Bank. The contents of sub-projects for major investment in central water supply, water supply and household sanitation and household hygiene in public places.

Central water supply system

Construction of new water supply system to concentrate on the communes: Giao Nhan, Giao Ha, Giao Chau, Binh Hoa, Hong Thuan, Hoanh Son of Giao Thuy district and Tho Nghiep commune of Xuan Truong district ensure water supply to meet demand to 2020 for 100% of the population in the commune.

Investment contents include the following items:

- Project source: The collection process + raw water pumping station, raw water transmission pipeline DN400-D1 with a total length of about 7644m.
- Surface water treatment station capacity of 9500 m³/day: cluster treatment, clean water tank, water pumping station.
- The recovery process and waste water cleaning filters
- Transmission system pipeline, distribution, service and meter of water for household consumption meter for residential traffic.
- Power supply

Water supply and sanitation household

A revolving funds will be provided for the construction and improvement of sanitation and water supply to households. This fund will be led by Women’s Union of Nam Dinh province management.

Currently, in the communes there are some households with loan demand improved conditions for household water supply, in addition to a small number of households with loan demand improved sanitation, these are poor households with real needs.

Improved water supply and sanitation in place

Map household water supply or group of households

![Diagram of household water supply](image)
Public toilets

Construction of public toilets in the schools, commune health centers and markets, the Government has made the investment regime of preferential treatment, capital construction will be government subsidy 100%, the benefit unit must ensure funding for operation and maintenance.

Map centralized water supply system...

The determination of water treatment technology based on power, water and selected water quality resources. From the analysis results Ninh Co River water quality, water treatment processes were chosen as follows:

- Water source → Pump station level I → Receiving chamber → Mixing tank horizontal → Horizontal Clarification → Quick Filter → Disinfection (chlorination) → Pump station level II (inverter using) → water supply network → Household consumption.
- Discharging wash water sedimentation tanks, trickling filters lead to siltation of the lake → Drying mud → Landfills.

The location of pumping station Binh Hoa
Table 7 - List the total volume of water treatment works

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Items works</th>
<th>Update build number and size of items</th>
<th>Quantity</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collected works</td>
<td>Raw water pumping station</td>
<td>AxBxH = 7,5x15x3,6m</td>
<td>01</td>
<td>Guano building reinforced concrete, the floats building bricks</td>
</tr>
<tr>
<td></td>
<td>Raw Water Pump</td>
<td>Q=188 m³/h, H=35m</td>
<td>03</td>
<td>Horizontal axis</td>
</tr>
<tr>
<td></td>
<td>Mechanical mixing tank</td>
<td>B x L x H = 1,5x1,5x4 m</td>
<td>02</td>
<td>Reinforced concrete</td>
</tr>
<tr>
<td></td>
<td>Mechanical cracking reaction</td>
<td>B x L x H = 3,6x8,0x3,0m</td>
<td>02</td>
<td>Reinforced concrete</td>
</tr>
<tr>
<td></td>
<td>Clarification Lamen</td>
<td>B x L x H = 4,5x10,0x7,0 m</td>
<td>02</td>
<td>Reinforced concrete</td>
</tr>
<tr>
<td></td>
<td>Fast filtration tank</td>
<td>BxLxH = 5,7x4,3x5,3 m</td>
<td>04</td>
<td>Reinforced concrete</td>
</tr>
<tr>
<td></td>
<td>Sludge handling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lake siltation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sludge drying</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sterilization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Average Chlorine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pump engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preparation of alum, lime</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bin consumption</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dosing pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water Pump</td>
<td>Q=300 m³/h, H=55m</td>
<td>03</td>
<td>Horizontal axis</td>
</tr>
<tr>
<td></td>
<td>Water wash pump filter</td>
<td>Q=280 m³/h, H=15m</td>
<td>02</td>
<td>Horizontal axis</td>
</tr>
<tr>
<td></td>
<td>Water pump technique</td>
<td>Q=45m³/h, H=30m</td>
<td>02</td>
<td>Horizontal axis</td>
</tr>
<tr>
<td></td>
<td>Water pump leak</td>
<td>Q=5m³/h, H=5m</td>
<td>01</td>
<td></td>
</tr>
</tbody>
</table>
Electrical system:
Building 01 substation 110KVA to power the treatment plant, power from high voltage power grids by building regional processing station about 500 meters, the power of management in Nam Dinh.
This substation was built to ensure adequate supply of power to do the right treatment plant capacity. This is one of the items of subprojects in 7 communes.
Construction voltage cable and power cable, electric lighting systems in sync

Water supply pipe network:
Water supply pipelines were calculated to 2015 were calculated as follows:

<table>
<thead>
<tr>
<th>No</th>
<th>Type pipe</th>
<th>Unit</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Iron and plastic pipe DN500 PN10, class9</td>
<td>m</td>
<td>3.285</td>
</tr>
<tr>
<td>2</td>
<td>Iron and plastic pipe DN400 PN10, class9</td>
<td>m</td>
<td>4.187</td>
</tr>
<tr>
<td>3</td>
<td>Iron and plastic pipe DN300 PN10, class9</td>
<td>m</td>
<td>651</td>
</tr>
<tr>
<td>4</td>
<td>Pipe UPVC DN280 PN8, class3</td>
<td>m</td>
<td>3.783</td>
</tr>
<tr>
<td>5</td>
<td>Pipe UPVC DN225 PN8, class3</td>
<td>m</td>
<td>7702</td>
</tr>
<tr>
<td>6</td>
<td>Pipe UPVC DN180 PN8, class3</td>
<td>m</td>
<td>473</td>
</tr>
<tr>
<td>7</td>
<td>Pipe UPVC DN160 PN8, class3</td>
<td>m</td>
<td>19775.0</td>
</tr>
<tr>
<td>8</td>
<td>Pipe UPVC DN140 PN8, class3</td>
<td>m</td>
<td>4504.0</td>
</tr>
<tr>
<td>9</td>
<td>Pipe UPVC DN110 PN8, class3</td>
<td>m</td>
<td>20367.0</td>
</tr>
</tbody>
</table>
CHAPTER 3. ENVIRONMENTAL IMPACTS

3.1. The positive impact

The project is expected to bring positive benefits for the environment and public health by providing clean water for the Giao Chau commune, Giao Nhan commune, Giao Ha commune, Binh Hoa commune, Hong Thuan commune, Hoanh Son commune and Tho Nghiep commune.

3.2. The negative impact.

3.2.1. The negative impacts on environmental related to phase clearance.

The negative impacts during the preparation mainly issues related to compensation, land acquisition: changing land use, destruction of vegetation (rice fields, crops ...), as affect people in the area of land use, disruption of economic activities, society in the region.

Table 9 - The main items in the project area of interest

<table>
<thead>
<tr>
<th>The main items in the project area of interest</th>
<th>Need for Compensation</th>
<th>No compensation</th>
<th>Negligible compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giao Tien Commune (put the treatment plant)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The area of land mainly for the leasing of</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the CPC rice (15.552 m2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area roads provincial road 489 (209.6 m2)</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Binh Hoa ommune (set pumping station)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The area of land mainly for the leasing of</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the CPC rice (1715 m2)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.2.2. The negative impacts on the environment related to the construction phase.

- **Waste air**

Factors causing pollution in the only stage of construction dust is flying up from long time and occurs in cycles of days of wind and dust comes with the use of machinery, excavation and construction. During the period of construction, loading, unloading, transporting materials will cause dust pollution along the route to go. However, exhaust gas as CO, CO₂, SOx, NOx, VOC and hydrocarbon ... from the engines and trucks increased air pollution, increased greenhouse effect also be considered.

- **Noise**

Noise is created by the noise of automobile engines in the transportation of materials, concrete mixing machinery during constructure, especially heavy motor vehicles such as cattle, bulldozers, compactors, pumps ... ... affect people's lives especially those concentration of population such as schools, hospital, clinic commune, ward ... Besides, the process in operation of plants also emit the noise affect to daily activities of people in the most affected residential areas surrounding the plant and station treatment.

- **Waste water**

Increase wastewater treatment and in areas without sewage systems, environmental pollution may occur. When it rains, the construction waste and other waste washed away by rain water and increase.
CHAPTER 3. ENVIRONMENTAL IMPACTS

3.1. The positive impact

The project is expected to bring positive benefits for the environment and public health by providing clean water for the Giao Chau commune, Giao Nhan commune, Giao Ha commune, Binh Hoa commune, Hong Thuan commune, Hoanh Son commune and Tho Nghiep commune.

3.2. The negative impact.

3.2.1. *The negative impacts on environmental related to phase clearance.*

The negative impacts during the preparation mainly issues related to compensation, land acquisition: changing land use, destruction of vegetation (rice fields, crops ...), affected field's ecosystem. Create an amount of organic solid waste that disintegrates easily. When disintegrating, solid waste is an ideal environment for alive pathogenic microorganism, creates odor and a fixed amount of CH4, H2S, ... affecting air and water. Residence of some organisms disappear which affects area's ecosystem. Beside, archaeological landmines from war ... etc can be found in the construction process can cause danger to construction workers and surrounding communities.

<table>
<thead>
<tr>
<th>The main items in the project area of interest</th>
<th>Need for Compensation</th>
<th>No compensation</th>
<th>Negligible compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giao Tien Commune (put the treatment plant)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The area of land mainly for the leasing of the CPC rice (15.552 m²)</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area roads provincial road 489 (209.6 m²)</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Binh Hoa commune (set pumping station)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The area of land mainly for the leasing of the CPC rice (1715 m²)</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.2.2. *The negative impacts on the environment related to the construction phase.*

- **Soil erosion:** after digging the soil lose green floor covering at the top cause erosion, landslides
- **Waste air:**

Factors causing pollution in the only stage of construction dust is flying up from long time and occurs in cycles of days of wind and dust comes with the use of machinery, excavation and construction. During the period of construction, loading, unloading, transporting materials will cause dust pollution along the route to go. However, exhaust gas as CO, CO₂, SOx, NOx, VOC and hydrocarbon ... from the engines and trucks increased air pollution, increased greenhouse effect also be considered.
The disruption of public services as system of canals, power lines.... For the system of irrigation canals leading to the field, if no refund or new construction of canals for the people will lead to water shortages or flooding fields in the absence of drainage system. This greatly affects crop productivity of the people. In addition, the filling of canals also leading to overflow into the fields alum besides causing difficulties in the production of cultivated relatives.

- **Traffic:**

Traffic disturbance and road damage. The use of inter district roads, village, commune related transportation routes for construction materials can be made of materials scatter more or less down the road will affect the movement of people. Besides, while the road digging construction without spot cleaning will cause traffic congestion, causing difficulties in the movement of people.

- **The impact on agricultural production activities:**

The train line, insert the tube in the construction process will affect directly to the next plot (noise, dust, traffic congestion, water irrigation systems for farms, ...) to reduce crop productivity of the people.

- **Health and Safety:**

Safety incidents can happen at any time during construction. There are many causes of such status, such as construction equipment are all motorized heavy equipment, workers live mostly unskilled workers, awareness and limited understanding. When disasters occur mask will directly affect the health and lives of human beings. In particular, the construction site next to the Giao Thuy A high schools, students can go through, curious to see if the construction equipment to the right place is not specified or no warning signs can cause dangerous unfortunate accident.

- **Flora and fauna**

In most communes have taken the field, the land area is cultivated mainly for rice cultivation. Species dominant in communes are different species of mice and other rodents are less protected. So people do not believe that the project activities have any serious impact to flora and fauna present.

- **The impact of cultural beliefs:**

According to survey results to see, apart from area affected around by water supply, water treatment stations have some work to be interested such as Binh Dong Pagoda, Cemeteries people and martyrs cemetery in Binh Hoa commune. This works but is not directly affected by the project but the project is located near the construction site. Therefore, during the construction process, this work will be affected more or less as: noisy as the quiet temple Binh Dong affect the sacred temples and psychology of people go to church, or dust and smoke emissions from vehicles transporting raw materials, ... if there is no reasonable remedial measures will also impact negatively on daily life and spiritual life of the community.

- **Society**

Conflict between local people and construction workers. Affect public order in the area.
Emerged social issues if not managed

### Table 10 - The main items in the project area of interest

<table>
<thead>
<tr>
<th>Communes</th>
<th>The main items in the project area of interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giao Tien</td>
<td>* Provincial Road 489</td>
</tr>
<tr>
<td></td>
<td>* Water drain system for the area irrigated rice</td>
</tr>
<tr>
<td></td>
<td>* Route people to the field</td>
</tr>
<tr>
<td>Binh Hoa</td>
<td>* The high power voltage 110 KV</td>
</tr>
<tr>
<td></td>
<td>* Route people to the field</td>
</tr>
<tr>
<td></td>
<td>* The causeway of Truc river, Dong Binh pagoda</td>
</tr>
<tr>
<td></td>
<td>* The causeway of Co Nhat river</td>
</tr>
<tr>
<td></td>
<td>* Cemetery</td>
</tr>
<tr>
<td></td>
<td>* Martyrs Cemetery</td>
</tr>
<tr>
<td></td>
<td>* 15 households</td>
</tr>
<tr>
<td></td>
<td>* Giao Thuy A high school</td>
</tr>
<tr>
<td></td>
<td>* Inter-commune road</td>
</tr>
</tbody>
</table>

3.2.3. **The negative impacts on environment and mitigation measures related to operational phase**

- **Noise**
  Operating the treatment plant noise affects people in surrounding area and worker.

- **Dried mud**
  During the wash born filter made of waste water and sludge. Dry sludge is produced after sewage treatment is also a notable problem in the line of water quality treatment. This sludge can contain heavy metals or compounds harmful, if not careful burial will cause pollution of land or water. In addition, more and more sludge causing aesthetic areas.

- **Solid waste / chemicals:**
  Hazardous solid waste as fuel and used oil, containers of chemicals, chemical damage can not be used, sticky oil cloth, broken light bulbs,... if not buried will cause cell Air pollution, water and soil
pollution caused long-term effects to the environment. There is also solid waste activities, solid waste is biodegradable and contains many pathogenic microorganisms to humans.

- Environmental incidents

There may be risks in operations such as chemical leaks, fires, accidents ...

In the case of contaminated water can cause wide spread water-related diseases

Giao Thuy High school - the location is next pumping station Binh Hoa
## CHAPTER 4. MITIGATION MEASURES NEGATIVE IMPACT

<table>
<thead>
<tr>
<th>No</th>
<th>Impacts / Issues</th>
<th>Source of impacts</th>
<th>Mitigation measure</th>
<th>Implementers</th>
</tr>
</thead>
</table>
| 1  | Choosing supplied water source       | Water source used for construction | - Make a survey of current situation of surface water sources. Top priority to using surface water of big rivers, not using water sources from irrigation streams/canals. In this project, plans are selected and optimized through the Ninh Co River water source in Xuan Truong town.  
- Determine and assess pollution sources for water of Ninh Co river (household sewage, sewage from factories, companies along the water source, capacity of water sources...)  
- Refer to yearly monitoring data of water quality  
- Check raw water quality and compare to regulation QCVN 02:2009/BYT on National technical regulation on domestic water quality  
- Determine the place to take water: we have to calculate the water level, not place garbage dump, toilet or water discharge location near economic places in the area  
- Pay attention to impacts being created by waterway transport means  
- Determination of seasonal water and salt from their experience of the people for water, salinity, acidity, tides ... so make sure water is guaranteed for volume and quality | Design consultant                  |
| 2  | Choosing places for water treatment construction | Stratigraphy, geological and other public facilities, cultural facilities and residential areas... | - Places for water treatment construction need to be surveyed seriously in geography, geology, social issues to ensure long-term safety of construction  
- Places of pump station need to be far away 200 m residential area (if possible). This ensures that noise doesn't affect inhabitants life.  
- Avoid siting of construction works in areas where the geological structure is weak and unstable flows, such as drainage ditches, close to residential areas  
- Avoid choosing place WTP in cultivated land with high productivity, especially in the rice field  
- WTP construction places, water pipe system need to avoid cultural, historical buildings such as funeral, temple, church, pagoda, big tree, historical monument, etc. | Authority at commune level, PPMU and Design consultant |
| 3  | Environmental impact assessment      | Environmental minimized | - Optimizing the design and planning projects to minimize its negative impacts on the environment | PPMU and consultancy              |
### REPORT ON THE ENVIRONMENTAL MANAGEMENT PLAN
7 Communes in Giao Thuy, Xuan Truong District, Nam Dinh Province

<table>
<thead>
<tr>
<th>No</th>
<th>Impacts / Issues</th>
<th>Source of impacts</th>
<th>Mitigation measure</th>
<th>Implementers</th>
</tr>
</thead>
</table>
|    | (EIA)/environment protection commitment (EPC) | methods stated in EIA/IPC report | - EIA/EPC report completely foresee impact sources, impact scale, impacted subjects and impact level in each issue (limit qualitative).  
- The mitigation measures must be concretized by the impact was assessed.  
- Reporting process EIA / IPC, the investor is PPMU and consulting units must consult communities affected by the project and be recorded in writing together with the reports.  
- EIA / EPC Report must be functional agencies are the Department of Natural Resources and Environment, DPC to consider the appraisal and approval confirmation.  
- After the report has been approved by authorities / validation, reporting to the investors (PPMU) send a copy of the commune People's Committee to oversee the implementation of projects under the first commitment investment. | agency making report EIA/EPC |
| 4  | Bidding documents and consultant/ construction contract | Issues affecting the environment stated in Bidding Documents | - The bidding documents should have mentioned the environmental issues to the contractor free to propose solutions to reduce and this will be one of the criteria for assessing bid  
- The contract between the investor (PPMU) and contractors must have the terms of the commitments and responsibilities of contractors in the implementation of environmental mitigation measures as stated in the environmental protection commitment and the technique plan proposed by contractors  
- At the time of work acceptance, water quality treatment meets the standards of the Ministry of Health QCVN 02:2002/BYT on National technical regulation on domestic water quality | PPMU and Contractors units |

### Phase of land acquisition, site preparation

| 1  | Recover land for project | Policies of compensation and resettlement of the project | - Setup a management board for ground clearance including representatives of the People's Committee at commune level where the project affected  
- Minimize Recover land that has been granted to households. Try using the land managed by the commune People's Committee  
- Inform people who are effected directly from the project  
- Have reasonable compensation policy for people with land acquisition  
- Selection of land replacement | The PPMU to coordinate with clearance board, local authorities, mass organizations |
| 2  | Trees were cut down | The period of | - Avoid WTP site selection, water place, pipes drain on cultivation land for high yield | Authority at local, |
### Report on the Environmental Management Plan

7 Communes in Giao Thuy, Xuan Truong District, Nam Dinh Province

<table>
<thead>
<tr>
<th>No</th>
<th>Impacts / Issues</th>
<th>Source of impacts</th>
<th>Mitigation measure</th>
<th>Implementers</th>
</tr>
</thead>
</table>
| 1  | Loss of arable land or damaged       | Land acquisition, site clearance before construction   | - Avoid the design of pipeline along the grown trees  
- Inform so timely to farmers that they can adjust cultivation time if possible                                                    | PPMU and Design consultant    |
| 3  | Topsoil stripping                    | Silt layer and the surface soil layer                  | - Avoid building water plant location, the treatment plant, pumping stations where the land is too low. Keep the soil layer before digging, using the layer to restore land.  
- There should be zoned fence during the construction                          | Authority at local, PPMU and Design consultant |
| 4  | Bomb and landmines                   | Bombs and mines left over from the war unexploded      | Issues of concern to demining, these activities should be the professional division of infantry made prior to construction        | Authority at location, PPMU  |

### Construction Phase

<table>
<thead>
<tr>
<th>No</th>
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<th>Source of impacts</th>
<th>Mitigation measure</th>
<th>Implementers</th>
</tr>
</thead>
</table>
| 1  | Soil erosion                    | By construction                                        | - After completing construction, the greening as early as possible to prevent wind and water erosion and landslides.  
- The work should apply these measures to control and prevent erosion during construction and increased sedimentation in the river nearby. | Authority at local, PPMU and Construction units                                      |
| 2  | Dust, smoke and emissions       | From the surface Clearance site - The process of burning fuel by means of execution - means of transport | - Require contractors to use standard equipment during construction  
- Organizing special team responsible for collecting material falling around construction site and area nearby. 2 collectors/ team and 2 times/day.  
- Do not use the old mean of transport for sand, soil and rocks.  
- Do not carry materials left overload.  
- Encourage the use of tank trucks. Benefits of vehicle tanks are not only sealed to prevent the possibility of dust dispersed into the environment but also limited the state to carry overload  
- With mean of transportation for building material need to be cover to limit spreading dust.  
- Do not transport building materials in raining days to avoid affecting the transportation system due to the fall of material along the roads  
- Watering on dry days, a lot of dust on construction in the locality concerned and the | Construction contractors, engineering supervision |
## REPORT ON THE ENVIRONMENTAL MANAGEMENT PLAN
### 7 Communes in Giao Thuy, Xuan Truong District, Nam Dinh Province

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<thead>
<tr>
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</tr>
</thead>
</table>
| 3  | Noise            | Machines and transportations such as, bulldozer machines, concrete mixers, water pumps, the transportation of raw materials | - Staking on construction must be done in accordance with procedures, using advanced equipment to pile.  
- Using and maintain noise reduction equipments and noise barriers. Turning off some machines to limit noise if they are not necessary.  
- Some machines cause high noise such as drilling machines, hammers.. will not operate them at night time to avoid the impact of living of workers and nearby residential.  
- Monitoring of the noise during the construction process  
- Forbidding the abuse of using horn and turning off the engine when stopping.  
- Encourage the construction on holiday to limit impact of learning activities of students. | Construction contractors, engineering supervision |
| 4  | Waste water      | Stormwater runoff | - Mix and materials containing areas are seperated during construction.  
- Do not focus on the materials, next to the water line to prevent leakage in drainage lines.  
- Build spillway dam around work with iron bars and gas hole to stop water from running to water releasing system in area.  
- Check, dredge, enlarge regularly to avoid waste causing jam in water releasing ways.  
- Restrictions on the implementation of construction in raining days  
- Do not pour solid waste (construction waste, sand, stone...) and oil waste down the flow. | PPMU, Construction contractors, engineering supervision |
| 5  | Solid Waste      | Construction and domestic waste | - Establishing a team included 2-3 people of collection all solid wastemand solid waste construction daily.  
- Classification of solid waste, solid waste construction and hazardous waste. These types of solid waste can re-use, particularly for solid waste construction can utilize for the purpose of ground leveling.  
- Arrange for at least 3 types of trash-150 litter in construction site to classify, collect and treat waste in accordance with regulations on environmental sanitation.  
- Agreement with local authorities / DONRE of temporary garbage yards at a place. | PPMU, Construction contractors, engineering supervision |
**Report on the Environmental Management Plan**

**7 Communes in Giao Thuy, Xuan Truong District, Nam Dinh Province**

<table>
<thead>
<tr>
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</tr>
</thead>
</table>
| 6  | The infrastructure such as drainage, power lines, telephone cables, roads and drainage canna will be damaged. | Transportation of vehicles, construction works such as digging, ground leveling | **away from water**  
   • Collecting toxic wastes such as oil tanks, oil  
   • Have the containers of hazardous solid waste separately  
   • Used oil must be collected in containers  
   • To arrange a mobile toilet in the construction site.  
   • Preparation of internal regulations on sanitation in camp education workers or sense of hygiene and environmental protection. Strictly forbidden littering  
   • Strictly forbidden all acts of discharging pollutants, harmful substances.  
   • Coordinate with the local authorities to ask for relocation of infrastructure as required.  
   • Inform local people where the services were temporarily cut before at least three days.  
   • Before driving under power lines or unloading of materials, equipment and the cable. The driver must check and observe the height cable.  
   • Use equipment in accordance with load, no damage to roads.  
   • Repaire the damage.  
   • Limited transport of materials in the peak hours of the day to avoid traffic congestion. Especially avoid the seasonal time of the people, by people's transportation is active. Using a vehicle carrying a load of small and consistent with the traffic load of the commune and district levels. | Contractors and Authority at local |
| 7  | Traffic safety  
   Labor safety  
   Fire | Automobile transportation, electrical equipment, construction equipment and construction materials | **Major fire incidents related to electrical problems. Therefore, in the process of construction should note this and the supply conductor. The device should be checked regularly and collapse after a day of construction.**  
   • The drivers should drive and transport at the same time. When passing to residential areas, need to reduce speed to avoid accidents  
   • Construction area must be fenced and signs noted. Especially where construction near the school, students can play, curious to public schools should be careful  
   • Workers should be equipped with labor protection (helmet, gloves, goggles, mask ...) | Construction contractors, engineering supervision |
| 8  | Effects for the Excavation and | **In case unknown archaeological objects are found during construction phase, act...** | Contractors, |
# REPORT ON THE ENVIRONMENTAL MANAGEMENT PLAN

**7 Communes in Giao Thuy, Xuan Truong District, Nam Dinh Province**

<table>
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<tr>
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<th>Source of impacts</th>
<th>Mitigation measure</th>
<th>Implementers</th>
</tr>
</thead>
</table>
|    | Cultural, historical, archaeological works | Levelling on PS, WTP and water supply pipeline network | Following chance findings procedures described below:  
- If cultural artifacts are uncovered the Contractor must stop work at the site, secure the site and inform the supervision Engineer.  
- The Contractor should arrange with the Engineer to move his activities to another site. Construction works at the site where objects were found only be resumed after permission of PPMU.  
- The Engineer will inform PPMU, the one who inform the provincial Department of Culture, Sports and Tourism (DCPS)  
- Officer from DCPS will inspect the side, evaluate the importance of the objects found and decide on the next steps. For Dong Binh Pagoda, the impact is mainly noise and dust affecting the purity of the temple place, which should limit the operation noise and regular water spray to reduce dust. | Engineering supervision, Investors  
Department of Culture, Sport and Tourism Province |
|    | Social | The conflict, evil | Human Resource Management Notes remind workers behave in harmony with local people.  
- Need time management of workers in the activities. Should have its own regulations close to workers.  
- Prohibited workers involved in activities related to the social evils. Should be severely sanctioned violations | Construction contractors |
|    | Noise | Sound from pump | The workers will be equipped with adequate labor protection when operate pumping machines.  
- Make the plan of pumping water to avoid noise at the same time. | Workers and management units |
|    | Solid Waste/chemical | Hazardous waste as used fuel and oil, containers of used chemicals, washcloth with | Provide at least two trash -150 litter to collect and classify solid waste and domestic waste of workers (one container of waste to decompose and acontainer of hard-to-decompose solid waste)  
- Assignment of timeline to workers in cleaning the area.  
- Need a septic toilet. Forbidden any action of making a mess.  
- Unit of management should conduct records of management and monitoring of hazardous and solid waste registration and periodically report to the functional units for environmental management - Department of Natural Resources and |

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*Page 35*
<table>
<thead>
<tr>
<th>No</th>
<th>Impacts / Issues</th>
<th>Source of impacts</th>
<th>Mitigation measure</th>
<th>Implementers</th>
</tr>
</thead>
</table>
|    | oil, broken light bulbs, | Environment to monitor the production process of solid waste at treatment station.  
• The management, monitoring of hazardous waste shall comply with Circular No 12/2006/TB-BTNNMT on December 26, 2006 by Department of Natural Resource and Environment to "guide and set records, registration, granting to practice management codes of hazardous waste".  
• Hazardous solid wastes will separate from non-hazardous solid wastes  
• Workers work under the time shift should be responsible for collecting all hazardous solid waste and put it at a certain place for functional units collecting and processing.  
• For the washcloth with oil, the packaging with chemical need to handle after using.  
• The handling of hazardous solid waste must be leased functional units in accordance with the regulations on collection and treatment of hazardous solid waste. |
|    | Sludge | Sludge collected from the pits. | Periodically vacuum mud from drying  
• Each province can use a dedicated car for collecting dried mud at water treatment plant to landfill for treatment.  
• If the condition does not allow, we can arrange a private waste area and grow some plants to collect the pollutants, especially heavy metals (spinach, water-fern, bindweed...). However, these plants must then be handled as hazardous solid waste. |
| 4  | Environmental disasters | Labor safety  
Fire  
Chemical leak  
Workers exposed to chemicals | Provide portable fire fighting equipment and training in the WTP  
• Restrict access to the water treatment plant and chemical house by design solutions such as fence, lock and signboards  
• Bảo quản hóa chất trong hố chứa kim  
• Maintain first-aid kits in workers' camps and WTP  
• Maintain labels stating the name and toxicity of chemicals  
• Do not place flammable or explosive materials near chemical storages and place fobbing sign boards |
|    |                 |                  |                  | PPMU and operating workers  
PPMU and operating workers |
CHAPTER 5. ENVIRONMENTAL MONITORING PROGRAM

5.1. Environmental monitoring program.

5.1.1. Monitoring groundwater quality.

The objective of monitoring groundwater quality are:

- Monitoring the concentrations of contaminants in groundwater in the project area.
- Forecast the penetration of pollutants into the stream aquifer region.

The position of monitoring quality of groundwater in the construction stages: In the wells in the area affected by the construction process.

The monitoring indicators include suspended sediment (SS), Fe, Mg, oil and grease, coliform, NH4, NO3

5.1.2. Surface water quality monitoring:

The monitoring of water quality in the construction phase is the point, was observed in environmental impact assessment of projects and waste water discharge points in the process of construction of the project. The monitoring indicators: pH, SS, BOD5, oil, \( \sum N \), \( \sum P \), Coliform.

5.1.3. The frequency and method of monitoring water quality:

The frequency of monitoring is once time before construction, once time every 3 months during construction in 1 year and once time every 6 months in 2 years operation of the project. Monitoring method in accordance with the standards of Vietnam (TCVN).

Monitoring and reporting of data management. The monitoring data is valuable in environmental management and pollution control.

5.1.4. Monitoring air quality

Frequency of observation is a time prior to construction, every 3 months during the construction process in the first year and 6 months / time in 2 years of operation.

The monitoring indicators NO2, CO, TSP, PM10

5.1.5. Observation noise:

Frequency of observation is a time prior to construction, every 3 months during the construction process in the first year and 6 months / time in 2 years of operation.

Monitoring indicators Noise level (dB)

5.1.6. Monitoring of operations.

The main parameters to be monitored include quality of surface and groundwater quality especially where handling systems. Details of the environmental monitoring parameters, implementing agencies and the agencies responsible are presented in the table:

<table>
<thead>
<tr>
<th>Table 11 - Environmental Observation Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Items</strong></td>
</tr>
<tr>
<td>Air</td>
</tr>
<tr>
<td>Period</td>
</tr>
</tbody>
</table>
### Noise

**Parametrial**
Equivalent noise level dB

**Period**
Before construction, 1 year construction and 2 years operation

**Frequency**
Once a quarter - continuous 5 days of measuring for each observation.

**Time**
Day and night

**Location**
Populated points in the town center along the pipeline Site within 200 meters near residential areas

### Water

**Parametrial**
Surface water: pH, SS, BOD5, $\sum N$, $\sum P$, Coliform
Groundwater: SS, Fe, Mg, oil and grease, Coliform

**Period**
Before construction, 1 year construction and 2 years operation

**Frequency**
Once every 3 month (implementation); once every 6 month (operation)

**Time**
Daytime

**Location**
Rivers, ponds near work
Well near works
The waste water after washing filters, sludge
Raw water

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**Table 12** - Estimated fund monitoring and environmental monitoring in the first stage construction, stage construction and operation
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#### 7 Communes in Giao Thuy, Xuan Truong District, Nam Dinh Province

<table>
<thead>
<tr>
<th>Stage works</th>
<th>Observation Location</th>
<th>These factors need Observation</th>
<th>Observation time</th>
<th>Frequency of observation</th>
<th>Unit responsible</th>
<th>Implementation funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Before construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22,000,000 đ</td>
</tr>
<tr>
<td>Air</td>
<td>Populated points in the center of commune along the pipeline</td>
<td>CO, SO₂, NO₂, PM10</td>
<td>Before construction</td>
<td>One time before construction</td>
<td>Project Management Board</td>
<td></td>
</tr>
<tr>
<td>Noise</td>
<td>Populated points in the center of commune along the pipeline</td>
<td>dB</td>
<td>Before construction</td>
<td>One time before construction</td>
<td>Project Management Board</td>
<td></td>
</tr>
<tr>
<td>Surface water</td>
<td>Rivers, ponds near work</td>
<td>pH, SS, BOD₅, N, P, Coliform</td>
<td>Before construction</td>
<td>One time before construction</td>
<td>Project Management Board</td>
<td></td>
</tr>
<tr>
<td>Groundwater</td>
<td>Well near works</td>
<td>SS, Fe, Mg, grease, Coliform</td>
<td>Before construction</td>
<td>One time before construction</td>
<td>Project Management Board</td>
<td></td>
</tr>
<tr>
<td>II. Construction works</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>87,000,000 đ</td>
</tr>
<tr>
<td>Air</td>
<td>Works within 100 meters near residential areas, populated places in the town center along the pipeline</td>
<td>CO, SO₂, NO₂, PM10</td>
<td>One year</td>
<td>3 months/time</td>
<td>Contractor</td>
<td></td>
</tr>
<tr>
<td>Noise</td>
<td>Within 200 meters of construction area, densely populated places in the center of commune along the pipeline</td>
<td>dB</td>
<td>One year</td>
<td>3 months/time</td>
<td>Contractor</td>
<td></td>
</tr>
<tr>
<td>Surface water</td>
<td>Rivers, ponds near work</td>
<td>pH, SS, BOD₅, N, P, Coliform</td>
<td>One year</td>
<td>3 months/time</td>
<td>Contractor</td>
<td></td>
</tr>
</tbody>
</table>
REPORT ON THE ENVIRONMENTAL MANAGEMENT PLAN
7 Communes in Giao Thuy, Xuan Truong District, Nam Dinh Province

<table>
<thead>
<tr>
<th>Groundwater</th>
<th>Well near works</th>
<th>SS, Fe, Mg, grease, Coliform</th>
<th>One year</th>
<th>3 months/time</th>
<th>Contractor</th>
<th>Cost VND/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>III. Operation of the work</td>
<td>Noise</td>
<td>Within 200 m of local water treatment plant</td>
<td>dB</td>
<td>Two years</td>
<td>6 months/time</td>
<td>The unit operates water treatment plants</td>
</tr>
<tr>
<td></td>
<td>Air</td>
<td>Within 200 m of local water treatment plant</td>
<td>CO, CO₂, NO₂, PM10</td>
<td>Two years</td>
<td>6 months/time</td>
<td>The unit operates water treatment plants</td>
</tr>
<tr>
<td></td>
<td>Surface water</td>
<td>The waste water after washing filters, sludge Raw water</td>
<td>pH, SS, BOD₅, ∑ₙ N, ∑ₚ P, Coliform</td>
<td>Two years</td>
<td>6 months/time</td>
<td>The unit operates water treatment plants</td>
</tr>
</tbody>
</table>

Page 40
5.2. Planning environmental training / institutional strengthening.

5.2.1. Training Objectives

The objectives of the training program is to help the environment for the staff of the Agency project management, contractors units, supervise construction and officials concerned shall implement environmental monitoring plan to enhance their resources and help ensure the successful implementation of mitigation plans and monitoring specified in the environmental assessment during the final project design, implementation and operation of projects. Participants may include staff of contractors and construction supervision, staff management project in Nam Dinh.

To ensure success for the intensive courses and the implementation of environmental monitoring plan, there is a requirement set by officials appointed officials of environmental agencies and the project management agency province involved units must have the knowledge and basic skills in management and environmental monitoring. CPO will appoint the officers in charge of environment and professional staff of the unit independent consultant by the CPO hired will be responsible training for the staff of the PPMU Nam Dinh and other related.

Table 13 - Cost for the training course on environment

<table>
<thead>
<tr>
<th>Training courses for environmental professionals and other people involved</th>
<th>Number of personnel</th>
<th>Training contents</th>
<th>Time</th>
<th>Daily Cost</th>
<th>Total cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Training class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1. Lecturer</td>
<td>2</td>
<td>Training class</td>
<td>8</td>
<td>60</td>
<td>960</td>
</tr>
<tr>
<td>1.2 The agency project management / personnel related</td>
<td>18</td>
<td>8</td>
<td>10</td>
<td>1,440</td>
<td></td>
</tr>
<tr>
<td>1.3 Facilities and management</td>
<td>1</td>
<td>8</td>
<td>200</td>
<td>1,600</td>
<td></td>
</tr>
<tr>
<td>1.4 Documents for students</td>
<td>18</td>
<td>1</td>
<td>10</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5,000</td>
</tr>
<tr>
<td>2. Practical training / field</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 Lecturer</td>
<td>2</td>
<td>The field</td>
<td>2</td>
<td>60</td>
<td>240</td>
</tr>
<tr>
<td>2.2 The agency project management and personnel related</td>
<td>18</td>
<td>2</td>
<td>10</td>
<td>360</td>
<td></td>
</tr>
<tr>
<td>Material base</td>
<td>1</td>
<td>2</td>
<td>200</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>800</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5,180</td>
</tr>
</tbody>
</table>

5.3. Assigning responsibility.

5.3.1. Responsibilities of project management, supervision consultants and project owners.

Project Management Board is the agency directly responsible for environmental management projects.
REPORT ON THE ENVIRONMENTAL MANAGEMENT PLAN
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The management of environmental projects including managing and implementing environmental protection measures for the respective periods: Preparing the ground, construction of works and operation of roads. This work is integrated with the management and technical supervision of project implementation to increase working efficiency.

Personnel service management environment is the project management environment by the project management set up. This is the task of monitoring and inspection activities related to environment in the works. Periodic reports submitted to the project management to ask for direction and resolution.

The project shall comply with environmental laws and regulations of the environmental authorities of the State and local levels. The mitigation measures and environmental management plans are made to strictly conduct supervision and implementation of environmental management plans have been proposed. Periodic report 6-month on the implementation of environmental management plan be submitted to the World Bank and the government agencies concerned.

The basic task of environmental management of project management, consultancy and supervision of the project are summarized as follows:

- Review project design and technical standards in the preparation stage to ensure appropriate and stable environment for the proposed project under the direction of management projects.
- To cooperate with the communes, functional protection and environmental management in local environmental issues under the project and the necessary procedures with the authorities.
- The project implementation process to fully comply with the provisions of the Environmental Protection under the law of Vietnam and the World Bank.
- Monitoring the environmental aspects of the project during construction to ensure that the environmental requirements of the contract and the mitigation measures proposed in the Environmental Management Plan report is executed.
- Managing and monitoring contractors units and Consultant unit in the implementation of environmental mitigation measures
- Development of environmental training to contractors and supervisory consultants.
- Arrange officials environmental to monitoring and environmental management during project implementation.
- Report and provide records of environmental for consulting monitoring environmental independently when they arrived at the PPMU and sub-projects

Supervision Consultants:

- Monitor Client's activities to ensure the Client implement minimization measures proposed in environmental management plans and supply all reference documents/ guidance when required.
- Provide reports of Client's implementation of environmental activities for PMU and WB.

Responsibility of the contractor:

- Contractor is responsible for treatment/ minimization measures of impacts related to environment required for Contractors' construction activities. In case of any environmental issues raised (Grievance/ quarry from the third side about some such issues as environmental damages to properties and natural resources (land sinking, underground...
water block, surface and underground water pollution...), contractor inform the engineer immediately for the next measures.

- During the execution process, including site preparation and sanitary clearance after completing, donor should be careful to avoid any environmental damages.
- Contractor have to assign at least one staff in charge of environment (who specialized in environment is encouraged)

Table 14 - Roles and responsibilities for environmental management

<table>
<thead>
<tr>
<th>UNIT</th>
<th>ROLE AND RESPONSIBILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division of Natural Resources and Environment</td>
<td>Final decision on issues relating to environmental management</td>
</tr>
<tr>
<td>Project Owner</td>
<td>Make sure all the terms proposed in the environmental management plan was put into the project contracts.</td>
</tr>
<tr>
<td></td>
<td>Evaluation contractor (or subcontractor), Review inspection reports in all phases of the project.</td>
</tr>
<tr>
<td></td>
<td>Make regular inspection and irregular activities of the project to ensure that contractors are performing their obligations under the contract in terms of measures to minimize environmental impact.</td>
</tr>
<tr>
<td></td>
<td>Coordinate activities with supervision consultants and construction contractors, and report directly to Project Director.</td>
</tr>
<tr>
<td></td>
<td>Check extraordinary about environment</td>
</tr>
<tr>
<td></td>
<td>Report directly to contractors on environmental issues could hinder the progress of the project.</td>
</tr>
<tr>
<td></td>
<td>Make monthly environment reports and the combined with the project progress report</td>
</tr>
<tr>
<td></td>
<td>Report and provide records of environmental</td>
</tr>
<tr>
<td>Contractor</td>
<td>Make the scene at all the environmental requirements and mitigation measures was reflected in contract terms.</td>
</tr>
<tr>
<td></td>
<td>If the contractor has contracts with subcontractors, the subcontractors also perform the obligations under the contract of environmental monitoring.</td>
</tr>
<tr>
<td>Consultant</td>
<td>Behalf of the contractor under the terms of the contract, implementation monitoring monitoring air quality, noise and water in the pre-construction and construction.</td>
</tr>
<tr>
<td></td>
<td>Report monitoring results for the organization and management unit supervisor.</td>
</tr>
<tr>
<td></td>
<td>Training for owners and project monitoring unit, on behalf of project owners to implement environmental monitoring in operation phase.</td>
</tr>
<tr>
<td></td>
<td>Perform additional monitoring when requested.</td>
</tr>
</tbody>
</table>
### Table 15 - Environmental Monitoring Plan

<table>
<thead>
<tr>
<th>Stage</th>
<th>Organization</th>
<th>Observation Items</th>
<th>Monitoring Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feasibility study</td>
<td>Division of Natural Resources and Environment specialists</td>
<td>Revise environmental management plan proposal</td>
<td>Ensure a complete environment assessment, identify the appropriate topic, and emphasize key points. Ensure that the environmental management plan can reflect serious environmental problems caused by the project. Ensure a pragmatic and detailed action plan of mitigation measures and the implementation task. Prepare environmental management plan in the implementation sites to monitor in detail the environmental impacts and the improvement.</td>
</tr>
<tr>
<td>Design and implementation</td>
<td>Division of Natural Resources and Environment</td>
<td>Revise the preliminary design of environment protection work and environment management plan</td>
<td>Seriously execute the environmental management plan. Ensure that environmental laws and regulations nationwide on implementation/construction are considered. Ensure that the project sites are not located in sensitive areas, especially the concentrated fertilizer treatment system near schools, hospitals. Ensure that all the project sites will not be in stagnant water areas or flood centre.</td>
</tr>
<tr>
<td></td>
<td>Division of Natural Resources and Environment</td>
<td>Check the project location selection</td>
<td></td>
</tr>
<tr>
<td>Stage</td>
<td>Organization</td>
<td>Observation items</td>
<td>Monitoring objectives</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------------------</td>
<td>--------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Division of Health</td>
<td>Supervise dust and noise pollution if they come as a problem.</td>
<td>Execute proposed measures in the environmental management plan on dust and noise pollution. Ensuring that the implementation unit will follow seriously the environmental management plan as well as related regulations of the Government and the localities. If noise is considered as a factor affecting the environment, implement the construction following the time proposed in the environmental management plan.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ensure that the erosion control measures are in compliance with the environmental management plan, national law and local law.</td>
</tr>
<tr>
<td>Operation</td>
<td>Donors/PPMU/environment observation station</td>
<td>Check whether the implementation cause land erosion more rapidly.</td>
<td>Protect the environment; mitigate the impacts on the environment during implementation stage. If needed, revise and amend the environmental management plan in order to correct unexpected impacts. Ensure that the project’s impacts on natural resources are mitigated, especially on land and water resources.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inspect the implementation of the environmental management plan during operation stage</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the implementation monitoring plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check whether other environment protection measures are needed.</td>
<td></td>
</tr>
</tbody>
</table>
## REPORT ON THE ENVIRONMENTAL MANAGEMENT PLAN

7 Communes in Giao Thuy, Xuan Truong District, Nam Dinh Province

<table>
<thead>
<tr>
<th>Stage</th>
<th>Organization</th>
<th><strong>Observation items</strong></th>
<th>Monitoring objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Check whether the waste discharges can meet national standard.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check whether the Project is causing unexpected pressure on water in the area.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check whether the Project accelerate the land erosion process.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ensure that the soil fertilization exercise has no impact on the absorption of nutritive substances.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ensure that the soil fertilization cause no serious consequences on land surface and cause no pollution to groundwater.</td>
<td></td>
</tr>
</tbody>
</table>
5.3.2. The implementation organizations and responsibilities.

Consultants will be assigned to implement EMPs, monitor district environmental management unit and Division of Health.

Their tasks are: (1) ensure the project follow Vietnamese standards, regulations and laws on environmental protection, and (2) monitor environmental protection of Provincial Human Health Unit. Project Management Agency will select appropriate Consultants to monitor the work of Division of Health and Division of Natural Resources and Environment.

Consulting Organization implementing EMPs and project supervision has these following tasks: report Provincial Management Agency and Project Management Agency when any natural environmental changes arise, control environmental pollution; and report the progress achieved during environmental protection and improvement process.

Staffs of Division of Health and Division of Natural Resources and Environment do not have responsible for daily inspection and environmental supervision result of the projects. Still, they have responsible in case of the project repeated. Therefore, Project Execution Agency/Unit should give necessary training courses and human resources to make sure the implementation of project environmental requirements is effectively and smoothly. These following chapters give details of execution organizations and proposed environmental management plans, staffs and institutional requirements.

An environmental observation plan will be set up in Project Management Agency/Provincial Management Agency to apply EMP and cooperate with at least one environmental staff working part-time for each execution area. Project Management Agency/Provincial Management Agency staff will be trained environmental regulations, application and management, pollution control, minimization measures, progress and supervision report. One environmental expert from Supervision Consultants will make sure the execution is implemented based on environmental protection awareness.

Table 16 - The Environmental Management Unit

<table>
<thead>
<tr>
<th>Name</th>
<th>Tasks</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>The appointed consultant and the local environment observation station</td>
<td>Design and manage the environment in execution period.</td>
<td>One environmental expert implements supervision and management plans.</td>
</tr>
<tr>
<td>Environmental management staff of Project Management Agency</td>
<td>Execute and control environmental protection measures in execution period.</td>
<td>One environmental expert supports Environmental experts of the Project Office.</td>
</tr>
</tbody>
</table>

Monitoring: Environmental aspects will be supervised 4 times a year when execution period. Quarterly progress reports provided by Management Agency will include environmental monitoring reports.

Nam Dinh Provincial People's Committee is the Project Executing Agency. The Project Governing Committee set up by Executing Agency will meet at least twice a year to assess the project implementation situation.

A Provincial Project Management Unit (PPMU) will be set up in Nam Dinh province. PPMU is responsible for controlling consultants' works, manage and coordinate project aspects at all levels of government, central, province and city, including other sponsors, ex. the World Bank. Each Project execution Unit will be authorized one project sub-component. One environmental management unit set up in PPMU will be responsible for applying measures to minimize the
REPORT ON THE ENVIRONMENTAL MANAGEMENT PLAN
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impact on environment and supervising. The environmental observation unit includes one technical staff and one administrative staff. Contractors will do the minimization measures during execution period. Execution supervision Consultant will do donor's' environmental work and prepare supervision reports with the cooperation of the environmental observation unit.

The project will cooperate with Division of Natural Resources and Environment under district and Division of Health to check the environmental quality. The environmental supervision result will be recorded to ensure the discovery of signals of negative impacts as soon as possible. The result before and during execution will be reported monthly by an environmental expert assigned in each project implementing unit. The environmental observation unit will prepare a supervision report twice a year and submit PPMU, and then PPMU submit Division of Natural Resources and Environment to approve for Provincial People's Committee and submit WB).

During the implementation and operation process, the execution of the environmental observation plans will be ensured by the project owner (nominated by Nam Dinh people's committee based on the nature of each project's subcomponents) in order to reach the following objectives and outcomes:

- Provide information for assessing the project's impacts on the environment;
- Give out recommendations in case the environmental control measures are not enough to meet the environmental standards.
- Monitor the project implementation and the effectiveness of the mitigation measures in environmental protection.
- Appraise the forecasted impacts on environment described in the initial environment assessment report.
- Evaluate the compliance with GoV's requirements, standards, policies and regulations.
- Propose activities for the purpose of mitigating the consequences in case of serious impact occurrence.
- Provide data for environment auditing.

The environment observation Plan is done by the environment observation unit, PMUs in coordination with the contractors, implementation monitoring consultants and other agencies. The monitoring report and auditing report will be submitted to Division of Natural Resources and Environment and WB.

The environment monitoring program in the implementation and operation process is presented in the following table:

<table>
<thead>
<tr>
<th>Name</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Division of Natural resources</td>
<td>Monitor the application of laws and regulations on environment and management...</td>
</tr>
<tr>
<td>and Environment</td>
<td>Coordination amongst various Division in terms of environment management;</td>
</tr>
<tr>
<td></td>
<td>Check and approve the environment monitoring report;</td>
</tr>
<tr>
<td></td>
<td>Make final environmental approval of the construction project</td>
</tr>
</tbody>
</table>
REPORT ON THE ENVIRONMENTAL MANAGEMENT PLAN
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| PMU/ | Support the monitoring work for district agencies;  
| Check and approve the environment monitoring report; |

Implementation organizations

During the implementation/construction and operation process, the implementation of environment management plan is the responsibility of the respective PMU. If there is any environment observation station in the project area, they should be requested to gather necessary input, monitor the implementation of environment management plan and check whether mitigation measure of each project component is successfully carried out. The respective Division of natural resources and environment requested by the respective PMU to monitor and inspect the project components having potential impacts on environment in accordance with the proposed environment management plan and in compliance with the Vietnamese environment protection law.

The project area comprises of 7 communes. To assure the smooth project implementation and mitigate negative impacts on environment, the following environment management plan should be considered as one part of the project and must be budgeted as with a project component in financial feasibility report and project implementation plan.

PMU should appoint their staff trained by project environmental supervisor to take the responsibility of ensuring the full implementation of all environment management’s activities by the district – level projects. This staff should promulgate environmental issues within the project scope to the PMU and the environment observation station (if any), be responsible for gathering information and provide technical assistance for environmentalists. During operation phase, the PPMU will assist the CPMU in environmental monitoring program implementation and other works in management plan. Nevertheless, the highest responsibility is ensuring that the rest of the activities identified in the environmental management plan will be completed by the CPMU.

The PMU must ensure that the requested environmental reports/ data will be sent from the district to the PPMU. The environment managers and organizations in the implementation and operation phase are illustrated by respective figures.

The responsibilities / project management agencies and environmentalists

The PMU at all levels are responsible for implementing the environmental management plan. These agencies are in charge of assuring the smooth implementation of mitigation measures and monitoring plan as described in the environment assessment report. The main responsibilities are:

- Evaluate and implement mitigation and assessment activities and provide some recommendations for adjustment of activities as requested in order to achieve the minimum acceptable environment activity level in the whole project.;
- Regularly revise the implementation of pollution control measures in subcomponents which can have pollution problems like the model of the fertilizer management technology subcomponent.
- Report on units having inappropriate operations or its waste level exceed the above standard waste level and report the violating cases to the Division of Natural resources and environment via the local environmental specialists;
- Recommend, ask for the approval and implement necessary, special studies in order to achieve minimum acceptable environmental activities;
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- Closely coordinate with designing and implementation groups, ensure that the final project plan can reflect mitigation measures in the environment management plan and provide necessary conditions on project monitoring;
- Provide necessary trainings for PMU's staffs and those who implement subcomponents on environmental issues and environmental survey to strengthen institutional capacities for provincial and town-level staffs in implementing environment management plan's activities;
- Supervise the implementation of environment protection measures as requested in the environmental impact mitigation plan;
- Provide guidelines once mistake is noticed in environmental activity and give out solution;
- Apply urgent response plan in case of emergency and timely report on accidents/risks for the PMU and local Division of Natural resources and environment;
- Carry out the environmental observation plan including signing contracts and supervise the supervision organizations and assure the timely completion of all the activities identified in the supervising plan;
- Grant authority to appropriate environmental staffs to implement the environment management plan including signing contracts and supervise monitoring agencies, ensure the timely completion all the activities identified in the monitoring plan;
- Address complaints related to environmental issues and accept the monitoring work of departments of environment protection;
- Supervise environment issues during the implementation/construction stage and give warnings to construction units to strictly follow the regulations; and be responsible for the other necessary activities in order to fully implement the environment management plan.

Monitoring organization

The Division of natural resources and environment are administrative bodies of the District, responsible for environment protection. Each Division is responsible for environment monitoring and management task in its own district. the Division of Natural resources and environment and environmental monitoring specialists' offices will be in charge of project's environment monitoring work. Project's environmental protection task will be implemented under the supervision of the Division of Natural resources and environment and Division of Health within project's areas. The environment observation plan is summarized in the table.

Facility and training needs

to ensure the implementation of the measuring, management and monitoring plan as described above, training on environment protection is very important in order to have understandings on environmental impacts and timely deal with accidents. The training program includes: regulations and laws on environment, environmental standards, and environmental science related to the project, burning issues and control measures, environment management, etc.

The budget prepared for the environment management plan (environment observation plan) includes one subsidy for necessary testing tools. One subsidy for environment checking and monitoring cost is also included in the project's budget.

Budget allocation and implementation plan: budget planning and project implementation planning is one part of the environment management plan. Costs for environmental impact mitigation task include facility cost, environment monitoring work (air quality, water quality, noise, workers' health, safety/sanitation within the project area) will be executed by specialists assigned by the PPMU and be provided technical assistance.
Refer to the mitigation Plan in the project legal agreement because the negative impacts on the environment during implementation process are minor, then there is no special legal terms and conditions provided except for quality standard for the implementation of environment management plan.

Monitoring: A detailed list of environmental factors such as air, water quality, noise level, along with the time and location for implementing the monitoring work, and agencies responsible for their monitoring work were included in the environmental management plan. The PMU/PPMU will be in charge of following up and reporting the monitoring work of mitigation measures of all agencies. The agencies responsible for environmental monitoring work are:

<table>
<thead>
<tr>
<th>Name</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPMU/Environmental assessment specialists</td>
<td>Environmental monitoring and management design during construction process</td>
</tr>
<tr>
<td>Environmentalists</td>
<td>Implement and manage environment protection measures during construction process</td>
</tr>
<tr>
<td>Enviroment Consultants/</td>
<td>Environmental monitoring during project construction and implementation process</td>
</tr>
</tbody>
</table>

Table 18 - Agencies responsible for environment monitoring task
CHAPTER 6. IMPLEMENTATION AGREEMENT

The results from environmental assessment of rural water supply and sanitation subproject in 7 communes of Xuan Truong and Giao Thuy district show that:

- The Project brings about positive impacts on the environment. It also brings about fresh water and helps improve the sanitation situation for the area.
- Provide fresh water pipe lines system for the residents; meet the people's need of using fresh water.
- Improve significantly rural water supply, environmental condition in the area, help prevent waterborne diseases
- Improve people's living standard, help stabilize their lives

The Project also created negative but insignificant impacts and they will be mitigated by technical measures as well as management ones and environmental observation activities.

Commitments in the project are as follow: Commitment on conducting waste treatment methods; mitigation of other impacts in the commitment; Commitment on meeting standards and technical specifications on environment; Commitment on implementing other environmental protection methods based on current regulations of Vietnamese Government.
### THE ANNEX

**Appendix 1.**

**Table 19: Standards for the criteria specified environmental components**

<table>
<thead>
<tr>
<th>No</th>
<th>Name of indicators of environmental components</th>
<th>Unit</th>
<th>Posted next level prescribed standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Toxic gases</td>
<td></td>
<td>Regulations of Vietnam 05:2009/ MOER</td>
</tr>
<tr>
<td></td>
<td>Oxit cacbon (CO)</td>
<td>mg/Nm$^3$</td>
<td>5000</td>
</tr>
<tr>
<td></td>
<td>Pêoxit Nitro (NO$_2$)</td>
<td>mg/Nm$^3$</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Sunphuara (SO$_2$)</td>
<td>mg/Nm$^3$</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>Dust (PM$_{10}$)</td>
<td>mg/Nm$^3$</td>
<td>150</td>
</tr>
<tr>
<td>II</td>
<td>Noise</td>
<td></td>
<td>TC 3733/2002</td>
</tr>
<tr>
<td></td>
<td>From 6h to 22h</td>
<td>dB</td>
<td>&lt; 85</td>
</tr>
<tr>
<td>III</td>
<td>Surface water</td>
<td></td>
<td>Regulations of Vietnam 08: 2008/ MOER</td>
</tr>
<tr>
<td></td>
<td>pH</td>
<td></td>
<td>6-8,5</td>
</tr>
<tr>
<td></td>
<td>Total suspended solids (TSS)</td>
<td>mg/l</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Mercury (Hg)</td>
<td>mg/l</td>
<td>0,001</td>
</tr>
<tr>
<td></td>
<td>Phosphat (PO$_4^-$)</td>
<td>mg/l</td>
<td>0,1</td>
</tr>
<tr>
<td></td>
<td>COD</td>
<td>mg/l</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>BOD$_5$ (20$^\circ$C)</td>
<td>mg/l</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Coliform</td>
<td>MPN/100ml</td>
<td>2500</td>
</tr>
<tr>
<td>IV</td>
<td>Ground water</td>
<td></td>
<td>Regulations of Vietnam 09: 2008/ MOER</td>
</tr>
<tr>
<td></td>
<td>Total suspended solids</td>
<td>mg/l</td>
<td>1500</td>
</tr>
<tr>
<td></td>
<td>Fe</td>
<td>mg/l</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Mangan(Mn)</td>
<td>mg/l</td>
<td>0,5</td>
</tr>
<tr>
<td></td>
<td>Mercury (Hg)</td>
<td>mg/l</td>
<td>0,001</td>
</tr>
<tr>
<td></td>
<td>Coliform</td>
<td>Con/100ml</td>
<td>3</td>
</tr>
<tr>
<td>V</td>
<td>Solid waste, sludge, waste</td>
<td></td>
<td>Waste during construction and production are collected and classified in accordance handled in accordance with the hazardous waste components under decision No. 23/2006/UD- MOER, Circular No. 12/2006 / TT- MOER of minister environmental resources</td>
</tr>
</tbody>
</table>

1 Postsed next level criteria specified by an average 24 hours applies to all kinds of waste air
Appendix 2.

Standard
Water quality standards:
Level A1 of the environmental quality of water - National Technical Regulations for Surface Water Quality (08 Regulations of Vietnam: 2008/MOER)
National Technical Regulations on the quality of groundwater (09 Regulations of Vietnam: 2008/MOER)
Regulation 1369/QD-BYT

Standard Ambient Air Quality
Air quality - National Technical Regulations on ambient air quality (Regulations of Vietnam 05:2009 / MOER) for residential areas;

Noise quality standards
Noise in residential areas and public places - the maximum noise level permitted (TC 3733 / 2002)
Prevention of accidents: Project application and maintenance of fire protection measures, labor safety and reduce pollution as described in the report, while enhancing the training of staff to strengthen resource management, minimize the environmental pollution

The requirements of World Bank
According to the requirements of the World Bank, the environmental assessment report should satisfy the original policy of the Bank the following:
- Operational policy 4:01 on environmental assessment
- Operational policy 4:04 on natural habitat
- Operational policy 4:20 on indigenous people.

Appendix 3.
The parameters for monitoring and analysis unit (Circular No. 83/2002/TT-BTC September 25, 2002 issued by Ministry of Finance regulations on invoices and management of cost expenditure and comments from standardization activities and measurement)

Table 20 - Analysis of surface water

<table>
<thead>
<tr>
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</tr>
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<tr>
<td>01</td>
<td>pH</td>
<td>30.000</td>
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REPORT ON THE ENVIRONMENTAL MANAGEMENT PLAN
7 Communes in Giao Thuy, Xuan Truong District, Nam Dinh Province

Table 21 - Analysis of ground water

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<td>Fe</td>
<td>50.000</td>
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<td></td>
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Table 22 - Analysis of Emission and Ambient Air Quality

<table>
<thead>
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<th>Note</th>
</tr>
</thead>
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<tr>
<td>03</td>
<td>NO₂</td>
<td>300.000</td>
<td>Circular No. 83/2002/TT</td>
</tr>
<tr>
<td>04</td>
<td>CO</td>
<td>300.000</td>
<td>Circular No. 83/2002/TT</td>
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<td>05</td>
<td>Noise</td>
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<tr>
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<td>Total</td>
<td>1.010.000</td>
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</table>

Appendix 4. Chart positions affected

Appendix 5. Commitment to environmental protection
HIỆN BẮN HỢP THAM VĂN MỚI TRƯỞNG VÀ TÁI ĐỊNH CỤ
các tiêu dự án cấp nước và vệ sinh nông thôn của 8 xã tỉnh Nam Định (GD4)

Địa điểm hợp: Văn phòng UBND xã Bình Hòa, huyện Giao Thủy, tỉnh Nam Định
Thời gian: 3.30 ngày 8 tháng 6 năm 2010
Thành phần tham dự:
- Ban Quản lý dự án và Công ty CP nước sạch & VSNT Nam Định
  - Ông: Trần Đình Nguyễn - Chức vụ: Đàm Đức.
  - Ông: Nguyễn Văn Mtick - Chức vụ: Cơ sở.
- Đơn vị tư vấn Công ty TNHH Tư vấn Cơ sở Hà thành Mối Trường và xã hội
  - Ông (Bà): Nguyễn Thị Lan - Chức vụ: Cộng Thống.
  - Ông (Bà): Trần Thị Thu Hạnh - Chức vụ: Cơ sở.
- UBND xã Bình Hòa huyện Giao Thủy, tỉnh Nam Định
  - Ông: Nguyễn Văn Trung - Chức vụ: Chánh Văn phòng.
  - Ông: Bùi Văn Quang - Chức vụ: Chánh Văn phòng.

Các cán bộ của Ban quản lý dự án, đơn vị tư vấn và đại diện các tổ chức đoàn thể trưởng thôn và các hộ dân khu vực trung dung đất cho xây dựng dự án.

NỘI DUNG THAM VĂN

1. Giới thiệu dự án:
   Tên dự án: Các tiêu dự án cấp nước và vệ sinh nông thôn của 08 tỉnh Nam Định thuộc dự án cấp nước sạch và vệ sinh nông thôn đồng bằng sông Hồng. Vay vón WB.

   *Phân loại môi trường thuộc nhóm B:
   *Địa điểm xây dựng: xã Bình Hòa, huyện Giao Thủy, tỉnh Nam Định
   *Mục tiêu dự án:
     Cải thiện điều kiện cấp nước và công trình vệ sinh cho người dân khu vực dự án. Gồm các hạng mục như sau:
     - Xây dựng/ cải tạo hạ tầng cấp nước và vệ sinh nông thôn
     - Giáo dục truyền thông nhằm thay đổi hành vi vệ sinh, cải thiện sức khỏe cộng đồng.
     - Nâng cao năng lực và khả năng của cộng đồng và các cơ quan địa phương để thực hiện dự án.
     - Quản lý và giám sát dự án.

   *Tổng mức đầu tư: 225.824.119.880 đồng.
   *Công suất của hệ thống cấp nước: 9500 m3/ngd.
   *Số dân được cấp nước đến năm 2020: 75074 người.
   *Nguồn nước: Sông Ninh Co
   *Công nghệ xử lý:
2. Tác động môi trường và các biện pháp giảm thiểu:

### 2.1 Tác động của dự án:

Trạm bom tăng áp xây dựng tại xã Bình Hòa với diện tích chiếm đất là 1.715 m², tổng diện tích thu hồi đất là 1.715 m². Đây hoàn toàn là diện tích đất nông nghiệp thuộc quyền sử dụng của UBND xã Bình Hòa.

Trạm xử lý nước xây dựng tại xã Giao Tiến với diện tích chiếm đất là 15.000 m², có 33 hộ bị ảnh hưởng với tổng diện tích thu hồi đất là 15.552 m².

### 2.2 Biện pháp giải quyết:

<table>
<thead>
<tr>
<th>TT</th>
<th>Tác động môi trường</th>
<th>Biện pháp giảm thiểu</th>
</tr>
</thead>
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<tr>
<td>I</td>
<td><strong>Giai đoạn chuẩn bị dự án</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Thu bồi đất dai, trung dừng đất tạm thời hoặc lâu dài</td>
<td>- Khảo sát kỹ thuật, lựa chọn phương án kỹ thuật, vị trí công trình tối ưu nhất</td>
</tr>
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<td></td>
<td>- Có chính sách đen phù hợp lý</td>
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<tr>
<td>2</td>
<td>Ảnh hưởng đến hệ sinh thái, phát huy thẩm thức vật liệu (ruộng lúa, hoa màu,...)</td>
<td>Tránh thi công vào khu vực có giá trị sinh thái cao</td>
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<tr>
<td>II</td>
<td><strong>Giai đoạn thi công</strong></td>
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<tr>
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<td></td>
<td>- Nguyên vật liệu xây dựng phải được bảo quản trong kho và tránh mưa gió.</td>
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<td>- Phối hợp với địa phương để sắp xếp tránh thi công giờ cao điểm, đặc biệt khu động đành cũ</td>
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<td>An toàn</td>
<td>- Áp dụng các biện pháp an toàn (Thiết bị, vật dụng, biển báo,...).</td>
</tr>
<tr>
<td>III</td>
<td>Giai đoạn quản lý và vận hành</td>
<td></td>
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<tr>
<td>-----</td>
<td>--------------------------------</td>
<td></td>
</tr>
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<td>1</td>
<td>Tiếng on do hoạt động của trầm bom, trầm xử lý nước</td>
<td>- Kiểm tra độ ổn 6 tháng 1 lần</td>
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</tbody>
</table>
| 2   | Rủi ro do rò rỉ hoạt chất (phèn, nhôm, cho hoạt tính) và tai nạn trong vận hành | - Hàng tháng kiểm tra các biện pháp khẩn cấp khi có sự rò rỉ hoạt chất, nguồn nước.  
- Hàng tháng kiểm tra chất lượng nước thô và nước sau xử lý (đối với tiêu chuẩn cơ bản nhóm A) và hàng năm (đối với chỉ tiêu cơ bản nhóm B) theo tiêu chuẩn 1329/2002/BYT/QĐ. |

2.3 Quan điểm của người bị ảnh hưởng:

Quan điểm chung. Các cuộc điều tra KT-XH và khảo sát tác động của dự án đã được thực hiện qua phòng vấn trực tiếp nhưng người bị ảnh hưởng. Kết quả ban đầu cho thấy, khi được hỏi về quan điểm và mong muốn của họ về ảnh hưởng của việc thu hồi đất và đến bù. Đa số những hộ bị ảnh hưởng đều sẵn lòng giao đất khi họ nhận được đến bù và hỗ trợ hợp lý.

3. Các hoạt động tiếp theo:
- Hoàn thiện báo cáo môi trường và tài định cư, phổ biến thông tin các hoạt động của dự án, thông tin môi trường tài định cư đến mọi người dân.
- Công khai kế hoạch đến bù sau khi dự án được phê duyệt.
DANH SÁCH THAM DỰ HỘI NGHỊ

Nội dung: Tham dự Hội nghị, Cuộc họp, Мос Thương, v.v. tại phòng. ćđ. ..........................
Thời gian: 18.03.2014, 18:00
Địa điểm: Nhà ở, xa... Bùi, Hôm. ćđ. ..........................

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NGƯỜI LẬP BIỂU

[Signature]
BIÊN BẢN HỌP THAM VĂN MÔI TRƯỜNG VÀ TÁI ĐỊNH CỦA
Các dự án cấp nước và vệ sinh nông thôn của 8 xã tỉnh Nam Định (GĐ 4)

Địa điểm họp: Văn phòng UBND xã Giao Tiến, huyện Giao Thủy, tỉnh Nam Định
Thời gian: 2.12. ngày thứ 7 tháng 9 năm 2010

Thành phần tham dự:
* Ban Quản lý dự án và Công ty CP nước sạch & VSNT Nam Định
  - Ông: [Tên] - Chức vụ: [Chức vụ]
  - Ông: [Tên] - Chức vụ: [Chức vụ]

* Đơn vị tư vấn Công ty TNHH Tư vấn Cơ sở Hà tầng Môi Trường và Xã hội
  - Ông (Bà): [Tên] - Chức vụ: [Chức vụ]
  - Ông (Bà): [Tên] - Chức vụ: [Chức vụ]

* UBND xã Giao Tiến huyện Giao Thủy tỉnh Nam Định
  - Ông: [Tên] - Chức vụ: [Chức vụ]
  - Ông: [Tên] - Chức vụ: [Chức vụ]

Các cán bộ của Ban quản lý dự án, đơn vị tư vấn và đại diện các tổ chức doanh nghiệp tham dự và các hộ dân khu vực trung tâm đất cho xây dựng dự án.

1. GIỚI THIỆU DỰ ÁN:
   Tên dự án: Các tiêu dự án cấp nước và vệ sinh nông thôn của 08 tỉnh Nam Định thuộc dự án cấp nước sạch và vệ sinh nông thôn đồng bằng sông Hồng. Vay vốn WB.
   * Phần loại môi trường thuộc nhóm B:
   * Địa điểm xây dựng: xã Giao Tiến, huyện Giao Thủy, tỉnh Nam Định.
   * Mục tiêu dự án:
     Cải thiện điều kiện cấp nước và công trình vệ sinh cho người dân khu vực dự án. Gồm các hạng mục như sau:
     - Xây dựng/ cải tạo hạ tầng cấp nước và vệ sinh nông thôn
     - Giáo dục truyền thống nhằm thay đổi thói quen về vệ sinh, cải thiện sức khỏe cộng đồng.
     - Nâng cao năng lực và khả năng của cộng đồng và các cơ quan địa phương để thực hiện dự án.
   - Quản lý và giám sát dự án.

* Tổng mức đầu tư: 225.824.119.880 đồng.
* Công suất của hệ thống cấp nước: 9500 m³/ngd.
* Số dân được cấp nước đến năm 2020: 75074 người.
* Nguồn nước: Sông Ninh Cơ
* Công nghệ xử lý:
2. Tác động môi trường và các biện pháp giảm thiểu:

2.1 Tác động của dự án:
Trạm bom tăng áp xây dựng tại xã Bình Hòa với diện tích chiếm đất là 1.715 m², tổng diện tích thu hồi đất là 1.715 m². Ngày hoàn toàn là diện tích đất nông nghiệp thuộc quyền sử dụng của UBND xã Bình Hòa.
Trạm xử lý nước xây dựng tại xã Giao Tiến với diện tích chiếm đất là 15.000 m², có 33 hộ bị ảnh hưởng với tổng diện tích thu hồi đất là 15.552 m².

2.2 Biện pháp giải quyết:

<table>
<thead>
<tr>
<th>TT</th>
<th>Tác động môi trường</th>
<th>Biện pháp giảm thiểu</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Giai đoạn chuẩn bị dự án</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Thu bồi đât dai, trưng dụng đất tạm thời hoặc lâu dài</td>
<td>-Khảo sát kỹ thuật, lựa chọn phương án kỹ thuật, vị trí công tối ưu nhất</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Cố chính sách đến bù hợp lý.</td>
</tr>
<tr>
<td>2</td>
<td>Ảnh hưởng đến hệ sinh thái, nhà hàng thái thải, phả hơi thẩm thấm vật (rừng lúa, hoa mẫu,...)</td>
<td>Tránh thi công vào khu vực có giá trị sinh thái cao</td>
</tr>
<tr>
<td>II</td>
<td>Giai đoạn thi công</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Nhiệm bản nước</td>
<td>-Công tác đào đất phải được tiến hành trong thời gian ngắn nhất.</td>
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<td></td>
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<td>-Nguyên vật liệu xây dựng phải được bảo quản trong kho và tránh mưa gió.</td>
</tr>
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<td>2</td>
<td>Ảnh hưởng đến giao thông</td>
<td>-Phơi hợp với địa phương để sắp xếp tránh thi công giỏi cao điểm, đặc biệt khu đông dân cư.</td>
</tr>
<tr>
<td>3</td>
<td>An toàn</td>
<td>-Áp dụng các biện pháp an toàn (Thiết bị, vật dụng, biện bạch...).</td>
</tr>
<tr>
<td>III</td>
<td>Giai đoạn quản lý và văn hành</td>
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<td>-----</td>
<td>--------------------------------</td>
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<tr>
<td>1</td>
<td>Tiếng ồn do hoạt động của trạm bom, trạm xử lý nước</td>
<td>-Kiểm tra độ ồn 6 tháng 1 lần</td>
</tr>
</tbody>
</table>
| 2   | Rủi ro do rò rỉ hoá chất (phèn, nhôm, cho hoạt tính) và tai nạn trong văn hành | -Hàng tháng kiểm tra các biện pháp khẩn cấp khi có sự cố rò rỉ hoá chất, nguồn nước.  
- Hàng tháng kiểm tra chất lượng nước thô và nước sau xử lý (đối với tiêu chuẩn cơ bản nhóm A) và hàng năm (đối với chỉ tiêu cơ bản nhóm B) theo tiêu chuẩn 1329/2002/BYT/QĐ. |

2.3 Quan điểm của người bị ảnh hưởng:

Quan điểm chung. Các cuộc điều tra KT-XH và khảo sát tác động của dự án đã được thực hiện qua phòng vấn trực tiếp những người bị ảnh hưởng. Kết quả ban đầu cho thấy, khi được hỏi về quan điểm và mong muốn của họ về ảnh hưởng của việc thu hồi đất và đến buổi. Đa số những hộ bị ảnh hưởng đều sẵn lòng giao đất khi họ nhận được đến buổi và hỗ trợ hợp lý.

3. Các hoạt động tiếp theo:

- Hoàn thiện báo cáo mọi trường và tài định cư, phổ biến thông tin các hoạt động của dự án, thông tin mọi trường tài định cư đến mọi người dân.
- Công khai kế hoạch đến buổi sau khi dự án được phê duyệt.

Đại diện UBND xã

Đại diệnBolda

Đại diện Tu văn

Người bị ảnh hưởng

Daro Phèn Biệt

Biệt

Nguyễn Hữu Hoàng

Giám đốc

Nguyễn Trường Hiền
# DANH SÁCH THAM DỰ HỘI NGHỊ

Nội dung: ....Hợp...Sinh...Văn...Nhân...Vụ...Hội...Ngày...Ghi chú: ...
Thời gian: ....Ngày...17/12/2012...Địa điểm: ...NH.130...Trụ sở...Phòng ...

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<th>Ký tên</th>
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<tr>
<td>1</td>
<td>Võ Văn Dương</td>
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<td>(Đoàn làm việc)</td>
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NGUỒI LẬP BỊỆU
### DANH SÁCH THAM DỰ HỘI NGHỊ

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Thời gian: ........................................ Địa điểm: .................................................................

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<th>STT</th>
<th>Họ và tên</th>
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**NGƯỜI LẬP BIỂU**

[Signature]

Chu Thị Thanh Chân
GIÁY XÁC NHẬN ĐĂNG KÝ
BÀN CAM KẾT BẢO VỆ MÔI TRƯỜNG
Của Dự án “Cấp nước sạch và vệ sinh nông thôn tại 6 xã huyện Giao Thủy và xã Thọ Nghiệp huyện Xuân Trường tỉnh Nam Định”

Căn cứ Luật Bảo vệ môi trường ngày 29 tháng 11 năm 2005;
Căn cứ Nghị định 80/2006/NĐ-CP ngày 09/8/2006 của Chính phủ qui định chi tiết và hướng dẫn thi hành một số điều của luật Bảo vệ môi trường;
Căn cứ Nghị định số 21/2008/NĐ-CP ngày 28/02/2008 của Chính phủ về sửa đổi bổ sung một số điều của Nghị định 80/2006/NĐ-CP ngày 09/8/2006 của Chính phủ qui định chi tiết và hướng dẫn thi hành một số điều của luật Bảo vệ môi trường;
Căn cứ Thông tư số 05/2008/TT-BTNMT ngày 08/12/2009 của Bộ Tài nguyên và Môi trường hướng dẫn về đánh giá môi trường chiến lược, đánh giá tác động môi trường và cam kết bảo vệ môi trường;
Căn cứ Quyết định số 75/2006/QĐ-TTg ngày 12/4/2006 của Thủ tướng Chính phủ ban hành Quy chế làm việc mẫu của UBND huyện, quận, thị xã, thành phố thuộc tỉnh;
Theo đề nghị của Trưởng phòng Tài nguyên và Môi trường,

ƯY BAN NHÂN DÂN HUYỆN GIAO THỦY
XÁC NHẬN:

Điều 1. Chủ Dự án là Công ty CP nước sạch và VSNT tỉnh Nam Định đã có Công văn số 190 ngày 07 tháng 10 năm 2010 đăng ký bản cam kết bảo vệ môi trường của Dự án “Cấp nước sạch và vệ sinh nông thôn tại 6 xã huyện Giao Thủy và xã Thọ Nghiệp huyện Xuân Trường tỉnh Nam Định”.

Điều 2. Chủ dự án có trách nhiệm thực hiện đúng và đầy đủ những nội dung về bảo vệ môi trường nêu trong bản cam kết bảo vệ môi trường và những yêu cầu bất buộc sau đây:
1. Về quản lý và xử lý chất thải:
   - Đối với nước thải: Phải có hệ thống xử lý nước thải đạt QCVN 14: 2008/BTNMT Quy chuẩn kỹ thuật quốc gia về nước thải sinh hoạt áp dụng ở cơ B với hệ số k = 1,2.
   - Về không khí và tiếng ồn: Khi di vào hoạt động dự án phải bảo đảm không vượt quá QCVN 05:2009/BTNMT Quy chuẩn kỹ thuật quốc gia về chất lượng không khí xung quanh; QCVN 06:2009/BTNMT Quy chuẩn kỹ thuật quốc gia về một số chất độc hại trong không khí xung quanh; TCVN 5949-1998 - Ăm học – Tiếng ồn khu vực công cộng và dân cư – Mức ồn tối đa cho phép

Các tiêu chuẩn, quy chuẩn kỹ thuật được áp dụng trên khi có thay đổi thì văn bằng tiêu chuẩn, quy chuẩn kỹ thuật tương ứng theo văn bản mới nhất. Thực hiện các biện pháp phòng ngừa và ứng phó với các sự cố môi trường. Có phương án, trang thiết bị và lực lượng phòng chống bão, lũ, phòng chống cháy nổ theo đúng quy định của pháp luật

2. Thực hiện chương trình giám sát môi trường theo nội dung cam kết báo về môi trường đã được xác nhận. Định kỳ tối thiểu 06 tháng 1 lần báo cáo kết quả giám sát môi trường về UBND huyện Giao Thủy (qua Phòng Tài nguyên và Môi trường) để kiểm tra, giám sát.

Điều 3. Ban cam kết báo về môi trường của Dự án và Giấy xác nhận này là cơ sở để các cơ quan quản lý nhà nước về bảo vệ môi trường giám sát, kiểm tra, thanh tra việc thực hiện báo về môi trường trong suốt quá trình thi công xây dựng và vận hành Dự án.

Điều 4. Giấy xác nhận này có giá trị kể từ ngày ký./.

Nơi nhận:
- Chủ dự án;
- Phòng TN-MT;
- Lưu VT.

TM. ỦY BAN NHÂN DÂN
KT. CHỦ TỊCH
PHÓ CHỦ TỊCH

Phùng Văn Nhán
CAM KẾT CÔNG BỐ THÔNG TIN

Kính gửi: - Ngân hàng thế giới – Việt Nam
- Ban QLDA Trung ương
- Ban QLDA Nước sạch & VSNT tỉnh Nam Định

Sau khi nhận được báo cáo đánh giá môi trường và kế hoạch tái định cư của Ban QLDA nước sạch & VSNT tỉnh Nam Định – UBND, xã Giao Châu đã cam kết thực hiện:

- Việc công bố thông tin về đánh giá môi trường và kế hoạch tái định cư đến tất cả các khu vực dân cư trong toàn xã (bao gồm cả người hưởng lợi và người bị ảnh hưởng)

- Hình thức tổ chức công bố thông tin: Họp BCH Đảng ủy, thông báo thông tin đến toàn thể đảng viên; Tổ chức hội nghị Quân dân chính và tại hội nghị công động xóm đối có sở; Trung bày tại các điểm văn hóa xã; Thông báo rộng rãi trên hệ thống truyền thanh xã

- Những thông tin phản hồi của Cán bộ và nhân dân sẽ được UBND xã giải thích hoặc ghi nhận đầy đủ và gửi về Công ty CP Nước sạch & VSNT tỉnh Nam Định

Các hoạt động công bố thông tin đã được chủ trì tại xã Giao Châu, huyện Giao Thủy, tỉnh Nam Định được UBND xã triển khai thực hiện từ ngày ký./.

Nơi nhận
- Như trên
- Lưu VP

Giao Châu, ngày __ tháng __ năm 2010

[Signature]

[Stamp]
CAM KẾT CÔNG BƠI THÔNG TIN

Kính gửi: - Ngân hàng thế giới – Việt Nam
   - Ban QLDA Trung ương
   - Ban QLDA Nước sạch & VSNT tỉnh Nam Định

Sau khi nhận được báo cáo đánh giá môi trường và kế hoạch tái định cư của Ban QLDA nước sạch & VSNT tỉnh Nam Định – UBND, xã Bình Hòa đã cam kết thực hiện:

- Việc công bố thông tin về đánh giá môi trường và kế hoạch tái định cư đến tất cả các khu vực dân cư trong toàn xã (bao gồm cả người hưởng lợi và người bị ảnh hưởng)

- Hình thức tổ chức công bố thông tin: Họp BCH Đảng ủy, thông báo thông tin đến toàn thể đảng viên; Tổ chức hội nghị quản dân chính và tại họp tại cộng đồng xóm đối cơ sở; Trưng bày tại các điểm văn hóa xã; Thông báo rộng rãi trên hệ thống truyền thanh xã

- Những thông tin phản hồi của Cán bộ và nhân dân sẽ được UBND xã giải thích hoặc ghi nhận đầy đủ và gửi về Công ty CP Nước sạch & VSNT tỉnh Nam Định

Các hoạt động công bố thông tin đại chúng tại xã Bình Hòa, huyện Giao Thủy, tỉnh Nam Định được UBND xã triển khai thực hiện từ ngày ký./.

Nơi nhận
- Như trên
- Lưu VP

Bình Hòa, ngày 24 tháng 10 năm 2010

[Signature]

PHẠM QUANG TUYỆN
CAM KẾT CÔNG BỐ THÔNG TIN

Kính gửi: - Ngân hàng thế giới – Việt Nam
- Ban QLDA Trung ương
- Ban QLDA Nước sạch & VSNT tỉnh Nam Định

Sau khi nhận được báo cáo đánh giá môi trường và kế hoạch tái định cư của Ban QLDA nước sạch & VSNT tỉnh Nam Định – UBND, xã Hồng Thuận đã cam kết thực hiện:

- Việc công bố thông tin về đánh giá môi trường và kế hoạch tái định cư đến tất cả các khu vực dân cư trong toàn xã (bao gồm cả người hướng lối và người bị ảnh hưởng)

- Hình thức tổ chức công bố thông tin: họp BCH Đảng ủy, thông báo thông tin đến toàn thể đảng viên; Tổ chức hội nghị quân dân chỉ huy và tâi họa tại cộng đồng xóm đối co sở; Trung bày tại các điểm văn hoá xã; Thông báo rạng rại trên hệ thống truyền thanh xã

- Những thông tin phản hồi của Cán bộ và nhân dân sẽ được UBND xã giải thích hoặc ghi nhận đầy đủ và gửi về Công ty CP Nước sạch & VSNT tỉnh Nam Định

Các hoạt động công bố thông tin đại chúng tại xã Hồng Thuận, huyện Giao Thủy, tỉnh Nam Định được UBND xã triển khai thực hiện từ ngày ký.

Nơi nhận
- Như trên
- Lưu VP

Hồng Thuận, ngày 2 tháng 11 năm 2010

UBND Xã

CHỦ TỊCH
NGUYỄN VĂN LẬP
CAM KẾT CÔNG BÔ THÔNG TIN

Kính gửi: - Ngân hàng thế giới – Việt Nam
- Ban QLDA Trung ương
- Ban QLDA Nước sạch & VSNT tỉnh Nam Định

Sau khi nhận được báo cáo đánh giá môi trường và kế hoạch tài chính của Ban QLDA nước sạch & VSNT tỉnh Nam Định – UBND, xã Giao Hà đã cam kết thực hiện:

- Việc công bố thông tin về đánh giá môi trường và kế hoạch tài chính của đến tất cả các khu vực dân cư trong toàn xã (bao gồm cả người hưởng lợi và người bị ảnh hưởng)

- Hình thức tổ chức công bố thông tin: Hợp BCh Đảng ủy, thông báo thông tin đến toàn thể đảng viên; Tổ chức hội nghị quản dân chính và tài hợp tại cộng đồng xóm đối cơ sở; Trung bày tại các điểm văn hóa xã; Thông báo rộng rãi trên hệ thống truyền thanh xã

- Những thông tin phản hồi của Cán bộ và nhân dân sẽ được UBND xã giải thích hoặc ghi nhận đầy đủ và gửi về Công ty CP Nước sạch & VSNT tỉnh Nam Định

Các hoạt động công bố thông tin dài chúng tại xã Giao Hà huyện Giao Thủy, tỉnh Nam Định được UBND xã triển khai thực hiện từ ngày ký.

Noi nhận
- Như trên
- Lưu VP

Giao Hà, ngày ___ tháng ___ năm 2010
T/M UBND XÃ

[Signature]

CHỦ TỊCH
PHƯNG VĂN HUÂN
CAM KẾT CÔNG BỐ THÔNG TIN

Kính gửi: - Ngân hàng thế giới – Việt Nam
- Ban QLDA Trung ương
- Ban QLDA Nước sạch & VSNT tỉnh Nam Định

Sau khi nhận được báo cáo đánh giá môi trường và kế hoạch tài chính của Ban QLDA nước sạch & VSNT tỉnh Nam Định – UBND, xã Giao Nhân đã cam kết thực hiện:

- Việc công bố thông tin về đánh giá môi trường và kế hoạch tài chính cụ thể tại các khu vực dân cư trong toàn xã (bao gồm cả người hướng lối và người bị ảnh hưởng)

- Hình thức tổ chức công bố thông tin: Hợp BCT Đảng ủy, thông báo thông tin đến toàn thể đảng viên; Tổ chức hội nghị quân dân chính và tài hợp tại cộng đồng xóm đối cơ sở; Trung bày tại các điểm van hóa xã; Thông báo rộng rãi trên hệ thống truyền thanh xã

- Những thông tin phản hồi của Cán bộ và nhân dân sẽ được UBND xã giải thích hoặc ghi nhận đầy đủ và gửi về Công ty CP Nước sạch & VSNT tỉnh Nam Định

Các hoạt động công bố thông tin dài chung tại xã Giao Nhân, huyện Giao Thủy, tỉnh Nam Định được UBND xã triển khai thực hiện từ ngày k.

Nơi nhận
- Như trên
- Lưu VP

Giao Nhân, ngày 29 tháng 12 năm 2010

[Signature]

CHỦ TỊCH
DÔNG QUỐC HIỆN
CAM KẾT CÔNG BỘ THÔNG TIN

Kính gửi: - Ngân hàng thế giới – Việt Nam
- Ban QLDA Trung ương
- Ban QLDA Nước sạch & VSNT tỉnh Nam Định

Sau khi nhận được báo cáo đánh giá môi trường và kế hoạch tài chính từ của Ban QLDA nước sạch & VSNT tỉnh Nam Định – UBND, xã Thọ Nghiệp cam kết thực hiện:

- Việc công bố thông tin về đánh giá môi trường và kế hoạch tài chính cụ thể từ các khu vực dân cư trong toàn xã (bao gồm cả người hưởng lợi và người bị ảnh hưởng)

- Hành thức tổ chức công bố thông tin: Họp BCH Đảng ủy, thông báo thông tin đến toàn thể đảng viên; Tổ chức hội nghị quán dân chính và tài họ tại cộng đồng xóm đội cơ sở; Trung bay tại các điểm văn hóa xã; Thông báo rộng rãi trên hệ thống truyền thanh

- Những thông tin phản hồi của Cán bộ và nhân dân sẽ được UBND xã giải thích hoặc ghi nhận đầy đủ và gửi về Công ty CP Nước sạch & VSNT tỉnh Nam Định

Các hoạt động công bố thông tin tại xã Thọ Nghiệp, huyện Xuân Trường, tỉnh Nam Định được UBND xã triển khai thực hiện từ ngày ký./.

Nơi nhận
- Như trên
- Lưu VP

Thọ Nghiệp, ngày 10 tháng 12 năm 2010
TM UBND Xã

Phó Chủ tịch
Phạm Văn Tuyên
CAM KẾT CÔNG BΟ THÔNG TIN

Kính gửi: - Ngân hàng thế giới – Việt Nam
- Ban QLDA Trung ương
- Ban QLDA Nước sạch & VSNT tỉnh Nam Định

Sau khi nhận được báo cáo đánh giá môi trường và kế hoạch tài chính của Ban QLDA nước sạch & VSNT tỉnh Nam Định – UBND, xã Giao Tiến đã cam kết thực hiện:

- Việc công bố thông tin về đánh giá môi trường và kế hoạch tài chính của đến tất cả các khu vực dân cư trong toàn xã (bao gồm cả người hương lối và người bị ảnh hưởng)

- Hình thức tổ chức công bố thông tin: Hợp BCH Đảng ủy, thông báo thông tin đến toàn thể đảng viên; Tổ chức hội nghị quản dân chính và tài hợp tổ công động xóm đối cơ sở; Trung bày tại các điểm văn hoá xã; Thông báo rộng rãi trên hệ thống truyền thanh xã

- Những thông tin phản hồi của Cán bộ và nhân dân sẽ được UBND xã giải thích hoặc ghi nhận lại dự và gửi về Công ty CP Nước sạch & VSNT tỉnh Nam Định

Các hoạt động công bố thông tin đã chứng tại xã Giao Tiến huyện Giao Thủy, tỉnh Nam Định được UBND xã triển khai thực hiện từ ngày ký./.

Nơi nhận
- Như trên
- Lưu VP

Giao Tiến, ngày  Thang Ân năm 2010

UBND XÃ
TRÍCH LỤC BẢN ĐỒ ĐỊA CHÍNH KHU ĐẤT
Trạm cấp nước đô thị và trạm cấp nước sạch & VSNT tại 07 xã
huyện Giao Thùy và huyện Xuân Trường tỉnh Nam Định
Vị trí: Tổ bằng đồ số: 1 ; thừa số: 01
Tỷ lệ: 1/1.000

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<th>Tổ BD</th>
<th>Số thừa</th>
<th>Loại đất</th>
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PHÒNG TN & MT
Ngày, tháng, năm 2010

CÁN BỘ ĐỊA CHÍNH XÃ

TM. UBND THỊ TRÁN
XUÂN TRƯƠNG

TRƯỞNG PHÒNG
PHẠM VĂN CHIỂN
TRÍCH LỤC BÀN ĐỒ, MẶT BẰNG KHU ĐÁT XÂY DỰNG TRẢM BỘM TĂNG ÁP DỊ ÁN CẤP NƯỚC LIÊN XÃ HUYỆN Giao Thủy VÀ XÃ THỌ HNGHIEP HUYỆN XUÂN TRƯƠNG

SỐ TỬ: .................................. ; SỐ THỪA: ..................................; DIỆN TÍCH: ..................................; M2; TÝ LỆ: ..................................

CHƯNG THỨC SẢN SÀO DƯNG VỚI BẢN CHÍNH
Số giấy tờ: ..........................; Ngày sê: ................
Ký........................................

PHÓ CHỦ TỊCH
HOÀNG THỊ THUY NGÂN

GHI CHÚ:
Phân gạch chỗ dán đồng để xây dựng từ sốitivity.
MAT BANG TONG THE MANG LUOI CAP NUOC 7 XA
HUYEN XUAN TRUONG, GIAO THUY TINH NAM DINH

BANG THONG KE KYU LUNG DUONG ONG

GHI CHU:
1. XU Ly chua cam

CONG TY CP NUOC, MOS TRUONG
VA HA TANG KY THUAT
THU DO
THU DO WEICO

CONG TY CP NUOC, MOS TRUONG
VA HA TANG KY THUAT
THU DO
THU DO WEICO
PHIÊN TRÁI KẾT QUẢ XÉT NGHIỆM NUÔC
Số: 46/XN-CNC-2010

1. Tên mẫu thủy: Nuớc sông Ninh Cơ
2. Cơ sở giao mẫu: Công ty cổ phần Nuớc, môi trường và hạ tầng kỹ thuật Thủy Đô
3. Địa chỉ: Số 7, đường Thiệt Giáp, Cồ Nhuế, Từ Liêm, Hà Nội
4. Số lượng mẫu: 01
5. Ngày nhận mẫu: 08-03-2010

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<th>STT</th>
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<th>Kết quả phân tích</th>
<th>Giới hạn tối đa cho phép</th>
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<tr>
<td>1.</td>
<td>pH</td>
<td></td>
<td>7,84</td>
<td>6,5 - 8,5</td>
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<td>2.</td>
<td>Mùi</td>
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<td>Không có mùi vị lạ</td>
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<td>Độ dục</td>
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<td>Độ màu</td>
<td>TCU</td>
<td>49</td>
<td>15</td>
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<td>5.</td>
<td>Tổng chất rắn lỏng (SS)</td>
<td>mg/l</td>
<td>36</td>
<td>-</td>
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<td>6.</td>
<td>Tổng chất rắn hòa tan(TDS)</td>
<td>mg/l</td>
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<td>1000</td>
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<td>7.</td>
<td>Độ cứng toàn phần</td>
<td>mg/lCaCO3</td>
<td>113</td>
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<tr>
<td>8.</td>
<td>NO2⁻</td>
<td>mg/l</td>
<td>0,163</td>
<td>3</td>
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<tr>
<td>9.</td>
<td>NO3⁻</td>
<td>mg/l</td>
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<td>10.</td>
<td>Cl⁻</td>
<td>mg/l</td>
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<td>11.</td>
<td>NH₄⁺</td>
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<td>12.</td>
<td>Fe tổng</td>
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<td>14.</td>
<td>COD</td>
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<td>-</td>
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<tr>
<td>15.</td>
<td>Asen</td>
<td>mg/l</td>
<td>&lt;0,005</td>
<td>0,01</td>
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Kết luận: Mẫu nước trên không đạt về sinh nước ăn uống về mặt lý hóa (độ dục, độ màu, hàm lượng sát tổng).

Kiểm nghiệm viên

Giám đốc

Phạm Văn Thuận

Ghi chú: Kết quả trên chỉ có giá trị trên mẫu xét nghiệm
MẶT BẰNG DỊNH VI TRÂM BƠM NƯỚC THÔ - LOCATION OF RAW PUMPING STATION PLAN

TỶ LỆ - SCALE: 1/250

CÔNG TY CP NƯỚC, MÔI TRƯỜNG VÀ HỆ TĂNG KỸ THUẬT THỦ ĐÔ THU DO WEICO

TIÊN CÔNG KHIEN - PROJECTS
SẴN LƯỚI KHIÉN, LÁC MỤC, SÁCH
KHÔNG CÓ (THÔNG ĐƠN CAO CẤP) ĐƯỢC THÔNG BÁO TRƯỞNG HÀNH KHIÉN VIỆT ỨNG
VA ĐƯỢC THÔNG BÁO CÔNG THÔNG ỨNG

NƯỚC SUPPLY AND PUBLIC SUPPLY

TIÊN KHIEN - PROJECTS
SẴN LƯỚI KHIÉN - VIỆC THÔNG BÁO CÔNG THÔNG ỨNG

TIÊN KHIEN - PRODUCTS
MẶT BẰNG DỊNH VI TRÂM BƠM NƯỚC THÔ - LOCATION OF RAW PUMPING STATION PLAN

DRAFT APPROVED

NAME: MAT BANG DINH VI TRAM BOM NUOC THO
LOCATION OF RAW PUMPING STATION PLAN

HOÁT ĐỘNG 01

1.1-エン・ENG 01

NGƯỜI LÀM MÔN HÀNG

1.1-エン・ENG 01

NGƯỜI LÀM MÔN HÀNG

KE HOÀNG HÀ ĐỘNG

BÀI VIỆT CHIẾC C video

TỶ LỆ - SCALE: 1/250

NHIỆM VỤ ĐÀM PHÁT - NGHIỆM 06-2010

SỐ HỘI SÁCH VI・DRINKING NO.

ND-CN-NT-01