Preparatory Study for Development Study

1 Cooperation Project and Project:

1-1 Title of the Cooperation Project
The Study on Comprehensive Flood Mitigation for Cavite Lowland Area

1-2 Type of the Project
Master Plan and Feasibility Study

1-3 Name of the Project Proponent
The Department of Public Works and Highways (DPWH), The Provincial Government of Cavite

2 Outline of the Project

2-1 Objectives
The objective of the Study is to mitigate flood in Cavite Lowland Area through the following measures:
(1) Formulation of a flood mitigation master plan for the three river basins (the San Juan, the Imus and the Canas River);
(2) Conduct of feasibility study for priority projects selected in the master plan; and
(3) Development of flood management capacity of the counterpart organizations.

2-2 Project area
The project area covers river basin of San Juan, Imus and Canas River in the province of Cavite

2-3 Scope of the study
The Study, composed of two phases, 1) Master Plan Study and 2) Feasibility Study, will cover the following items:

Phase1: Master Plan Study
(1) Collection, review and analysis of data and information
   (a) Natural Condition
       ♦ Meteorology and Hydrology
       ♦ Topography and Geology
       ♦ River environment
   (b) Socio-Economy
       ♦ Population
       ♦ Land use
       ♦ Regional and other relevant development program
       ♦ Industry
       ♦ Agriculture and irrigation
       ♦ laws, regulations and policies
       ♦ Institutional structures for related sectors
   (c) Historical records on flood inundation and flash flood
   (d) Existing related studies
Existing system and facilities on flood control and drainage
(f) Water quality and environment
(g) Other related information

The following field surveys will be carried out to collect the above information.
- Flow measurement of flood and low flow at designated points.
- Longitudinal and cross-sectional surveys
- Plane survey and Aerial-photo shooting (if necessary)

(2) Examination of the characteristics of vulnerability and hazard

(3) Evaluation of current disaster mitigation measures

(4) Assessment of flood risk

(5) Preparation of Master Plan

(6) Review and modification of existing land use plans and ensure their implementation

(7) Conduct of Initial environmental examination (IEE)

(8) Holding of Public consultation meetings with stakeholders

(9) Selection of priority projects

(10) Preparation for priority projects
  (a) Establishment of Flood Mitigation Committee in Cavite province
  (b) Promotion of community-based flood mitigation activities
  (c) Implementation of pilot projects, if necessary

(11) Development of capacity of counterpart organizations
  (a) Needs assessment on capacity development
  (b) Implementation of activities for capacity development including the following;
     - Recommendation on capacity development
     - Holding of workshops and seminars
     - Provision of technical advice on a daily basis

Phase 2: Feasibility Study

(1) Additional data collection and survey

(2) Conduct of Environmental and social considerations

(3) Formulation of implementation plan of priority projects
  (a) Plan and design of systems and facilities
  (b) Operation and maintenance plan
  (c) Resettlement plan, if necessary
  (d) Implementation schedule
  (e) Cost estimation

(4) Economic evaluation of the plans

3 Description of the Project Site

3-1 Socio-economic Profile

The province of Cavite (Area: 1,447.5km²) is located at 50 kilometers south of Metro Manila and is experiencing rapid urbanization. Because of its strategically important location, its industry and population is growing up rapidly. The province of Cavite has 206 million people (year 2000) and the population growth of the province is 40% from 1990 to 1995 and 28% from 1995 to 2000. Local governmental units in Philippines are composed of the three level of administration, that is, province, city/municipality and barangay. The province has 3 cities / 20 municipalities and 829 barangays.

The economic growth of the province is supported by the steady growth of the industrial sector and provincial-wide agricultural sector. The service sector is contributing the largest share in the GRDP of the province, where 606 foreign and domestic enterprises are under operation in 26 industrial and
economic zones. The share of GRDP of the province is 12.8%, 44.9%, 42.3% in the agricultural, industrial and service sector in 1998 and the share of population by industry is 16%, 31%, 53% respectively.

The land use of the coastal area is predominantly residential, while that of the plain area is mainly used for agricultural activities such as rice and corn, and partly industrial and commercial activities. The hilly area is covered by pastures for livestock and plantations of coconut and pineapple. Coffee and mango are cultivated in the upland area, and agricultural fields and forests are found in the hilly area.

The land use of Cavite Lowland Area is mainly industry, commerce and residence. Because a highway originating from Manila passes near the coast, almost half of industry area of the province is located in Lowland Area, and it is the most industrialized area in the province. Also, Lowland area is expected to be developed in the near future as the application of estate development concentrates in the area.

3-2 Natural Environment

The geographic features of Cavite are formed by volcanic activity of the south Tagalog region. The upland with the elevation of around 600 m is spread from the east to the west. The most rivers run from the upland to the north and end at Manila Bay. Rolling terrain is seen broadly in the midstream area, however, while river forms deep valleys with heavy erosion. The lower course of the rivers near Manila Bay is eroded by the rivers, and form alluvial plain. This area is prone to frequent flood.

The outline of San Juan, Imus and Canas River, which are an object of the study, is as follows.

<table>
<thead>
<tr>
<th>Name of River</th>
<th>Length (Km)</th>
<th>Catchments Area (km²)</th>
<th>Highest Elevation (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imus River</td>
<td>38.4</td>
<td>105</td>
<td>650</td>
</tr>
<tr>
<td>San Juan River</td>
<td>39.0</td>
<td>164</td>
<td>672</td>
</tr>
<tr>
<td>Canas River</td>
<td>38.9</td>
<td>210</td>
<td>672</td>
</tr>
</tbody>
</table>

Two geological features can be seen in this area. The alluvium formation, which consists of unconsolidated clay, silt, sand and gravel, is dominant in the river plain and delta. The tuff breccia, which is covered by unconsolidated clay and silt, distributes from midstream to upstream. The tuff breccia is easily eroded and rivers form deep valley.

The climate of this area has two distinctive seasons, that is, rainy season from May to October and dry season from November to April. The record retained by Philippine Atmospheric, Geophysical & Astronomical Service Administration shows that average annual precipitation around this area is between 2,000mm and 2,500mm. The maximum 24 hour precipitation, which is observed in August, exceeds 150 mm a day. Typhoons attack the Philippines several times a year and over 500mm precipitation in two days was observed in 2000 and 2006.

3-3 Situation of Flood Damages

There are two types of flood damages in the area as follows.

1) Damages by long-term inundation in the lower course areas in the rainy season
   Main causes are;
   ♦ Insufficient maintenance of drainage channels
   ♦ Illegal disposal of wastes to rivers
   ♦ High tide and low lands

2) Damages mainly by flashflood due to heavy rains at the time of large-scale typhoons
Main causes are;
- Water way being narrow
- Insufficient clearance between bridge piers
- Blockage of water way by driftwood around bridge piers
- Shortening of arrival time of surface water due to the development of the upstream area of the river

Some parts of the coastal lowland area are subject to flood by high tide water. In this way, people in the lowland area suffer from long-term flood in every rainy season. In addition, at the time of large-scale typhoon, both types of flood happen simultaneously and inundation lasts from a week to 10 days. This deteriorates living conditions and economy as the traffic is shut down. The typhoon in November 2000 inundated all over the lowland area for a long time and the flashflood caused 10 deaths, 482 complete collapses and 3383 half collapses in the midstream area.

3 Legal Framework of Environmental and Social Considerations

3-1 Low and Administration

3-1-1 Law and Registration for EIS

Presidential Decree (PD) No.1151 promulgated in 1977, known as the Philippine Environment Policy first set the tone for the requirement of Environmental Impact Statements (EISs) for projects which might have an impact on the environment. The requirement for EISs was formalized by the promulgation of PD 1586 in 1978. Under the promulgation, environmental considerations must be incorporated at earliest stage of project development and disclosure of projects information and public participation in the EIS process are required.

Presidential Proclamation 2146 provided for environmentally critical Projects (ECPs) and environmentally critical areas (ECAs) as the classification of projects in 1981. DENR Administrative Order No.12 prescribed Environmental Compliance Certificate (ECC) for the condition of the construction of projects in 1992.

Procedural Manual for DENR Administrative Order No.30 Series 2003 can be referred to as guidelines in the Philippine EIS system. EIS related law can be seen in the WEB page of EMB (www.emb.gov.ph/eia.htm)

3-1-2 Competent Agency of EIS

The Environmental Management Bureau (EMB) in the Department of Environment and Natural Resource (DENR) is responsible for policies and programs for environmental management such as environmental conservation, condition of air, water and chemicals, pollution control, capability building and environmental education programs.

EMB also administers EIS system, which requires all government agencies and private sectors to come up with EIS for ECPs, as well as projects that are located in an ECA. EMB examines EIS submitted by the proponent and ECCs is issued after the project is identified not to have a serious impact on the environment.

3-2 Implementation framework of EIS

3-2-1 Project Proponent

Proponent agency of this project is Department of Public Works and Highways (DPWH). The DPWH
has the responsibility for preparation and submission of the EIS.

DPWH usually establishes a Project Management Office–F/S (PMO-F/S) prior to feasibility studies and the PMO-F/S prepares the EIS. Once the execution of projects starts, PMO, which is converted from PMO-F/S, has responsibilities for implementation of environmental and social considerations such as land acquisition and resettlement in cooperation with local government units.

In the head office of DPWH, Environmental Social Services Office (ESSO) in the Development Planning Division is established to support and supervise preparation of EIS.

3-2-2 Framework of Resettlement

Implementation of resettlement is carried out by the related local government units (LGUs). The related cities/municipalities carry out investigation of residents’ consciousness, new resettlement sites, compensation for land and property loss, means for an alternative sustainable livelihood, monitoring of resettled residents, and so forth for DPWH projects. The province of Cavite has been supporting cities/municipalities in this regard, and it established the Urban Development and Housing Board in 2005 to cover difficult issues beyond cities/municipalities’ capacity, such as the provision of housing to the poverty and informal settlers.

3-3 Disclosure and Public Participation

3-3-1 Information Disclosure

Article IV Section 2 of DAO 96-37 details the following requirements of public information to be complied by the project proponent. Evidence demonstrating compliance with these requirements will form part of the supporting documents to be submitted with the IEE/EIS.

a) The proponent will disclose all information about the proposed project to the public in the language and manner that are easily understood (i.e., evaluation of public health, environment, population, gender, socio-economic and cultural impacts, as well as the appropriate mitigation and enhancement measures).

b) The proponent will post a notice of the submission of an IEE/EIS, in coordination with the DENR Regional Office or EMB, together with a summary of the proposed project.

3-3-2 Public Participation

The Philippine EIS System states that the acceptability of the environmental impact of a project can only be fully determined through meaningful public participation and a transparent EIS process. In conformity with the requirements delineated in Article IV Section 3 of DAO No 96-37, proponents of projects that are required to undergo an EIA will initiate the conduct of public consultations as provided in the EMB Guidelines to ensure that the public concerns are fully incorporated in the EIA process.

To secure Environmental Compliance Certificate (ECC) and Certificate of Non-Coverage(CNC), following procedures are required, as mentioned in Article 5.3, DA0 30-2003.

“For projects under Category A, the conduct of public consultation as part of the EIS reviews is mandatory unless otherwise determined by EMB. For all other undertakings, a public consultation is not mandatory unless specifically required by EMB. Proponents should initiate public consultation early in order to ensure that environmentally relevant concerns of stakeholders are taken into consideration in the EIA study and the formulation of the management plan.”
3-4 Procedures and Documentary Requirements

3-4-1 Procedures of EIS

The first activity in the procedures of EIS is the submission of a project belief by a project proponent to EMB of DENR. EMB judge the project to correspond to the Environmentally Critical Projects (ECPs) and Environmentally Critical Areas (ECAs). If a project doesn’t fall under ECP or ECA, the Certificate of Non-Coverage (CNC) is issued.

If a project is categorized as ECP, the proponent submits Environmental Impact Statement (EIS) after the preparation of scoping, baseline study, identification, prediction, evaluation and mitigation of impact and environmental management plan to EMB. The EIS review is generally a two-stage process. The first stage is a procedural review by the receiving staff of EMB. The second stage is substantive review by the Environmental Impact Assessment Review Committee (EIARC). DENR issues Environmental Compliance Certificate (ECCs) if DENR judges that the project doesn’t have a serious impact on the environment, after EIARC’s investigation of ESC and holding of public consultation.

If the project is not ECP but falls under ECA, the proponent must submit Initial Environmental Examination (IEE) Report and the project goes through investigation of DENR.

![EIS Review Process Diagram]

3-4-2 Categorization of Projects

Projects are categorized into A, B, C, D based on the significance of adverse impacts on environment and have deferent procedure depending on its category.

Table 3-1 Category and Reason
<table>
<thead>
<tr>
<th>Category</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category A</td>
<td>ECPs with significant potential to cause negative environmental impacts</td>
</tr>
<tr>
<td>Category B</td>
<td>Projects that are not categorized as ECPs, but which may cause negative environmental impacts because they are located in ECAs.</td>
</tr>
<tr>
<td>Category C</td>
<td>Projects intended to directly enhance environmental quality or address existing environmental problems not falling under Category A or B.</td>
</tr>
<tr>
<td>Category D</td>
<td>Projects unlikely to cause adverse environmental impacts.</td>
</tr>
</tbody>
</table>

Projects under Category A and B must obtain Environmental Compliance Certificate (ECC), which is the permission of the project in terms of environment. For projects under Category A, the proponent must submit EIS report and hold public consultation, and EMB will review the document. For projects under Category B, the proponent must submit EIS report or IEE report, depending on the size of the projects, and EMB regional office will review the document. EMB can request the proponent to hold public consultation, if the project under Category B is required to submit EIS report.

### 3-4-3 Requirements for documents

The EIS should be submitted to the EMB Central Office, and will be reviewed by an EIA Review Committee (EIARC), and endorsed by the EMB Director to the approving authority (DENR Secretary). The maximum time necessary for the approval of ECC is 120 working days after the EIS had been received by EMB.

Requirement for the minimum contents of EIS is as follows:

**Contents of EIS**
- EIS Executive Summary;
- Scoping report identifying critical issues and concerns, as validated by the EMB;
- Project Description;
- Baseline environmental conditions focusing on the sectors (and resources) most significantly affected by the proposed action;
- Impact assessment focused on significant environmental impacts (in relation to project construction/commissioning, operation and decommissioning), taking into account cumulative impacts;
- Environmental Risk Assessment (if EMB decides it to be mandatory during scoping);
- Environmental Management Program/Plan;
- Supporting documents, including technical/socio-economic data used/generated; certificate of zoning viability and municipal land use plan; and proof of consultation with stakeholders;
- Proposals for Environmental Monitoring and Guarantee Funds including justification of amount, when required;
- Accountability statement of EIA consultants / preparers and the project proponent; and
- Other clearances and documents that may be determined and agreed upon during scoping.

The IEE Report should be submitted to the EMB regional office of the project area. EIA Division will examine the document and the EIA Division Chief will endorse it. The final approval will be given by the EMB Regional Director. The maximum time necessary for the approval of IEE report is 60 working days after the IEE Report is received by EMB.

Requirement for the minimum contents of IEE report is as follows:

**Contents of IEE Report**
- Project description;
A brief of the environmental setting and receiving environment, including the primary and secondary impact areas;
A brief description of the project or undertaking and its process of operation;
A brief description of the environmental impact of the project or undertaking, including its socio-economic impact;
A matrix of mitigation and enhancement measures;
A documentation of the consultative process undertaken, when appropriate;
Other clearances and documents that may be determined and agreed upon during scoping.
Accountability Statements of the preparer and the proponent.

4 Result of the Consultation with Recipient Government

Results of the consultation with the DPWH and Province of Cavite on environmental and social consideration are as follows.

- The DPWH and Province of Cavite will be responsible for conducting necessary procedures for Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) in accordance with both Philippines and JICA guidelines, in collaboration with the Japanese study team.
- The DPWH and Province of Cavite will have public consultation with stakeholders at its expense in principle and confirm favorable perception among the communities and the stakeholders before proceeding to the next step of the Study at each stage.
- The disclosure of information by both sides will be ensured.
- Participation and dialogues with various stakeholders will be ensured in order to achieve appropriate environmental and social considerations.
- The DPWH and Province of Cavite will dispose counterpart personnel for environmental and social consideration in the Study.

Results of the consultation with the EMB on environmental and social consideration are as follows.

- EIS is not necessary for master plan study.
- If the construction of reservoir is chosen as a priority project of F/S, the project will fall under Category B. In this case, submission of EIS report (in case the area of the reservoir is over 25ha) or IEE report (under 25ha) is necessary.
- EIS or IEE report should be submitted to the EMB regional office.
5 Provisional Scoping

The possible adverse impacts that may be caused by the project and assumed prediction method and mitigation measures are shown in the following table.

<table>
<thead>
<tr>
<th>Social Environment</th>
<th>Planning Stage</th>
<th>Construction Stage</th>
<th>Operation Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible Adverse Impacts</td>
<td>Comprehensive Ranking</td>
<td>Change of Land Use Plan</td>
<td>Excavation, Embankment</td>
</tr>
<tr>
<td>1 Involuntary resettlement</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>2 Local economy such as employment and livelihood</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>3 Land use</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>4 Division of social infrastructure and local decision-making institutions</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>5 Existing social infrastructures and services</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>6 The poor, indigenous and ethnic people</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>7 Inequality of benefit and damage</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>8 Cultural heritage</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>9 Local conflict of interests</td>
<td>C</td>
<td>C</td>
<td></td>
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<tr>
<td>10 Water usage or water rights</td>
<td></td>
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<tr>
<td>11 Sanitation</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>12 Hazards (risk) and infectious diseases</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 Topography and geographical features</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>14 Soil erosion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 Groundwater</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 Hydrological situation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 Coastal zone (mangroves, coral reefs, tidal flats, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 Flora, fauna and biodiversity</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>19 Meteorology</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>20 Landscape</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 Global warming</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5-1 Possible Adverse Impacts
<table>
<thead>
<tr>
<th>Possible Adverse Impacts</th>
<th>Impact Severity</th>
<th>Assumed Prediction Method</th>
<th>Assumed Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involuntary resettlement</td>
<td>If the master plan proposes the construction of river channel, ring dike or reservoir, residents in densely populated area might be resettled.</td>
<td>Socio-economic survey, Interview of residents' opinion, Area survey for land acquisition, Asset survey</td>
<td>Project planning to minimize the resettlement, information disclosure, holding of stakeholder meeting, formulation of resettlement action plan on account of stakeholders interest (Inc. providing land and monetary compensation for losses and supporting means for an alternative sustainable livelihood, socio-economic monitoring of resettled residents)</td>
</tr>
<tr>
<td>Local economy such as employment and livelihood</td>
<td>Impact on economic activities may be expected by land acquisition and land use restriction</td>
<td>Socio-economic survey, detailed land use survey</td>
<td>Plan of revitalization of livelihood of the resettled residents, proper compensation for land acquisition and land use restriction</td>
</tr>
<tr>
<td>Split of communities</td>
<td>In case ring dike is constructed, some community might be separated</td>
<td>Socio-economic survey, survey of residents' opinion</td>
<td>Planning to avoid community split</td>
</tr>
<tr>
<td>Land use</td>
<td>Restriction of conversion of agricultural purpose for residential and industrial purpose might be introduced to mitigate flood damage</td>
<td>Socio-economic survey, interview of land owners’ opinion</td>
<td>Holding of stakeholder meeting, Proper compensation for land use restriction</td>
</tr>
<tr>
<td>The poor, indigenous and ethnic people</td>
<td>Informal settlers in the downstream area might be resettled due to flood mitigation projects</td>
<td>Survey of resettled land, survey of land ownership of the residents to be resettled, interview and socio-economic, asset, living-condition survey of the affected informal settlers (including shooting of photos)</td>
<td>Project planning to minimize resettlement, Disclosure of information to the affected informal settlers, workshop for the affected informal settlers, resettlement action plan on account of interest of the affected informal settlers (Inc. providing land and monetary compensation for losses and support for an alternative sustainable livelihood, socio-economic monitoring)</td>
</tr>
</tbody>
</table>
### Inequality of Benefit and Damage

- **Flood mitigation projects** will cause disparity between areas with flood decreased and those without any effect. Also, landowners of areas with land-use restriction will bear damage.

- **Flood analysis**, confirmation of flood-prone areas and duration of flood by interview, survey of land use and conversion

- **Project planning to minimize flood damage areas**, holding of stakeholder meeting for the selection of projects in master-planning. Proper compensation for land use restriction

### Local Conflict of Interests

- **Flood mitigation projects** will cause disparity between areas with flood decreased and those without any effect.

- **Flood analysis**, confirmation of flood-prone areas, Interview of stakeholders’ opinion

- **Project planning to minimize flood damage areas**, Stakeholder meeting for the selection of projects

### Hazards (Risk) and Infectious Diseases

- **Improvement of river flow** in the upstream area might affect downstream area

- **Confirmation of the situation of flood after the projects by flood analysis**

- **Analysis and identification of problems prior to project planning, formulation of flood mitigation plan that will not make area with more flood damage**

### Flora, Fauna, and Biodiversity

- **Impact may become clear as study progresses**, though there is no rare species reported in the study area.

- **Detailed survey of rare species and biodiversity**

- **Project planning to minimize the impact on rare species, if any**

### Water Pollution

- **Construction of reservoir might change in water quality.**

- **Survey of current water quality, analysis of influences against water storage in the reservoir on change of water quality**

- **Proper operation of reservoirs to avoid long-time discharge of mud water after flood**

### Noise and Vibration

- **Construction machinery might cause noise and vibration**

- **Site survey, Identification of construction machinery to be used**

- **Proper construction planning, Information disclosure**

### Traffic Accidents

- **Increase of construction vehicles might cause traffic accidents**

- **Site survey, identification of construction vehicles**

- **Proper road safety measures, Information disclosure to the residents about the construction**

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In without-project case, flood damage will continue as it is. Moreover, rapid development in the project area might exacerbate flood damage, as the land use in the area changes frequently due to rapid development.

### 6 Categorization in accordance with JICA Guideline

In the Study, firstly the master plan on flood mitigation for Cavite lowland area will be formulated, and the feasibility study on priority projects will follow it. At this point, it is not clear which priority projects to be chosen, but in case the projects such as river improvements, drainage channel improvement and ring dikes are selected at population density areas, some residents might be resettled especially in the downstream area. In addition, projects to be dealt in the F/S, such as improvement of river channel or ring dikes, could cause resettlement. Also, informal settlers living around the river mouth might be affected by the study.

In the light of above-mentioned circumstance, the Study is classified as “Category A” and is to be carried out in line with the requirement of the JICA guideline.

### 7 Terms of Reference for Environmental and Social Considerations

This study will deal with the improvement of river channel and construction of ring dikes and reservoirs as well as the revision of land use plan and promotion of community-level flood mitigation project as proposed projects of the feasibility study. Some of the projects might cause involuntary resettlement. The study team will carefully choose priority projects for feasibility study, comparing the
benefit and cost of the project in line with the JICA guideline.

Phase I of the Study is master planning for flood damage mitigation, and priority projects to be implemented will only be selected in the course of the study. At this stage present environment and social condition will be surveyed by means of analysis of existing data, conduct of field survey, interviews to local residents and government. Based on the result of the survey, possible environmental impact will be assessed, and the result will be reflected to the master plan.

As for the selection of the priority projects for the feasibility study, the Study team will take account of the interests of affected residents and local community and government that is taking measures against flood damage from the early stage of the Study. The team will assess locally planned projects for flood mitigation by obtaining the information. Also, the team will try to get the consensus among stakeholders through stakeholder meetings. Especially in the area which is likely to be greatly affected by proposed projects, the team will hold workshops for the affected residents at city-wide or municipality-wide level, and thereby ensure information disclosure and chance of talks with local residents.

In the phase II of the Study, EIA level environmental and social considerations study for the selected projects for F/S will be carried out. If the projects cause resettlement, the study team will help prepare a resettlement action plan through the consultation in the meeting and workshop with the affected residents. Also the study team will take into consideration the maintenance of economy and reintegration of community in the resettled area when preparing resettlement action plan.