

## **Chapter 2 Initial Environmental Examination**



# **CHAPTER 2 INITIAL ENVIRONMENTAL EXAMINATION**

## **2.1 GENERAL**

It is very important to promote sustainable development aimed at improving the living standard of the residents, and harmonize the development with a desirable environment based on Vietnamese intentions.

Therefore sufficient environmental consideration in the implementation of development programs has an important role. This consideration is to study whether a development project will have significant impacts on the environment or not, to assess the impacts and to incorporate measures to prevent or alleviate its effects, if necessary.

If this is not done thoroughly, the base of the planned development might be destroyed and the development itself might be halted. The base of the people's livelihood or even their subsistence can be also destroyed. It is necessary, therefore, to try to ensure sustainable development by harmonizing the development project with natural resources and with the base of livelihood and subsistence of the residents in the area.

This study is a master plan, so an Initial Environmental Examination (IEE) is required as the first step in environmental consideration. To conduct the IEE, it is essential at the outset to fully understand the Project Description (PD) and Site Description (SD). After that, performance of an initial evaluation is required.

The PD includes the contents and features of the project, such as its background, objectives, location, executing agency, number of beneficiaries, scale, structure, construction method, operation and maintenance, etc.

The SD includes the present conditions of the natural and social environment and pollution in and around the project area.

## **2.2 IEE FOR ROAD DEVELOPMENTS**

### **2.2.1 Project Description for Road Developments**

PDs for each of the road developments have been studied by using the PD Format shown on the first following page.

### **2.2.2 Site Description for Road Developments**

SDs for each of the road developments have been studied by using the SD Format shown on the second following page.

### The Format for Project Description (Road Development)

Item	Description
Project Name	
Background	
Objectives	
Location	
Executing Agency	
Beneficiaries	
Project Components	
Type of Project	Construction / Rehabilitation
Type of Road	Highway/Ordinary, Urban/Rural Area, Plain/Mountainous Area
Target Year/ Traffic Volume	In year of _____, _____ cars/hour, (_____ cars/day)
Extension/Width/Lanes	Ext _____ km, Width _____ m, No. of Lanes _____
Road Structure	Embankment / Elevated / Underpass / Others ( _____ )
Supplemental Facilities	Interchanges: _____ points, Toll Gates: _____ points
Others	

### The Format for Site Description (Road Development)

Item		Description
Project Name		
Social Environment	Inhabitants: (residents/indigenous people/ their views on the project, etc.)	
	Land use: (urban area / farmland / historic site / scenic spot / hospitals, etc.)	
	Economy / Transport: (commerce / agriculture / forestry / bus terminal, etc.)	
Natural Environment	Topography, Geology: (steep slopes / soft ground / wet land / faults, etc.)	
	Fauna and Flora and their habitats: (rare species/mangroves / coral reefs, etc.)	
Pollution	Complaints: (most concerned pollution, etc.)	
	Measures taken: (institutional measures/ compensation, etc.)	
Others		

### 2.2.3 Forecast and Evaluation for Road Developments

#### (1) General Forecast for Road Developments

In this section, the general forecast of impacts arising from road developments, proposed in this study will be performed. In general, the impacts of road development will be forecasted as follows;

- Social Environment Items
  - Resettlement
  - Economic Activity
  - Traffic and Public Facilities
  - Water Rights and Rights of Common
- Natural Environment Items
  - Fauna and Flora
  - Landscape
- Pollution Items
  - Air Pollution
  - Water Pollution
  - Noise and Vibration

The forecasts of these items are shown in the following:

##### a. Resettlement

Resettlement will occur by land acquisition for road construction. This resettlement will cause the loss of living foundation of inhabitants to be resettled. Social and cultural in adaptability to the new settlement site may occur, as well as conflict between the permanent residents and resettlers over social and economic burdens, and deterioration of living standards after resettlement due to the poor compensation system and the resettlers' status of illegal occupants.

##### b. Economic Activity

A change of economic activity will occur by the change of land use and industrial structure, following the inflow and outflow of population and goods.

This will cause effects on the regional economy by the change of population distribution.

c. Traffic and Public Facilities

Changes in demands placed on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents, will occur by the replacement of previous transport means by road traffic, and the emergence and increase of vehicular traffic.

This will cause increases in traffic accidents, traffic jams and other traffic problems, and effects of noise caused by vehicles.

d. Water Rights and Rights of Common

The obstruction of fishing rights in rivers, water rights and land use rights will occur by the increase in traffic and the obstruction of fishing grounds in case that the roads traverse rivers.

The problem of water rights and rights of common will cause illegal entry and logging by the easy access to forests.

e. Fauna and Flora

The disturbance of breeding and extinction of species due to change of habitat conditions will occur by the generation of exhaust gas and noise from the construction roads and the running of cars.

These problems affecting fauna and flora will cause the decrease in numbers of useful creatures available for human activities, or extinction of valuable species.

f. Landscape

The deterioration of aesthetic harmony will occur by the appearance of new and different facilities and structures.

These problems affecting the landscape will cause damage to the value of the scenery by the change of the present landscape which may have cultural values or close relationship with the life of local people, and tourism and the local inhabitants' life may be affected.

g. Air Pollution

The air pollution will occur by exhaust gas from construction equipment and vehicles at the construction stage, and exhaust gas from running vehicles at the operation stage.

The air pollution will cause impacts on the health of people, plants and animals along the roads.

h. Water Pollution

The water pollution will occur by inflow of silt, sand and effluent into rivers, and the disturbance of sediments by construction of piers when the route passes over streams and rivers.

The water pollution will cause an effect on aquatic life.

i. Noise and Vibration

The noise and vibration will occur by the operation of construction equipment and vehicles for construction, such as bulldozers and dump trucks, and operation of vehicles at the operation stage. This will cause effects on hospitals and schools, and disturbance of sleep at night, especially in urban areas.

The environmental items which are affected by environmental impacts caused by each road development is examined in the project scoping, by referring to the corresponding PD and SD.



Scoping (Road Development) (RD-1)

Project Name		Improvement of N.R. No. 1					
Major Facilities / Activities Activities which may cause impacts Environmental Items		Roads / Roadside Facilities / Construction Roads					
		Overall Evaluation	Before Operation		After Operation		
			Reclamation and Spatial Occupancy	Operation of Construction Equipment	Occupancy of Land	Operation of Vehicles	Accumulation of People and Goods
Social Environment	1 Resettlement	⊙	⊙				
	2 Economic Activity	○			○		○
	3 Traffic and Public Facilities	○				○	
	4 Split of Communities						
	5 Cultural Property						
	6 Water Rights/Rights of Common						
	7 Public Health Condition						
	8 Waste						
	9 Hazards ( Risk )						
Natural Environment	10 Topography and Geology						
	11 Soil Erosion						
	12 Groundwater						
	13 Hydrological Situation						
	14 Coastal Zone						
	15 Fauna and Flora						
	16 Meteorology						
	17 Landscape						
Pollution	18 Air Pollution	⊙		○		⊙	
	19 Water Pollution	○	○			○	
	20 Soil Contamination	○				○	
	21 Noise and Vibration	⊙		○		⊙	
	22 Land Subsidence						
	23 Offensive Odor						

Note: ⊙: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark: The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

**Scoping (Road Development) (RD-3)**

Project Name		Improvement of N.R. No. 2					
Environmental Items		Major Facilities / Activities		Roads / Roadside Facilities / Construction Roads			
		Activities which may cause impacts		Before Operation		After Operation	
				Overall Evaluation	Reclamation and Spatial Occupancy	Operation of Construction Equipment	Occupancy of Land
Social Environment	1	Resettlement	⊙	⊙			
	2	Economic Activity					
	3	Traffic and Public Facilities					
	4	Split of Communities					
	5	Cultural Property					
	6	Water Rights/Rights of Common					
	7	Public Health Condition					
	8	Waste					
	9	Hazards ( Risk )					
Natural Environment	10	Topography and Geology					
	11	Soil Erosion					
	12	Groundwater					
	13	Hydrological Situation					
	14	Coastal Zone					
	15	Fauna and Flora					
	16	Meteorology					
	17	Landscape					
Pollution	18	Air Pollution	⊙		○		⊙
	19	Water Pollution					
	20	Soil Contamination					
	21	Noise and Vibration	⊙		○		
	22	Land Subsidence					
	23	Offensive Odor					

Note: ⊙: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Road Development) (RD-9)

Project Name		Improvement of N.R. No. 18					
Major Facilities / Activities		Roads / Roadside Facilities / Construction Roads					
Activities which may cause impacts		Before Operation			After Operation		
Environmental Items		Overall Evaluation	Reclamation and Spatial Occupancy	Operation of Construction Equipment	Occupancy of Land	Operation of Vehicles	Accumulation of People and Goods
Social Environment	1 Resettlement	⊙	⊙				
	2 Economic Activity						
	3 Traffic and Public Facilities						
	4 Split of Communities						
	5 Cultural Property						
	6 Water Rights/Rights of Common						
	7 Public Health Condition						
	8 Waste						
	9 Hazards ( Risk )						
Natural Environment	10 Topography and Geology						
	11 Soil Erosion						
	12 Groundwater						
	13 Hydrological Situation						
	14 Coastal Zone						
	15 Fauna and Flora						
	16 Meteorology						
	17 Landscape						
Pollution	18 Air Pollution	⊙		○		⊙	
	19 Water Pollution						
	20 Soil Contamination						
	21 Noise and Vibration	⊙		○		⊙	
	22 Land Subsidence						
	23 Offensive Odor						

Note: ⊙: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Road Development) (RD-12)

Project Name		Improvement of N.R. No. 70					
Environmental Items		Major Facilities / Activities	Roads / Roadside Facilities / Construction Roads				
		Activities which may cause impacts	Overall Evaluation	Before Operation		After Operation	
				Reclamation and Spatial Occupancy	Operation of Construction Equipment	Occupancy of Land	Operation of Vehicles
Social Environment	1	Resettlement					
	2	Economic Activity	⊙			○	⊙
	3	Traffic and Public Facilities					
	4	Split of Communities					
	5	Cultural Property					
	6	Water Rights/Rights of Common	⊙			⊙	○
	7	Public Health Condition					
	8	Waste					
	9	Hazards ( Risk )					
Natural Environment	10	Topography and Geology					
	11	Soil Erosion					
	12	Groundwater					
	13	Hydrological Situation					
	14	Coastal Zone					
	15	Fauna and Flora	⊙	⊙	○	⊙	○
	16	Meteorology					
	17	Landscape					
Pollution	18	Air Pollution					
	19	Water Pollution					
	20	Soil Contamination					
	21	Noise and Vibration					
	22	Land Subsidence					
	23	Offensive Odor					

Note: ⊙: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Road Development) (RD-16)

Project Name		Improvement of N.R. No. 379					
Major Facilities / Activities		Roads / Roadside Facilities / Construction Roads					
		Activities which may cause impacts	Before Operation		After Operation		
Environmental Items			Overall Evaluation	Reclamation and Spatial Occupancy	Operation of Construction Equipment	Occupancy of Land	Operation of Vehicles
Social Environment	1	Resettlement					
	2	Economic Activity	○			○	○
	3	Traffic and Public Facilities					
	4	Split of Communities					
	5	Cultural Property					
	6	Water Rights/Rights of Common	○			○	○
	7	Public Health Condition					
	8	Waste					
	9	Hazards ( Risk )					
Natural Environment	10	Topography and Geology					
	11	Soil Erosion					
	12	Groundwater					
	13	Hydrological Situation					
	14	Coastal Zone					
	15	Fauna and Flora	○	○	○	○	○
	16	Meteorology					
	17	Landscape					
Pollution	18	Air Pollution					
	19	Water Pollution					
	20	Soil Contamination					
	21	Noise and Vibration					
	22	Land Subsidence					
	23	Offensive Odor					

Note: ⊙: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Road Development) (RD-17)

Project Name		Urgent Bridge Improvement and Reconstruction of National Roads					
Major Facilities / Activities		Roads / Roadside Facilities / Construction Roads					
Activities which may cause impacts		Overall Evaluation	Before Operation		After Operation		
			Reclamation and Spatial Occupancy	Operation of Construction Equipment	Occupancy of Land	Operation of Vehicles	Accumulation of People and Goods
Environmental Items							
Social Environment	1 Resettlement						
	2 Economic Activity						
	3 Traffic and Public Facilities						
	4 Split of Communities						
	5 Cultural Property						
	6 Water Rights/Rights of Common						
	7 Public Health Condition						
	8 Waste						
	9 Hazards ( Risk )						
Natural Environment	10 Topography and Geology						
	11 Soil Erosion						
	12 Groundwater						
	13 Hydrological Situation						
	14 Coastal Zone						
	15 Fauna and Flora	○	○	○	○	○	
	16 Meteorology						
	17 Landscape	○	○		○		
Pollution	18 Air Pollution						
	19 Water Pollution	○	○			○	
	20 Soil Contamination						
	21 Noise and Vibration						
	22 Land Subsidence						
	23 Offensive Odor						

Note: ⊙: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Road Development) (RD-18)

Project Name		Urgent Bridge Improvement and Reconstruction of Rural Roads						
Environmental Items		Major Facilities / Activities		Roads / Roadside Facilities / Construction Roads				
		Activities which may cause impacts		Before Operation		After Operation		
				Overall Evaluation	Reclamation and Spatial Occupancy	Operation of Construction Equipment	Occupancy of Land	Operation of Vehicles
Social Environment	1	Resettlement						
	2	Economic Activity						
	3	Traffic and Public Facilities						
	4	Split of Communities						
	5	Cultural Property						
	6	Water Rights/Rights of Common						
	7	Public Health Condition						
	8	Waste						
	9	Hazards ( Risk )						
Natural Environment	10	Topography and Geology						
	11	Soil Erosion						
	12	Groundwater						
	13	Hydrological Situation						
	14	Coastal Zone						
	15	Fauna and Flora		○	○	○	○	○
	16	Meteorology						
	17	Landscape		○	○		○	
Pollution	18	Air Pollution						
	19	Water Pollution		○	○			○
	20	Soil Contamination						
	21	Noise and Vibration						
	22	Land Subsidence						
	23	Offensive Odor						

Note: ⊙: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Road Development) (RD-21)

Project Name		Improvement and Rehabilitation of Rural Roads in the Northern Part of Vietnam					
Major Facilities / Activities		Roads / Roadside Facilities / Construction Roads					
Activities which may cause impacts		Before Operation			After Operation		
		Overall Evaluation	Reclamation and Spatial Occupancy	Operation of Construction Equipment	Occupancy of Land	Operation of Vehicles	Accumulation of People and Goods
Environmental Items							
Social Environment	1 Resettlement						
	2 Economic Activity	○			○		○
	3 Traffic and Public Facilities						
	4 Split of Communities						
	5 Cultural Property						
	6 Water Rights/Rights of Common	○			○		○
	7 Public Health Condition						
	8 Waste						
	9 Hazards ( Risk )						
Natural Environment	10 Topography and Geology						
	11 Soil Erosion						
	12 Groundwater						
	13 Hydrological Situation						
	14 Coastal Zone						
	15 Fauna and Flora	○	○	○	○	○	
	16 Meteorology						
	17 Landscape						
Pollution	18 Air Pollution						
	19 Water Pollution						
	20 Soil Contamination						
	21 Noise and Vibration						
	22 Land Subsidence						
	23 Offensive Odor						

Note: ○: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.



Scoping (Road Development) (RD-22)

Project Name		Training Center and Procurement of Road Construction Equipment					
Major Facilities / Activities		Roads / Roadside Facilities / Construction Roads					
Activities which may cause impacts		Before Operation			After Operation		
		Overall Evaluation	Reclamation and Spatial Occupancy	Operation of Construction Equipment	Occupancy of Land	Operation of Vehicles	Accumulation of People and Goods
Environmental Items							
Social Environment	1	Resettlement					
	2	Economic Activity					
	3	Traffic and Public Facilities					
	4	Split of Communities					
	5	Cultural Property					
	6	Water Rights/Rights of Common					
	7	Public Health Condition					
	8	Waste					
	9	Hazards ( Risk )					
Natural Environment	10	Topography and Geology					
	11	Soil Erosion					
	12	Groundwater					
	13	Hydrological Situation					
	14	Coastal Zone					
	15	Fauna and Flora					
	16	Meteorology					
	17	Landscape	○	○		○	
Pollution	18	Air Pollution					
	19	Water Pollution					
	20	Soil Contamination					
	21	Noise and Vibration					
	22	Land Subsidence					
	23	Offensive Odor					

Note: ◎: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

(2) Forecast and Evaluation of Each Road Development

**RD-1 Improvement of N.R. No. 1**

The environmental items which will be affected by this development are resettlement, economic activities, and traffic and public facilities as social environment items, and air pollution, water pollution, and noise and vibration as pollution items, which are shown in the Scoping of this project.

On the resettlement, a serious impact will not be forecasted, because the resettlement by this development is on a small scale. However the measures such as improvement of living and economic conditions at the resettlement site are required nevertheless.

On the impact to the economic activity, this will be forecasted to have a good impact rather than bad impact. The impact to the traffic and public facilities will not be forecasted, because the installation of safety facilities and environmental protection measures for public facilities are supposed.

The construction scale is not so large, because this development is mainly rehabilitation. Therefore the air pollution and noise problem at construction stage will not be forecasted. However at operation stage the air pollution and noise problem will occur especially in the densely residential urban areas. Therefore the environmental protection measures on air pollution and noise problems are required.

On the water pollution, this will be forecasted to occur at construction stage. However the construction is temporary. Therefore its impact could be minimized, and the careful planning and management of construction are supposed.

Considering the above mentioned forecasted impacts, for this project an Environmental Impact Assessment (EIA) is required on the items such as resettlement, air pollution, noise and vibration and other items discussed.

**RD-3 / RD-9 Improvement of N.R. No. 2 / Improvement of N.R. No. 18**

On the resettlement, the measures such as improvement of living and economic conditions at the resettlement site are required.

An air pollution and noise problem at operation stage will be forecasted to occur especially in densely residential urban areas. Therefore environmental protection measures on air pollution and noise problems are required.

Considering the mentioned above forecasted impacts, for this project an Environmental Impact Assessment (EIA) is required on the items such as resettlement, air pollution, noise and vibration and other items discussed.

#### **RD-12 Improvement of N.R. No. 70**

On economic activity and water rights and rights of common, the impacts to mountain minorities will be forecasted. Therefore the training and education for mountain minorities is required.

There are some valuable zone on fauna and flora such as reserved forest along this development. Therefore the planning of the protection program on natural resources is required.

Considering the above mentioned forecasted impacts, for this project an Environmental Impact Assessment (EIA) is required on the items such as economic activity, water rights and rights of common, fauna and flora and other items discussed.

#### **RD-16 Improvement of N.R. No. 379**

The impacts to local people on economic activity, water rights and rights of common fauna and flora will not be significant. Because this development is rehabilitation development and the traffic volume is not so large.

Considering that significant impacts are not forecasted, an Environmental Impact Assessment (EIA) is not required.

#### **RD-17 / RD-18 Urgent Bridge Improvement and Reconstruction of National Roads / Urgent Bridge Improvement and Construction of Rural Roads**

On fauna and flora, impacts on aquatic life by turbid water at the construction stage will be forecasted. However it will be not necessarily be significant, and careful attention to construction planning and management is supposed.

The bridges in this development will be designed to be suitable for the local characters of the landscape at the detail design stage, therefore the impacts on landscape will not be significant.

On the water pollution, this will be forecasted to occur at construction stage. However the construction is temporary. Therefore its impact could be minimized, and careful construction planning and management are supposed.

Considering that significant impacts are not forecasted, an Environmental Impact Assessment (EIA) is not required.

#### **RD-19 Rehabilitation of National Roads in the Red River Delta Area**

This development will not affect the environment, because this development is to cover the asphalt on the roads only.

Therefore an Initial Environmental Examination and an Environmental Impact Assessment (EIA) are not required. The former is not listed in this volume.

**RD-21 Improvement and Rehabilitation of Rural Roads in the Northern Part of Vietnam**

Impacts to local people in terms of economic activity, water rights and rights of common, and fauna and flora will not be significant, because this development is a rehabilitation development and the traffic volume is not so large.

Considering that significant impacts are not forecasted, an Environmental Impact Assessment (EIA) is not required.

**RD-22 Training Center and Procurement of Road Construction Equipment**

The impacts to landscape will not be significant, because the buildings in this development will be designed to be suitable for local character of the landscape at the detail design stage.

Therefore an Environmental Impact Assessment (EIA) is not required.

## **2.3 IEE FOR RAILWAY DEVELOPMENTS**

The short-term railway developments include 9 projects. Among these, there are 2 project; "RW-6 Establishment of Management Information System and Telephone Improvement" and "RW-7 Renovation of Rolling Stock", for which there is no need to consider an IEE. Therefore in this section, IEEs for 7 projects are described.

### **2.3.1 Project Description for Railway Developments**

PDs for each railway developments have been studied by using the PD Format shown on the first following page.

### **2.3.2 Site Description for Railway Developments**

SDs for each railway developments have been studied by using the SD Format shown on the second following page.

### The Format for Project Description (Railway Development)

Item	Description
Project Name	
Background	
Objectives	
Location	
Executing Agency	
Beneficiaries	
Project Components	
Type of Project	Construction / Expansion / Elevation / Electrification / Improvement
Power Source / Features	Steam / Electricity / Diesel, Passenger / Freight Car, Single / Double Track
Line length	New:        km, Elevated:        km, Improvement:        km
Stations / Station Square	No. of Stations: _____, Request for Square : Yes / No
Substantial Facilities	Yard:                   , Repair Shop:                   ,
Transport Demand	Passengers:            person / yr, Freight :            ton / yr.
Others	

The Format for Site Description (Railway Development)

Item		Description
Project Name		
Social Environment	Inhabitants: (residents/indigenous people/ their views on the project, etc.)	
	Land Use: (urban area / farmland / historic site / scenic spot / hospitals, etc.)	
	Economy / Transport: (commerce / agriculture / forestry / bus terminal, etc.)	
Natural Environment	Topography, Geology: (steep slopes / soft ground / wet land / faults, etc.)	
	Fauna and Flora and their habitats: (rare species/mangroves / coral reefs, etc.)	
Pollution	Complaints: (most concerned pollution, etc.)	
	Measures taken: (institutional measures/ compensation, etc.)	
Others		

### 2.3.3 Forecast and Evaluation for Railway Developments

#### (1) General Forecast for Railway Developments

In this section, the general forecast of impacts arising from railway developments proposed in this study will be performed. In general, the impacts of railway development will be forecasted as follows;

- Social Environment Items
  - Economic Activity
  - Traffic and Public Facilities
  - Cultural Property
  - Waste
- Natural Environment Items
  - Fauna and Flora
  - Landscape
- Pollution Items
  - Water Pollution
  - Noise and Vibration

The forecasts of these items are shown in the following:

##### a. Economic Activity

A change of economic activity will occur by the change of land use and industrial structure, following the inflow and outflow of population and goods. This will cause effects on the regional economy by the change of population distribution.

##### b. Traffic and Public Facilities

Changes in demands placed on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents, will occur. This will cause the creation of noise and traffic accidents around stations as a result of congested conditions.

##### c. Cultural Property

Damage to or loss of the value of cultural assets will occur. This will cause the aggravation of local people's feelings.



d. Water Rights and Rights of Common

The obstruction of fishing rights in rivers, water rights and land use rights will occur by the increase in traffic and the obstruction of fishing grounds in case that the railways traverse rivers.

The problem of water rights and rights of common will cause the illegal entry and logging by the easy access to forests.

e. Waste

The generation of debris and logs from many activities due to the intensified economic and social activities around stations will be occurred.

This waste will cause the aggravation of environmental deterioration due to inadequate disposal and illegal disposal.

f. Fauna and Flora

The disturbance of breeding and extinction of species due to change of habitat conditions will be occurred by the generation of exhaust gas and noise from construction road and railway operation.

The problems on fauna and flora will cause the decrease in useful creatures for human activities or extinction of valuable species.

g. Landscape

The deterioration of aesthetic harmony will occur by the appearance of new and different facilities and structures.

These problems affecting the landscape will cause damage to the value of the scenery by the change of the present landscape which may have cultural values or close relationship with the life of local people, and tourism and the local inhabitants' life may be affected.

h. Water Pollution

The water pollution will occur by inflow of silt, sand and drainage from trains into rivers, and the disturbance of sediments by construction of piers when the route passes over streams and rivers.

The water pollution will cause an effect on aquatic life.

i. Noise and Vibration

The noise and vibration will occur by the operation of construction equipment and vehicles for construction, such as bulldozers and

dump trucks, and operation of trains and yards at the operation stage. This will cause effects on hospitals and schools, and disturbance of sleep at night, especially in urban areas.

The environmental items which are affected by environmental impacts caused by each railway development are examined in the project scoping, by referring to the corresponding PD and SD.

Scoping (Railway Development) (RW-1)

Project Name		Ha Noi - Hai Phong Line Passenger Transport Improvement						
Major Facilities / Activities  Activities which may cause impacts  Environmental Items		Rails / Stations / Yards						
		Overall	Before Operation		After Operation			
			Reclamation and Spatial Occupancy	Operation of Construction Equipment and Vehicles	Spatial Occupancy	Operation of Trains	Operation and Maintenance of Yards	Accumulation of People and Goods
Social Environment	1 Resettlement							
	2 Economic Activity	○	○					○
	3 Traffic and Public Facilities	○		○	○	○		
	4 Split of Communities							
	5 Cultural Property							
	6 Water Rights/Rights of Common							
	7 Public Health Condition							
	8 Waste							
	9 Hazards ( Risk )							
Natural Environment	10 Topography and Geology							
	11 Soil Erosion							
	12 Groundwater							
	13 Hydrological Situation							
	14 Coastal Zone							
	15 Fauna and Flora	○	○	○	○	○	○	
	16 Meteorology							
	17 Landscape							
Pollution	18 Air Pollution							
	19 Water Pollution	○	○	○		○	○	
	20 Soil Contamination							
	21 Noise and Vibration	◎		○		◎	○	
	22 Land Subsidence							
	23 Offensive Odor							

Note: ◎ : The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○ : The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Railway Development) (RW-2)

Project Name		Establishment of a New Railway Education & Training Center						
Major Facilities / Activities		Rails / Stations / Yards						
Activities which may cause impacts		Overall	Before Operation		After Operation			
			Reclamation and Spatial Occupancy	Operation of Construction Equipment and Vehicles	Spatial Occupancy	Operation of Trains	Operation and Maintenance of Yards	Accumulation of People and Goods
Environmental Items								
Social Environment	1	Resettlement						
	2	Economic Activity						
	3	Traffic and Public Facilities						
	4	Split of Communities						
	5	Cultural Property						
	6	Water Rights/Rights of Common						
	7	Public Health Condition						
	8	Waste						
	9	Hazards ( Risk )						
Natural Environment	10	Topography and Geology						
	11	Soil Erosion						
	12	Groundwater						
	13	Hydrological Situation						
	14	Coastal Zone						
	15	Fauna and Flora						
	16	Meteorology						
	17	Landscape	○			○		
Pollution	18	Air Pollution						
	19	Water Pollution						
	20	Soil Contamination						
	21	Noise and Vibration	○		○			
	22	Land Subsidence						
	23	Offensive Odor						

Note: ⊙ : The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.  
 ○ : The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Railway Development) (RW-3)

Project Name		Gia Lam Workshop and Rolling Stock Depots Improvement						
Major Facilities / Activities  Activities which may cause impacts  Environmental Items		Rails / Stations / Yards						
		Overall	Before Operation		After Operation			
			Reclamation and Spatial Occupancy	Operation of Construction Equipment and Vehicles	Spatial Occupancy	Operation of Trains	Operation and Maintenance of Yards	Accumulation of People and Goods
Social Environment	1	Resettlement						
	2	Economic Activity						
	3	Traffic and Public Facilities						
	4	Split of Communities						
	5	Cultural Property						
	6	Water Rights/Rights of Common						
	7	Public Health Condition						
	8	Waste						
	9	Hazards ( Risk )						
Natural Environment	10	Topography and Geology						
	11	Soil Erosion						
	12	Groundwater						
	13	Hydrological Situation						
	14	Coastal Zone						
	15	Fauna and Flora						
	16	Meteorology						
	17	Landscape	○			○		
Pollution	18	Air Pollution						
	19	Water Pollution						
	20	Soil Contamination						
	21	Noise and Vibration	⊙		○		⊙	
	22	Land Subsidence						
	23	Offensive Odor						

Note: ⊙ : The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○ : The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Railway Development) (RW-4)

Project Name		Long Bien Bridge Replacement and Repair of Other Bridges					
Major Facilities / Activities		Rails / Stations / Yards					
		Activities which may cause impacts	Before Operation		After Operation		
Environmental Items	Overall		Reclamation and Spatial Occupancy	Operation of Construction Equipment and Vehicles	Spatial Occupancy	Operation of Trains	Operation and Maintenance of Yards
	Social Environment	1 Resettlement					
2 Economic Activity							
3 Traffic and Public Facilities							
4 Split of Communities							
5 Cultural Property		⊙	⊙				
6 Water Rights/Rights of Common							
7 Public Health Condition							
8 Waste							
9 Hazards ( Risk )							
Natural Environment	10 Topography and Geology						
	11 Soil Erosion						
	12 Groundwater						
	13 Hydrological Situation						
	14 Coastal Zone						
	15 Fauna and Flora						
	16 Meteorology						
	17 Landscape	○	○		○		
Pollution	18 Air Pollution						
	19 Water Pollution	○	○	○		○	
	20 Soil Contamination						
	21 Noise and Vibration	⊙		○		⊙	
	22 Land Subsidence						
	23 Offensive Odor						

Note: ⊙ : The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○ : The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Railway Development) (RW-5)

Project Name		International Transport by Railways						
Major Facilities / Activities  Activities which may cause impacts  Environmental Items		Rails / Stations / Yards						
		Overall	Before Operation		After Operation			
			Reclamation and Spatial Occupancy	Operation of Construction Equipment and Vehicles	Spatial Occupancy	Operation of Trains	Operation and Maintenance of Yards	Accumulation of People and Goods
Social Environment	1 Resettlement							
	2 Economic Activity	⊙	○					⊙
	3 Traffic and Public Facilities	⊙		○	⊙	○		
	4 Split of Communities							
	5 Cultural Property							
	6 Water Rights/Rights of Common	⊙			⊙			
	7 Public Health Condition							
	8 Waste							
	9 Hazards ( Risk )							
Natural Environment	10 Topography and Geology							
	11 Soil Erosion							
	12 Groundwater							
	13 Hydrological Situation							
	14 Coastal Zone							
	15 Fauna and Flora	○	○	○	○	○	○	
	16 Meteorology							
	17 Landscape							
Pollution	18 Air Pollution							
	19 Water Pollution							
	20 Soil Contamination							
	21 Noise and Vibration	⊙		○		⊙	○	
	22 Land Subsidence							
	23 Offensive Odor							

Note: ⊙ : The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○ : The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Railway Development) (RW-8)

Project Name		Ha Noi Urban Transport by Railways						
Major Facilities / Activities		Rails / Stations / Yards						
Activities which may cause impacts		Before Operation			After Operation			
Environmental Items		Overall	Reclamation and Spatial Occupancy	Operation of Construction Equipment and Vehicles	Spatial Occupancy	Operation of Trains	Operation and Maintenance of Yards	Accumulation of People and Goods
Social Environment	1 Resettlement							
	2 Economic Activity	○	○					○
	3 Traffic and Public Facilities	○		○	○	○		
	4 Split of Communities							
	5 Cultural Property							
	6 Water Rights/Rights of Common							
	7 Public Health Condition							
	8 Waste							
	9 Hazards ( Risk )							
Natural Environment	10 Topography and Geology							
	11 Soil Erosion							
	12 Groundwater							
	13 Hydrological Situation							
	14 Coastal Zone							
	15 Fauna and Flora							
	16 Meteorology							
	17 Landscape							
Pollution	18 Air Pollution							
	19 Water Pollution							
	20 Soil Contamination							
	21 Noise and Vibration	⊙		○		⊙	○	
	22 Land Subsidence							
	23 Offensive Odor							

Note: ⊙ : The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○ : The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.



Scoping (Railway Development) (RW-9)

Project Name		Strengthen of Freight Transport						
Major Facilities / Activities  Activities which may cause impacts  Environmental Items		Rails / Stations / Yards						
		Overall	Before Operation		After Operation			
			Reclamation and Spatial Occupancy	Operation of Construction Equipment and Vehicles	Spatial Occupancy	Operation of Trains	Operation and Maintenance of Yards	Accumulation of People and Goods
Social Environment	1 Resettlement							
	2 Economic Activity	○	○					○
	3 Traffic and Public Facilities							
	4 Split of Communities							
	5 Cultural Property							
	6 Water Rights/Rights of Common							
	7 Public Health Condition							
	8 Waste	○	○					○
	9 Hazards ( Risk )							
Natural Environment	10 Topography and Geology							
	11 Soil Erosion							
	12 Groundwater							
	13 Hydrological Situation							
	14 Coastal Zone							
	15 Fauna and Flora							
	16 Meteorology							
17 Landscape	○			○				
Pollution	18 Air Pollution							
	19 Water Pollution	○	○	○		○	○	
	20 Soil Contamination							
	21 Noise and Vibration	○		○		○	○	
	22 Land Subsidence							
	23 Offensive Odor							

Note: ⊙ : The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○ : The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

(2) Forecast and Evaluation of Each Railway Development

**RW-1 Ha Noi - Hai Phong Line Passenger Transport Improvement**

The environmental items which will be affected by this development are economic activity, and traffic and public facilities as a social environment items, fauna and flora as a natural environment item, and water pollution, noise and vibration as pollution items, which are shown in the Scoping of this project.

On the impact to economic activity, it will be forecasted to have a good impact rather than bad impact. The impact to traffic and public facilities will not be forecasted, because the installment of safety facilities and environmental protection measures for public facilities are supposed.

On water pollution, it will be forecasted to occur at construction stage. However the construction is temporary. Therefore its impact could be minimized, and careful construction planning and management are supposed.

The construction scale is not so large, because this development is rehabilitation. Therefore the noise problem at construction stage will not be forecasted. However at operation stage a noise problem will be forecasted especially in the densely residential urban areas. Therefore environmental protection measures on the noise problem are required.

Considering the above mentioned forecasted impacts, for this project an Environmental Impact Assessment (EIA) is required on the item such as noise and vibration and other items discussed.

**RW-2 Establishment of a New Railway Education & Training Center**

The impacts to landscape are not significant, because the buildings in this development will be designed to be suitable for local character of the landscape at the detail design stage.

A noise problem would be forecasted to occur, due to the operation of facilities. However the noise problem will not be forecasted, because environmental protection measures such as the installation of acoustic walls and buffer zones are supposed.

Considering that significant impacts are not forecasted, an Environmental Impact Assessment (EIA) is not required.

**RW-3 Gia Lam Workshop and Rolling Stock Depots Improvement**

The impacts on landscape are not significant, because the buildings in this development will be designed to be suitable for the local character at the landscape at the detail design stage.

The noise problem at Gia Lam Workshop and Rolling Stock Depots is significant at present. Therefore environmental protection measures such as the installation of acoustic walls and buffer zones are required.

Considering the above mentioned forecasted impacts, for this project an Environmental Impact Assessment (EIA) is required on the item such as noise and vibration and other items discussed.

#### **RW-4 Long Bien Bridge Replacement and Repair of Other Bridges**

On cultural property, by the implementation of this development the Long Bien Bridge will become extinct. However this bridge has a historical and cultural value, therefore measures such as reconstruction or reassemblage are required.

On fauna and flora an impact on aquatic life by turbid water at the construction stage will be forecasted. However it will be not significant, and careful attention to construction planning and management is supposed.

The new bridge in this development will be designed to be suitable for the local character of the landscape at the detail design stage, therefore the impacts to landscape will not be significant.

On water pollution, this will be forecasted to occur at construction stage. However the construction is temporary. Therefore its impact will be minimized, and careful construction planning and management are supposed.

Because this bridge is connected with the center of Ha Noi City, a noise problem will occur. Therefore measures such as the adoption of adequate materials are required.

Considering the above mentioned forecasted impacts, for this project an Environmental Impact Assessment (EIA) is required on the items such as cultural property, noise and vibration and other items discussed.

#### **RW-5 International Transport by Railways**

On economic activity, traffic and public facilities, and water rights and rights of common, impacts to the local people, especially mountain minorities, will be forecasted, because the social environment will change by inflow of people and goods from China. Therefore measures such as the planning of the regional development program, and training and education for local people are required.

There are some valuable zones of fauna and flora, such as reserved forests, along this development. Therefore the planning of the protection program on natural resources is required.

The site of this development is relatively quiet. However the forecasted traffic volume is not so large, therefore the noise problem will not be forecasted.

Considering the above mentioned forecasted impacts, for this project an Environmental Impact Assessment (EIA) is required on the items such as economic activity, traffic and public facilities, water rights and rights of common, fauna and flora and other items discussed.

#### **RW-8 Ha Noi Urban Transport by Railways**

On the impact to economic activity, this will be forecasted to have a good impact rather than bad impact. The impact to the traffic and public facilities will not be forecasted, because the installation of safety facilities and environmental protection measures for public facilities are supposed.

A noise problem at operation stage will be forecasted, especially in the densely residential urban areas. Therefore the environmental protection measures on the noise problems are required.

Considering the above mentioned forecasted impacts, for this project an Environmental Impact Assessment (EIA) is required on the items such as noise and vibration and other items discussed.

#### **RW-9 Strengthen of Freight Transport**

On economic activity and waste in the rural areas, especially in Lao Cai and Lang Son, impacts on local people, especially mountain minorities, will be forecasted. However the impact is not so significant, because the activities in operation of this development are limited to a small area around the stations.

The impacts on landscape will not be significant, because the buildings in this development will be designed to be suitable for the local character of the landscape at the detail design stage.

Water pollution and noise problems caused by the goods handled in the storage and mooring facilities will be forecasted. These impacts will not be significant, because adequate operation is supposed.

Considering that significant impacts are not forecasted, an Environmental Impact Assessment (EIA) is not required.

## **2.4 IEE FOR PORT AND SEA TRANSPORT/INLAND WATERWAY DEVELOPMENTS**

The short-term port and sea transport developments include 3 projects. Among these, there is 1 project: "PS-4 Study for Developing New Deep Entrance Channel in Hai Phong Port", for which there is no need to consider an IEE.

And the short-term inland waterway developments include 5 projects. Among these, there are 2 projects; "IW-4 Groyne Test Construction and Hydrologic Survey" and "IW-5 Navigation Aids System Rearrangement", for which there is no need to consider an IEE.

Therefore in this section, IEEs for 5 projects are described.

### **2.4.1 Project Description for Port and Sea Transport/Inland Waterway Developments**

PDs for each port and sea transport/inland waterway developments have been studied by using the PD Format on the first following page.

### **2.4.2 Site Description for Port and Sea Transport/Inland Waterway Developments**

SDs for each port and sea transport/inland waterway developments have been studied by using the SD Format on the second following page.

The Format for Project Description  
(Port and Sea Transport/Inland Waterway Development)

Item	Description
Project Name	
Background	
Objectives	
Location	
Executing Agency	
Beneficiaries	
Project Components	
Type of Project	Construction / Improvement
Type of Port	External/Internal, Fishing/Commercial/Executive/Other(                      ) Cargo/Ferry
Demand/Vessels	Cargo:            ton ( In year of                      ) Passengers:                      person ( In year of                      )
Moorings	Jetty / Wharf, Water depth            m / Length            m
Fringe Facilities	Scawall            m / Breakwater            m
Ware Facilities	Sea route            m / Depth of Water            m
Dredging / Reclamation	m <sup>3</sup>
Related Development	EPZ / Industrial Estate / Others (                      )
Others	

**The Format for Site Description  
(Port and Sea Transport / Inland Waterway Development)**

Item		Description
Project Name		
<b>Social Environment</b>	Inhabitants: (residents/indigenous people/ their views on the project, etc.)	
	Land Use: (fishing ground / fish market /coastal industrial zone / historical assets, etc.)	
	Economy / Recreation (agriculture / fishery / commerce /resort facilities)	
<b>Natural Environment</b>	Topography and Geology: (steep slopes /soft ground / wet land/faults, etc.)	
	Coast and Marine Zone: (erosion / sedimentation / current /tide / water depth)	
	Fauna and Flora and their habitats: (mangroves /coral reefs / aquatic life, etc.)	
<b>Pollution</b>	Complaints: (most concerned pollution, etc.)	
	Measures taken: (institutional measures/ compensation, etc.)	
<b>Others</b>		

### **2.4.3 Forecast and Evaluation for Port and Sea Transport/Inland Waterway Developments**

#### **(1) General Forecast for Port and Sea Transport/Inland Waterway Developments**

In this section, the general forecast for port and sea transport/inland waterway developments in this study will be performed. In general, the impacts on port and sea transport/inland waterway development will be forecasted as follows;

- Social Environment Items
  - Economic Activity
  - Traffic and Public Facilities
  - Water Rights/Rights of Common
  - Waste
  - Hazards (Risk)
- Natural Environment Items
  - Hydrological Situation
  - Coastal Zone
  - Fauna and Flora
  - Landscape
- Pollution Items
  - Water Pollution

The forecasts of these items are shown in the following:

##### **a. Economic Activity**

Changes of economic activity will occur by the change of land use and industrial structure around the site, following the inflow and outflow of population and goods, the increase of employment, the restriction on fishery ship operation and the degradation or extinction of mangrove forests and coastal reefs owing to water pollution.

This will cause effects on the regional economy by the change of population distribution.

##### **b. Traffic and Public Facilities**

Changes in demands placed on schools, hospitals and present traffic conditions, such as the increase of traffic congestion and accidents, will occur by the increase in ship operation, and the improvement of access transport facilities and an increase in traffic.



This will cause the congestion of maritime navigation due to intensified ship operations, and traffic congestion and noise caused by the new seaside transportation.

c. Water Rights and Rights of Common

The obstruction of fishing rights in rivers, water rights and land use rights will occur by the increase in traffic and the obstruction of fishing grounds.

The problems of water rights and rights of common will cause the illegal entry and logging by the easy access to forests.

d. Waste

The generation of debris and logs from many activities due to the intensified economic and social activities will occur, and similarly there will also be impacts by the waste oil and general waste from ships, and the waste from the goods handled in the storage and mooring facilities.

The waste will cause impacts on aquatic life and birds, and the aggravation of environmental impacts due to inadequate disposal and illegal disposal.

e. Hazards (Risk)

Marine pollution due to accidents involving hazardous substances, and the destruction of port facilities by natural disasters will occur. It will cause the loss of human life and damage to inhabitants' livelihood (production activities, houses, food collection, etc.).

f. Hydrological Situation

Changes in river discharge and riverbed conditions will occur by landfill and drainage inflow. These will cause effluents impacts on the ecosystem.

g. Coastal Zone

Coastal erosion and changes of vegetation will be caused by the excavation and dredging, by the increase and decrease in sediment supply to the surrounding area, and by changes in the current and tide.

These impacts will cause the decrease or extinction of mangrove forests and coral reefs due to the alteration of the coastal erosion caused by a change of littoral drift pattern and the extinction of tidal land, which may affect the fishery and tourism industries.

h. Fauna and Flora

The disturbance of breeding and extinction of species due to change of habitat conditions will be caused by the spatial occupation and alteration of topography and vegetation, by the inflow of waste and drainage resulting from ship and facility operations, and by the disturbance of sediment caused by dredging.

These impacts will cause the decrease or extinction in biomass of seaweed, fish, benthos and birds because of the diminution or extinction of habitats, the deterioration of habitat conditions caused by vegetation and substrate changes, water pollution and water temperature changes.

i. Landscape

The deterioration of aesthetic harmony by the appearance of structures will be caused by the appearance of port facilities and the operation of large ships, and air pollution, especially by dust, and water pollution.

These impacts on landscape will cause damage to the value of the scenery by the change of landscapes which may have cultural values or close relationship with the life of local people, and tourism and the local inhabitants' life may be affected.

j. Water Pollution

Water pollution will be caused by the dust from disposal and storage facilities, by effluents in the runoff of rainwater, oil spills and discharge of waste from ships, and by the disturbance of sediments by dredging.

The water pollution will cause the excessive loading of waters with nutrients, e.g. nitrate and phosphate, resulting in eutrophication, red tide and blue tide, offensive odor, and effects on aquatic life.

The environmental items which will be affected by environmental impacts caused by each port and sea transport/inland waterway development is examined in the project scoping, by referring to the corresponding PD and SD.

Scoping (Port and Sea Transport/Inland Waterway Development) (PS-1)

Project Name		Hai Phong Port Urgent Rehabilitation						
Major Facilities / Activities		Port and Harbor Facilities / Supplemental Facilities						
Activities which may cause impacts		Before Operation			After Operation			
Environmental Items		Overall Evaluation	Reclamation and Spatial Occupancy	Operation of Construction Equipment / Vehicles / Ships	Spatial Occupancy	Operation of Vehicles	Operation of Ships	Operation of Port Facilities
Social Environment	1 Resettlement							
	2 Economic Activity							
	3 Traffic and Public Facilities							
	4 Split of Communities							
	5 Cultural Property							
	6 Water Rights/Rights of Common							
	7 Public Health Condition							
	8 Waste	○	○				○	○
	9 Hazards ( Risk )							
Natural Environment	10 Topography and Geology							
	11 Soil Erosion							
	12 Groundwater							
	13 Hydrological Situation							
	14 Coastal Zone	○	○					
	15 Fauna and Flora	○	○	○			○	
	16 Meteorology							
	17 Landscape							
Pollution	18 Air Pollution							
	19 Water Pollution	○	○	○			○	○
	20 Soil Contamination							
	21 Noise and Vibration							
	22 Land Subsidence							
	23 Offensive Odor							

Note: ◎: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Port and Sea Transport/Inland Waterway Development) (PS-2)

Project Name		Cai Lan Port Development					
Major Facilities / Activities		Port and Harbor Facilities / Supplemental Facilities					
Activities which may cause impacts		Before Operation			After Operation		
		Overall Evaluation	Reclamation and Spatial Occupancy	Operation of Construction Equipment / Vehicles / Ships	Spatial Occupancy	Operation of Vehicles	Operation of Ships
Environmental Items							
Social Environment	1 Resettlement						
	2 Economic Activity	○	○				○
	3 Traffic and Public Facilities	⊙	○			⊙	⊙
	4 Split of Communities						
	5 Cultural Property						
	6 Water Rights/Rights of Common	○	○		○		
	7 Public Health Condition						
	8 Waste						
	9 Hazards ( Risk )	⊙	⊙				○
Natural Environment	10 Topography and Geology						
	11 Soil Erosion						
	12 Groundwater						
	13 Hydrological Situation						
	14 Coastal Zone	○	○		○		○
	15 Fauna and Flora	⊙	⊙	○	○	○	○
	16 Meteorology						
	17 Landscape	○			○		○
Pollution	18 Air Pollution						
	19 Water Pollution	○	○	○			○
	20 Soil Contamination						
	21 Noise and Vibration						
	22 Land Subsidence						
	23 Offensive Odor						

Note: ⊙: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Port and Sea Transport/Inland Waterway Development) (IW-1)

Project Name		Ninh Binh Port Rehabilitation and Extension						
Major Facilities / Activities		Port and Harbor Facilities / Supplemental Facilities						
Activities which may cause impacts		Overall Evaluation	Before Operation		After Operation			
			Reclamation and Spatial Occupancy	Operation of Construction Equipment / Vehicles / Ships	Spatial Occupancy	Operation of Vehicles	Operation of Ships	Operation of Port Facilities
Environmental Items								
Social Environment	1	Resettlement						
	2	Economic Activity	○	○				○
	3	Traffic and Public Facilities						
	4	Split of Communities						
	5	Cultural Property						
	6	Water Rights/Rights of Common						
	7	Public Health Condition						
	8	Waste						
	9	Hazards ( Risk )						
Natural Environment	10	Topography and Geology						
	11	Soil Erosion						
	12	Groundwater						
	13	Hydrological Situation	○	○		○		
	14	Coastal Zone						
	15	Fauna and Flora	○	○	○	○	○	○
	16	Meteorology						
	17	Landscape						
Pollution	18	Air Pollution						
	19	Water Pollution	○	○	○		○	○
	20	Soil Contamination						
	21	Noise and Vibration						
	22	Land Subsidence						
	23	Offensive Odor						

Note: ◎: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.  
○: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark : The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Port and Sea Transport/Inland Waterway Development) (IW-2)

Project Name		Ha Noi and Viet Tri Port Improvement					
Major Facilities / Activities		Port and Harbor Facilities / Supplemental Facilities					
Activities which may cause impacts		Before Operation			After Operation		
		Overall Evaluation	Reclamation and Spatial Occupancy	Operation of Construction Equipment / Vehicles / Ships	Spatial Occupancy	Operation of Vehicles	Operation of Ships
Environmental Items							
Social Environment	1 Resettlement						
	2 Economic Activity	○	○				○
	3 Traffic and Public Facilities						
	4 Split of Communities						
	5 Cultural Property						
	6 Water Rights/Rights of Common						
	7 Public Health Condition						
	8 Waste	○	○			○	○
	9 Hazards ( Risk )						
Natural Environment	10 Topography and Geology						
	11 Soil Erosion						
	12 Groundwater						
	13 Hydrological Situation	○	○		○		
	14 Coastal Zone						
	15 Fauna and Flora						
	16 Meteorology						
	17 Landscape						
Pollution	18 Air Pollution						
	19 Water Pollution	○	○	○		○	○
	20 Soil Contamination						
	21 Noise and Vibration						
	22 Land Subsidence						
	23 Offensive Odor						

Note: ⊙: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark: The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

Scoping (Port and Sea Transport/Inland Waterway Development) (IW-3)

Project Name		The Main Waterway Dredging and Rearrangement						
Major Facilities / Activities		Port and Harbor Facilities / Supplemental Facilities						
Activities which may cause impacts		Overall Evaluation	Before Operation		After Operation			
			Reclamation and Spatial Occupancy	Operation of Construction Equipment / Vehicles / Ships	Spatial Occupancy	Operation of Vehicles	Operation of Ships	Operation of Port Facilities
Environmental Items								
Social Environment	1 Resettlement							
	2 Economic Activity							
	3 Traffic and Public Facilities							
	4 Split of Communities							
	5 Cultural Property							
	6 Water Rights/Rights of Common	○	○		○			
	7 Public Health Condition							
	8 Waste							
	9 Hazards ( Risk )							
Natural Environment	10 Topography and Geology							
	11 Soil Erosion							
	12 Groundwater							
	13 Hydrological Situation	○	○		○			
	14 Coastal Zone							
	15 Fauna and Flora	○	○	○	○	○	○	○
	16 Meteorology							
17 Landscape								
Pollution	18 Air Pollution							
	19 Water Pollution	○	○	○			○	○
	20 Soil Contamination							
	21 Noise and Vibration							
	22 Land Subsidence							
	23 Offensive Odor							

Note: ⊙: The environmental items to which special attention has to be paid. They might cause serious impacts that may affect the project formulation depending on the magnitude of the impacts and the possibility of the measures.

○: The environmental items which may give a significant impact depending on the scale of project and site conditions.

No mark: The environmental items which require no impact assessment since the anticipated impacts are not significant in general.

(2) Forecast and Evaluation of Each Port and sea Transport/Inland Waterway Development

**PS-1 Hai Phong Port Urgent Rehabilitation**

The environmental items which will be affected by this development are waste as a social environment item, coastal zone and fauna and flora as natural environment items, and water pollution as a pollution item, which are shown in the Scoping of this project.

The impacts on the traffic and public facilities will not be forecasted, because the installment of safety facilities and environmental protection measures for public facilities are supposed.

On the coastal zone and fauna and flora, the impacts will not be forecasted, because the natural environment around this site is already not so good.

The water pollution by the dust from disposal and storage facilities, oil spills and discharge of waste from ships, and the disturbance of sediments by dredging will be forecasted.

Considering the above mentioned forecasted impacts, for this project an Environmental Impact Assessment (EIA) is required on the items such as water pollution and other items discussed.

**PS-2 Cai Lan Port Development**

On the impact to the economic activity, impacts to the local economy and the land use around the site will be forecasted. Impacts to the traffic and public facilities, water rights and rights of common will also be forecasted. Therefore the planning of the local economic development program, the land use plan and the installment of safety facilities are required. The possibility of hazards such as oil spill accidents is very low, but if that even once occurred it would cause a big problem. Therefore a marine traffic safety plan is required.

The impact of water pollution and impacts on fauna and flora will be forecasted.

Considering the above mentioned forecasted impacts, for this project an Environmental Impact Assessment (EIA) is required on the items such as economic activity, traffic and public facilities, water rights and rights of common, hazards, fauna and flora, water pollution and other items discussed.

**IW-1 Ninh Binh Port Rehabilitation and Extension**

On the impact to the economic activity, this project will be forecasted to have a good impact rather than bad impact. The impacts to the hydrological



situation, fauna and flora, and water pollution will not be forecasted, because this development is rehabilitation, and the duration of construction is temporary.

The above mentioned, Environmental Impact Assessment (EIA) is not required.

#### **IW-2 Ha Noi and Viet Tri Port Improvement**

On the impact to the economic activity, this project will be forecasted to have a good impact rather than bad impact. The impact of waste will not be forecasted, because adequate disposal is supposed.

Considering that significant impacts are not forecasted, an Environmental Impact Assessment (EIA) is not required.

#### **IW-3 The Main Waterway Dredging and Rearrangement**

The impacts to water rights and rights of common, hydrological situation, fauna and flora, and water pollution will be forecasted. However this construction is temporary, therefore these impacts will be minimized.

Considering that significant impacts are not forecasted, an Environmental Impact Assessment (EIA) is not required.





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