Draft Project Environmental Management Plan

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People's Committee of Can Tho
Project Management Unit of Urban Upgrading Project

Vietnam Urban Upgrading Project
Can Tho Sub-Project
### PART 1 ENVIRONMENTAL ASSESSMENT SUMMARY

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**Drawings**

- **Drawing 1**: Location of Can Tho Sub-Project Component 1 and Resettlement Site
- **Drawing 2**: Location of in situ resettlement site on Con arroyo
List of Abbreviations
Organisations

MOC Ministry of Construction
MOF Ministry of Finance
MPI Ministry of Planning and Investment
MNRE Ministry of Natural Resources and Environment
NEA National Environmental Agency
MoSTE Ministry of Science, Technology and Environment
DoSTE Department of Science, Technology and Environment
MoST Ministry of Science and Technology
CMS Consulting Management Services
PMU Project Management Unit
TUPWS Transportation and Urban Public Works Service
KfD German Development Agency
WB, the Bank The World Bank

Other

BOLUC Building Ownership and Land Use Certificate
EIA Environmental Impact Assessment
EMP Environmental Management Plan
PIP Project Implementation Plan
RAP Resettlement Action Plan
TA Technical Assistance
LIA Low-income area
O&M Operation and Maintenance
Phuong ward
PART 1

VUUP CAN THO CITY SUB-PROJECT

ENVIRONMENTAL IMPACT ASSESSMENT
1 INTRODUCTION

1.1 Background of the Project

Vietnam’s cities have rapid growing populations, and infrastructure and utility service investments have lagged far behind demand. Low-income areas have developed, and are continuing to develop, in an ad-hoc unplanned manner with little infrastructure and services. This creates environmental and health hazards for their residents and the city at large. New, innovative and low cost approaches are thus required to address Vietnam’s growing urbanization challenges.

The VUUP aims to upgrade low-income communities in four cities, namely Ho Chi Minh, Hai Phong, Nam Dinh, and Can Tho. The VUUP will provide basic infrastructure and services improvements (referred to hereafter as tertiary infrastructure) to low-income communities already identified in the cities. To ensure that the tertiary infrastructure provided is able to operate effectively and to its optimum, critical primary and secondary infrastructure (referred to hereafter as trunk infrastructure) is also to be provided as part of the VUUP.

It is anticipated that a number of families will have to be unavoidably resettled, and therefore social housing and/or basic serviced sites for housing will be provided (referred to hereafter as housing developments). The combination of investment for tertiary and trunk infrastructure, and housing developments in each city will be referred to hereafter as the city’s sub-project. In each city, the sub-project is divided into two or three phases, each of which will be implemented over a 2-3 year period. Phase 1 will be prepared before the project is presented to the World Bank’s Board and Phases 2 and 3 will be prepared during project implementation.

1.2 Environmental Impact Assessment of the Project

According to the Terms of Reference for Phase I of Vietnam Urban Upgrading Project – Can Tho Sub-Project the EIA Consultant will prepare Environmental Impact Assessment (EIA) documentation that corresponds to the requirements of the Government of Vietnam and the World Bank safeguard policies OP 4.01 on Environmental Assessment and OP 4.11 on Physical Cultural Resources where the concerns of impacts on cultural structures are triggered. The EIA documentation should also give broad picture on environmental condition in the project areas of all the three phases and specify guidance to the preparation of EIA documentations for phases 2 and 3.

The scope of the environmental documentation consists of six main tasks as follows:
1. Review and amend as necessary Community Environmental Management plans (CEMPs) for Community Upgrading Plans (CUPs) for the tertiary infrastructure of Phase 1
2. Site-specific EIAs for trunk infrastructure and housing developments including develop Environmental Management plans for Trunk Infrastructure and Housing Developments (EMPs)
3. Environmental section of the Environmental and Social Safeguards Framework (ESSF) of the Project Operations Manual
4. Public consultation and public disclosure
5. Reporting
6. Project Environmental Management Plan
According to the Terms of Reference the Project Environmental Management Plan (PEMP) will include a synthesis of CUP/CEMPs (Task 1) and EMPs (Task 2) for Phase 1 and The ESSF for Phases 2 and 3 (Task 3). The purpose of the PEMPs is to describe for the benefit of "non-specialist readers" the treatment of environmental safeguards as per the requirements of GoV and OP 4.01 Annex C. The PEMPs should be in three parts: Part 1: Executive Summary; Part 2: Summary of Tasks 1-3 to clearly lay out mitigation measures and an environmental monitoring program; and Part 3: Capacity building program for environmental assessment in the different PMUs and at the community-level.

Draft PEMPs have been prepared in September 2003 at about the same time as the Trunk Infrastructure Consultant started their work. Therefore especially the information concerning the content and impact of the project are only preliminary and will be revised for the final report.

2 PROJECT DESCRIPTION

2.1 Objectives and principles of the project

The objectives of the Can Tho sub-project include:

- Alleviate poverty in urban areas by improving the living and environmental conditions of the urban poor
- Promote the participatory planning methods for urban upgrading to meet the people's demand
- Use multi-sector approach with communities' consultation in implementation process of upgrading programs

The Project is implemented based on the following principle:

- The Project is implemented with the active participation of community in the project preparation and performance process. All residents living in the Project zones have rights to participate and benefit from Project regardless of sex and the availability of the official registrations. Communities are encouraged to contribute finance for the Project. Local mass organizations (NGOs) are encouraged to participate to facilitate the community, especially women's involvement in the project preparation and implementation
- Resettlement and land acquisition will be minimized as much as possible to avoid the break of social structure
- The Project is anticipated to be implemented in a synchronous manner with coordination of various sectors such as water supply, water drainage, transportation, etc. for the effectiveness of the Project
- The Project is implemented based on the suitable technical standards to meet the requirements of habitants so that the number of beneficiaries is the biggest and the investment cost suitable with the financial capacity of various levels' budgets and the habitants

2.2 Scope of the Project

To the Phase I include An Cu and An Hoi wards. Location of the concerning areas are presented in Drawing 1. The proposed resettlement site is located in Thoi Nhut hamlet in Anh Binh commune and proposed insitu resettlement site on the top of Con arroyo is presented in Drawing 2.
The proposed Project Components are as follows:

- Project Component No. 1: Upgrading tertiary infrastructure and related primary and secondary infrastructure networks, and technical assistance, design, supervision and training
- Project Component No. 2: Construction of the resettlement site
- Project Component No. 3: Tenure security
- Project Component No. 4: Revolving fund for housing improvement

Draft Environmental Impact Assessment has been prepared for Component 1 and 2.

Project Component 1: Trunk Infrastructure

The scope of proposed Trunk Infrastructure Design according to Inception Report on Consulting Services for Preparation of Primary and Secondary (Trunk) Infrastructure in Can Tho published in September 2003 is presented in the following table. In October after submission of Conceptual Design Options for Road and Embankment Xang Thoi Canal and Lake have been made new calculations for proposed options. The amount of dredged material is on the same level that in the original calculations. Because the decision making process is still ongoing the updated quantities will be presented only in the Final EIA.

Table 2-1 Scope of Trunk Infrastructure Design according to the Inception Report

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>D3</td>
<td>WATER DRAINAGE SYSTEM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Embankment for Xang Thoi Lake and Channel</td>
<td>1.680 m</td>
</tr>
<tr>
<td>D7</td>
<td>Dredging for lake, channels and arroyos:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Xang Thoi Lake and Channel</td>
<td>41.650 m³</td>
</tr>
<tr>
<td></td>
<td>b) Arroyos of Mit Nai and Con</td>
<td>2.750 m³</td>
</tr>
<tr>
<td>B1</td>
<td>BRIDGES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Xang Thoi Bridge, 7m wide, walkways both sides, 1.5m wide each, 50m long</td>
<td>500 m²</td>
</tr>
<tr>
<td>B2</td>
<td>Xang Thoi Lake Bridge connecting roads round the lake, 4m wide, walkways both sides, 1m wide each, 90m long</td>
<td>540 m²</td>
</tr>
<tr>
<td>B3</td>
<td>Mieu Bridge, 4m wide, 17m long</td>
<td>68 m²</td>
</tr>
<tr>
<td>B6</td>
<td>Chuong Bo Bridge, 4m wide, 17m long</td>
<td>68 m²</td>
</tr>
<tr>
<td>R1</td>
<td>ROADS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Roads around Xang Thoi Lake and Channel, 4m wide, 1680m long, hot asphalt concrete</td>
<td>1.680 m</td>
</tr>
<tr>
<td>R2</td>
<td>Walkways and pavements around the lake, 3m wide each side 1680m long, tiled with cement bricks</td>
<td>1.680 m</td>
</tr>
<tr>
<td>R3</td>
<td>Truong Dinh Road, Quarter 2 (from De Tham to Ly Tu Trong), 4m wide, hot asphalt concrete</td>
<td>300 m</td>
</tr>
<tr>
<td>E1</td>
<td>ELECTRICITY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lighting around the lake and channel (incl. poles, wires, beams, porcelain, mercury fluorescent lamps)</td>
<td>1.68 km</td>
</tr>
<tr>
<td>E2</td>
<td>Lighting for Truong Dinh Road, Quarter 2 (from De Tham to Ly Tu Trong)</td>
<td>0.3 km</td>
</tr>
</tbody>
</table>

Project Component 2: Resettlement Sites

The city has identified and approved a resettlement site in Thoi Nhut hamlet in Anh Binh Commune for resettlement of PAPs from several projects in the city. The proposed resettlement area is about 15.5 ha, mainly agriculture land for paddy rice and detached houses with gardens. This is an area with numerous channels and
arroyos such as Tu Ho, and Ba Bo arroyos, etc. At present there is no water supply network provided by Can Tho Water Supply Company. Residents use water mainly from rivers and channels and deep wells and discharge water mainly to Tu Ho arroyo. Roads are mainly pathways, temporary bridges with wooden plates, concrete grids just for carts and pedestrians.

It is also proposed to have in situ resettlement site by filling in the Con arroyo and thus creating 2,000 – 2,300 m² of land and possibility of in situ relocation of 40 – 55 households from implementation of upgrading Option2 of the Xang Thoi Lake and Canal, which is the half of households to be removed from the area.

3 ENVIRONMENTAL BASELINE

3.1 Location, climate and topography

Can Tho City belongs to Can Tho province located in the South bank of the Hau River, next to the Highway No.1. The North area of the City is adjacent to O Mon district in Can Tho province; the South is adjacent to Chau Thanh; the West is adjacent to Chau Thanh A district of Can Tho province; the East is adjacent to Binh Minh district of Vinh Long province. The city includes 15 inner city wards and 7 suburban communes. In 1992 the Government promoted Can Tho City to Grade II city. Can Tho City is the centre of Can Tho province and is an administrative unit equivalent to district level. Can Tho City is considered the centre of Mekong Delta, the Western Capital of the wealthy and populous South-West of Vietnam.

Can Tho City is in the tropical monsoon zone of the Southern delta. There are two distinguished seasons of wet and dry seasons. The wet season lasts from May to November with the South-West monsoon and the dry season from December to April with the North-East monsoon.

Table 3-1 Climate Condition in Can Tho

<table>
<thead>
<tr>
<th>Temperature</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual average air temperature</td>
<td>26.7 - 27°C</td>
</tr>
<tr>
<td>Average maximum temperature (April)</td>
<td>28.6°C</td>
</tr>
<tr>
<td>Average minimum temperature (January)</td>
<td>25.5°C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Humidity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual average relative humidity</td>
<td>83%</td>
</tr>
<tr>
<td>Maximum (March)</td>
<td>87%</td>
</tr>
<tr>
<td>Minimum (January)</td>
<td>21%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wind</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevailing wind direction is South West</td>
<td>25-30%</td>
</tr>
<tr>
<td>Monthly average wind velocity.</td>
<td>1.5m/second</td>
</tr>
<tr>
<td>Maximum wind velocity observed</td>
<td>31m/second at the frequency of 20-50 years</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rain</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual average rainfall</td>
<td>1,600 mm/year</td>
</tr>
<tr>
<td>Maximum rainfall</td>
<td>200 mm/day</td>
</tr>
</tbody>
</table>

| Sunshine hours                 | 2,600 hours/year |

<table>
<thead>
<tr>
<th>Evaporation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total evaporation</td>
<td>960 mm/year</td>
</tr>
<tr>
<td>Evaporation during rainy season</td>
<td>55 – 90 mm/month</td>
</tr>
<tr>
<td>Evaporation during dry season</td>
<td>100 mm/month</td>
</tr>
</tbody>
</table>
Can Tho City is flat, gradually sloping to the directions of North West - South East and North East - South West. The natural elevation against the standard level of Nai cape varies from 1.2m to 1.8m. The formation of the land in Can Tho City is closely related to the development of Hau River.

3.2 Environmental Setting

The rapid growth rate of Can Tho City and urbanisation is giving pressure to urban environment. Due to the development and increase of population the pollution is increasing. The biggest problems are air and noise pollution due to the increased traffic; water pollution and water-related diseases due to lack of proper wastewater treatment and general uncleanliness due to the insufficient solid waste collection.

Pollution level is increasing all the time due to the increasing business and domestic activities and lack of wastewater treatment. Due to the many years of accumulation solid waste and organic waste the water and sediment quality of the Xang Thoi Lake and Canal has degraded and it not possible to use these water for domestic purpose any more. The lakes, canals and arroyos are becoming shallower for the same reason and there is not storage capacity during rainy season.

Households and industry along rivers and channels with low income and low education level discharge wastes directly to channels. Most channels and arroyos are encroached by many residents, which results the blockade of water flow.

3.3 Population and Socio-economic Environment

According to the Statistical Yearbook 2002 the total population of Can Tho Province was 1,878,226 persons, of which 341,968 in Can Tho City. The total Gross Domestic Product in Can Tho Province was 10,635,168 Million VND.

Table 3-2 Socio-Economic Parameters of Can Tho City

<table>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Natural area (km²)</td>
<td>141.29</td>
<td>141.29</td>
<td>141.29</td>
<td>141.29</td>
<td>141.29</td>
<td>141.29</td>
<td>141.29</td>
</tr>
<tr>
<td>2</td>
<td>Population (1,000 persons)</td>
<td>237</td>
<td>277</td>
<td>314</td>
<td>319</td>
<td>324</td>
<td>332</td>
<td>335</td>
</tr>
<tr>
<td>3</td>
<td>Natural population growth rate (%)</td>
<td>2.12</td>
<td>1.65</td>
<td>1.29</td>
<td>1.13</td>
<td>1.10</td>
<td>1.07</td>
<td>1.04</td>
</tr>
<tr>
<td>4</td>
<td>Labor (1,000 persons)</td>
<td>99.5</td>
<td>105.31</td>
<td>122.09</td>
<td>125.37</td>
<td>127.66</td>
<td>130.61</td>
<td>133.45</td>
</tr>
<tr>
<td>5</td>
<td>Investment in construction (billion VND)</td>
<td>0.15</td>
<td>20.5</td>
<td>23.65</td>
<td>24</td>
<td>32.5</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Total revenue (billion VND)</td>
<td>0.16</td>
<td>929</td>
<td>574.56</td>
<td>631.47</td>
<td>592.54</td>
<td>611.88</td>
<td>631.46</td>
</tr>
<tr>
<td>7</td>
<td>Telephone (unit)</td>
<td>136</td>
<td>12,424</td>
<td>16,662</td>
<td>21,006</td>
<td>61,308</td>
<td>61,520</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>School children</td>
<td>47,750</td>
<td>66,506</td>
<td>62,781</td>
<td>61,571</td>
<td>61,010</td>
<td>61,308</td>
<td>61,520</td>
</tr>
<tr>
<td>9</td>
<td>Hospital beds</td>
<td>202</td>
<td>557</td>
<td>1,090</td>
<td>1,090</td>
<td>1,100</td>
<td>1,122</td>
<td>1,172</td>
</tr>
<tr>
<td>10</td>
<td>Medical Doctors</td>
<td>17</td>
<td>331</td>
<td>315</td>
<td>323</td>
<td>331</td>
<td>345</td>
<td></td>
</tr>
</tbody>
</table>
4 AN CU AND AN HOI WARDS

An Cu and An Hoi including to the project are two of the 15 inner city wards of Can Tho City. They are located next to each other; the North area of wards is adjacent to Thoi Binh ward; the North-East to Cai Khe ward; the South East to Tan An ward; the South to An Lac ward; the West to An Phu and An Nghiep wards.

According to statistics in 2001 the natural land area of An Cu and An Hoi wards is 950,000 m² and population of 30,100 people. The area of the proposed project area is 485,936 m², population is 22,405 people and number of households is 3,682. The average population density is 568 people/ha. In these two wards, the proportion of low-income quarters is rather high 9/44 (20.5% of the quarters in the survey coverage). An Cu has the highest number of poor households.

According to the household survey carried out in April 1999 in Can Tho City, there are 48,875 houses with total construction area of about 1,221,800 m². Among these houses 34% is one-storey and temporary houses. Infrastructure of these areas is deficient and in very poor conditions with narrow, winding alleys, always in shortage of electricity and water and unsystematic water drainage to rivers and channels. Epidemic diseases often occur due to hygienic problems.

Main social and economic characteristics of the project area are summarized as follows:
- Average income 334,000 VND/person/month
- Average house area 11.8 m²/person
- Rate of temporary houses is 13.6%
- Most households are living along the alley less than 2 m wide (53%) having low living conditions
- Lack of toilets, in some areas have to be used public toilets
- 29.3% of household in An Cu and 23.4% of household in An Hoi don't have water meters. In some areas, people have to use contaminated water from canal for daily domestic use.

5 ANALYSIS OF ALTERNATIVES

If the upgrading of tertiary infrastructure in the low-income areas will not be implemented deterioration of the structures will continue and even speed up causing more serious problems for water supply, drainage and traffic; and hinders for economic development of the area. Living conditions of the people are already now almost unbearable and the situation will become worse if no improvement will happen.

Xang Thoi Lake and Canal and related arroyos are heavily polluted due to the discharge of untreated wastewater from the houses located next or almost on the top of the lake and canal. There is no proper access to the lake and uncontrolled construction has spread along the embankments. Especially the canal and arroyos are full of solid waste causing serious health, hygienic and aesthetic problems to the area. Without the project the living conditions around the lake and canals will be further deteriorated.

September 2003
If project is not implemented it would be very difficult to reach the targets mentioned in the City Master Plan and improve the living conditions of all citizens of Can Tho City.

According to eight criteria 25 poor communities located in 11 wards were selected for the further clarification during pre-feasibility phase. From these 25 areas An Cu and An Hoi wards were selected for the feasibility study and to be included to the phase I of the project.

In the upgrading of the tertiary infrastructure in low-income areas where infrastructure and environment conditions are poor, the following should be taken into consideration:

- Areas where detailed plans with scale of 1/500 have been approved or where investment projects with implementation plans for the next 5 years are available will not be including to this Project
- Areas where detailed plans are already available or where projects are proposed but no clear implementation plans have been made during the next 5 or 10 years will be upgraded in this Project. However, the determination of BOLUCs should be considered.

Based on decisions and results of the third and the fourth community meetings held at An Cu and An Hoi wards, the tertiary infrastructure upgrading alternatives were proposed to be as follows. However, it was not possible to include all proposals to the Phase 1.

To solve the problems of water drainage and environmental improvement parallel with the upgrading of tertiary infrastructure, it is necessary to upgrade the primary and secondary infrastructure networks. The following was proposed:

- An Hoi ward: To improve the drainage system in quarters 1, 2, 3 of the ward there should be dredging, construction of embankment and sewer installation for Hoang Van Thu arroyo (branch 2 of Tau Hu channel)
- An Cu ward: It was proposed to dredge the Xang Thoi Lake and rehabilitate embankment of lake and canal; and construct a complete water drainage system in this area including sewer system, storm water over flow chambers, road around the lakes, lighting system, etc. in cooperation with KfW water drainage project. For Mit Nai, Con and Mieu arroyos was proposed construction of drainage system, dredging and rehabilitation of embankment.

Including upgrading the alleys, it is necessary to upgrade at the same time bridges and sewers. At present the bridges are small with the width only from 1 to 1.2 m. It is proposed to construct new bridges with the width of 4 m appropriate with the width of the existing alleys. Xang Thoi bridge, bridge connecting to road running around Xang Thoi Lake, Mieu bridge, Chuong Bo bridge should be reconstructed.

Four different options have been proposed in Conceptual Design Options for Road and Embankment Xang Thoi Canal and Lake in September 2003 as follows. In the meeting on 6 October 2003 was agreed to select Option 2 for the basis of detailed design.

Option 2: Modified Feasibility Study: Xang Thoi Canal would be re-adjusted and re-aligned with a total width of 20m (including embankments). The existing canal and lake would need to have some of the embankments filled along the west side of the canal and in some locations around the lake to suit the alignment of the road.
The road system in this option combines with the local alley systems, as suggested in the FS. This approach is particularly feasible along the entire east side of the canal, the north-east portion of the lake and the area adjacent to Mit Nai along the west side of the canal.

The bridge crossing the canal would be 60m long and is located in the vicinity of the area indicated in the FS. The bridge at Hoang Van Thu Street is 40m long. Con arroyo would be upgraded by a combination of dredging and use of box culverts or drainage pipes at the upper reaches of the arroyo. Mit Nai arroyo would be filled in, with box culverts and/or pipes used for drainage purposes in accordance with the FS. We propose that a 10 m corridor with road and sidewalks be constructed over the filled Mit Nai arroyo, to connect with existing alleys.

This option also has a reasonable level of land clearance that would result in relocation of 105 households, partially affects 177 houses and requires land acquisition of 6,514 m².

Table 5-1 Comparison of the proposed options of upgrading of Xang Thoi Lake and Canal

<table>
<thead>
<tr>
<th>Option</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>- cost savings in a shorter bridge crossing the canal &lt;br&gt; - access to existing alleys is improved &lt;br&gt; - relocation of households is a manageable amount</td>
<td>- Mit Nai &amp; Con Arroyos remain as open channels (risk to accumulating waste) &lt;br&gt; - no provision for insitu resettlement of relocated households</td>
</tr>
<tr>
<td>2</td>
<td>- Mit Nai Arroyo can be converted to an access road connecting to alleys &lt;br&gt; - alignment of bridge across canal facilitates traffic flow around the lake &lt;br&gt; - relocation of households is a manageable amount</td>
<td>- Con Arroyo remains as an open channel (risk to accumulating waste) &lt;br&gt; - cost increase due to a longer bridge crossing the canal &lt;br&gt; - access to existing alleys is not fully utilized</td>
</tr>
<tr>
<td>3</td>
<td>- cost savings in a shorter bridge crossing the canal &lt;br&gt; - conforms to future development objectives &lt;br&gt; - Mit Nai &amp; Con Arroyos can become access roads to existing alleys</td>
<td>- relocation of households is excessive and difficult to manage &lt;br&gt; - WB project objectives are not achieved (risk to loan approval) &lt;br&gt; - the interceptor sewer by KfW project would be adversely affected &lt;br&gt; - costs for implementation are high &lt;br&gt; - no provision for insitu resettlement of relocated households</td>
</tr>
<tr>
<td>4</td>
<td>- relocation of households is minimized and easier to manage &lt;br&gt; - costs for implementation are lowest &lt;br&gt; - cost savings in shorter bridges crossing the canal</td>
<td>- Mit Nai &amp; Con Arroyos remain as open channels (risk to accumulating waste) &lt;br&gt; - risk that excavated material can not be reused as fill &lt;br&gt; - does not approximate the master plan</td>
</tr>
</tbody>
</table>
The city has identified and approved a resettlement site in Thoi Nhut hamlet in Anh Binh Commune for resettlement of PAPs from several projects in the city.

During the updating of the feasibility study and preparation of the conceptual design there have been some discussions with the PMU to actually create land by filling in Con arroyo, installing drainage culverts/pipes and incorporating tertiary upgrading of adjacent alleys to create 2,000-2,300 m² of land. This newly created land could be utilized for in-situ relocation of 40-55 houses and households. This could potentially be a site for relocation of 50% of households if this concept is applied to options 1 or 2.

There are 2 other locations within the project area that could also serve as in situ resettlement sites, however this would require additional land acquisition so these 2 locations have not been dealt within the context of this report. Since development of in situ resettlement has significantly less impact on relocated peoples and lower costs for resettlement, we suggest that further consideration be given to above relocation alternatives.

The final decision how to use these resettlement site options will be done later and clarified in the Final Environmental Impact Assessment report. However, the in situ resettlement site is not big enough for resettlement of all to be relocated households.

6 IDENTIFICATION OF IMPACTS

6.1 General Impacts

Upgrading of tertiary infrastructure will reduce poverty in the low-income areas in Can Tho City by improving infrastructure and basic services and thus providing better environment, scenery and health for the poor people.

Existing environmental conditions fail to achieve the environmental quality standards required by the Government policy and legislation. In order to achieve the long-term benefits, the project is expected to generate short-term adverse impacts, particularly during the construction stage due to the proposed scale of the interventions. However, the majority of adverse construction phase impacts can be mitigated through:

- The incorporation of appropriate contract conditions that define operating procedures to be adopted by contractors
- Maintaining an effective consultation process that ensures effective participation of community (primary stakeholder) level in implementing the Community Environmental Management Plan (CEMP) and Environmental Management Plan (EMP)
- Ensuring the project management framework provides coherent decision making about defined actions in the event of non-compliance

Over 22,000 residents in An Cu and An Hoi wards in Phase 1 can get direct or indirect socio-economic and environmental benefits through provision of public utilities, services and infrastructure.

Potentially adverse environmental impacts are associated predominantly with the construction phase of the proposed project. General construction related impacts would be mitigated through measures defined under the EMP and CEMPs.
6.2 Component 1: Tertiary and Trunk Infrastructure

Design Phase

Design criteria adopted for upgrading tertiary and trunk infrastructure will be achieved through extended consultation with residents and community groups to achieve all the interventions proposed aim to clear social, economic and environmental benefits.

Special attention has to be paid to the design of dredging of the Xang Thoi Lake and Canal and related arroyos. There are no endangered animals or plants and works can be done as dry excavation. According to the preliminary sediment quality data no treatment is needed and the dredged material can be used for filling material.

The resettlement around the Xang Thoi Lake and Canal will cause the most serious social impacts. It is estimated that about 100 households should be relocated, if the option 2 will be implemented. The resettlement procedures and site clearance has to be designed and informed to the project affected people clearly and well in advance.

Construction Phase

During the upgrading and construction of drainage, bridges, roads and street lighting there will be various adverse impacts on the environment at different levels. Construction will cause short-term air quality and noise pollution. The means of transport, construction equipments and manpower will be in the continuous work during the whole construction process. These will cause inconvenience to people and pollution risk to environment.

Site clearance for rehabilitation of Xang Thoi Lake and Canal and upgrading of roads will have direct impact on residents’ lives. About 100 households will be relocated and about 180 households are partly affected due to the rehabilitation of the Xang Thoi Lake and Canal. Along the alleys to be upgraded houses, yards, toilets and kitchens of most of the households shall be partly demolished. However, the length of the front yard in each household is nearly 1.5m to 3m, so the demolition doesn’t affect to the structures of houses. However, even the partly demolition disturb the life and daily activities of habitants.

The most serious environmental impact will be from dredging of the Xang Thoi Lake and Canal and related arroyos. Dredging will cause temporary smell and noise nuisance. Transportation of dredged material will cause inconvenience along the transportation route. Scattering of the construction material and excavated soil around the construction and along the transportation routes cause inconvenience, unpleasant odour and air pollution. Possible cofferdams and other construction related facilities might cause temporary flooding due to the flowing of sediments into the other drainage and/or blocking the flows of the existing drainage. During dredging, especially when it is done as dry excavation, the surroundings are bad looking.

Excavating and levelling, material and waste handling, mobilisation of machines, equipment and workers during work execution period also causes many adverse impacts. Transportation means will cause pollution such as noise, vibration, fume, dust, and oil and if there are no tight measures of management, many accidents may occur. Material mobilisation may result in traffic jam and low hygiene conditions in some areas if mitigation measures are not followed.

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The gathering of large number of manpower for construction could cause some impacts on the life and surrounding environment at the construction sites. In already densely populated areas this would increase traffic problems, chaotic security and generation of new type of wastes especially at the sites where the workers are concentrated.

During the construction there will be impacts on the social life and quality of life such as interruption of business, traffic jam, loss of children’s playground in alleys, labour accidents, effects to daily activities due to the house demolition or repair and suspension of water supply, drainage and power system. The reaction of habitants to upgrading and rehabilitation work should be taken into consideration. There might be negative reactions of habitants if there is information shortage, for example people refuse to move or delay the relocation.

Operation Phase

The implementation of CUP prepared for the LIAs will give clear socio-economic and environmental benefits to residents through the provision of improved public utilities and services and approaching improved conveniences.

Dredging the lake and canal and construction of embankment will help the water flow and improve the air and water quality and create possibility to aquatic life in the lake.

Construction of interceptor sewers around the Xang Thoi Lake and Canal will remarkably help to keep the rehabilitated lake and canal in good condition.

Improved roads and bridges enable increase of traffic thus increasing air pollution and risks of traffic accidents.

The improvement of the street lighting along the alleys will improve the safety of especially women and children living in the area. The social evils and traffic accidents will be deceased.

The upgrading of roads, water and drainage systems will help mitigate environment pollution. When living conditions are getting better, the residents are eager to renovate and upgrade their houses.

6.3 Component 2: Resettlement Sites

Design Phase

Selection the location of needed resettlement site is always complicated, because in the densely populated areas there are is no vacant and uninhabited area available. Therefore location of resettlement site is always a compromise and usually causes an additional need of resettlement of the people who live in the proposed area. Land use and existing activities in the surrounding areas have to be considered, too.

In the design has to be paid special attention to the existing and planned natural and man-made structures and facilities and utilize them as much as possible. The entire necessary infrastructure has to be designed according to the relevant regulations and standards.
The proposed resettlement at Thoi Nhut hamlet in An Binh commune is for the time being agriculture and living area and there will be changes in land use and scenery. The design and location of facilities should be adjusted to the existing scenery. The area is located next to other resettlement site.

Infrastructure and access to the proposed in situ resettlement site on the top of the to be filled Con arroyo has to be designed. Special attention has to be paid to survey and design the foundation works to avoid possible soil subsidence. According to the calculations filling of the Con arroyo does not have impact on hydraulic capacity of the drainage system.

Construction Phase

Construction of infrastructure and houses at large resettlement site will cause temporary, but reasonable long-lasting inconvenience to the surroundings. Especially the amount of traffic will increase remarkably during the whole construction period and the existing road to the proposed site is not wide enough for transportation during construction and operation. Construction will also cause temporary noise problems in the tranquil agriculture area.

Large construction works needs a big number of workers, which might cause temporary inconvenience and decrease of security in the area. On the other hand to provide different kind of services to the workers increase the possibility for small business i.e. food-stalls, cafes etc.

Filling and construction of proposed in situ resettlement site on the narrow are on Con arroyo in the middle of residential area will increase a lot of traffic in the area. There will be traffic jams because the alleys are narrow.

Operation Phase

During the operation the resettlement site causes the same type of impacts than any other living area. High density of population, construction and living activities of residents in resettlement site will affect originally tranquil agricultural area.

New and unfamiliar living environment might cause social problems especially for low-income households, because they need more support from neighbours and communities than wealthier households. Children have to go to new schools and if children go to school in resettlement area, they might have problems with new teachers and classmates. If the resettlement areas are far from schools, parents have to spend plenty of time to escort their children and this will affect their work.

The relocation will also cause some troubles in administrative transactions for habitants. In the old and familiar places, though being temporary residents, application for certification of background i.e. for job application, marriage registration, etc. was easy, but in new places, it takes time for people to learn to know local authorities. Centralized resettlement areas may cause extra load to local authorities regarding to administrative management and social order. A resettlement site is also a new concern for local authorities because most of resettled households are poor, with little capacity of contributing money for local infrastructure construction, and they need to be assisted for hunger elimination and poverty reduction.
PART 2

VUUP CAN THO CITY SUB-PROJECT

MITIGATION MEASURES

AND

ENVIRONMENTAL MONITORING
MITIGATION MEASURES

7.1 General

According to OP 4.01 Annex C a project's environmental management plan (EMP) consists of the set of mitigation, monitoring, and institutional measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The plan also includes the actions needed to implement these measures. To prepare a management plan, the borrower and its EA design team (a) identify the set of responses to potentially adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements.

7.2 Mitigation Measures during Detailed Design

General Design Instructions

Environmental matters have to be integrated in all the design work and planning of the project. The designing will to be done by minimising the adverse impacts on environment using as much as possible existing facilities and selecting the location of new facilities in areas where the disturbance to environment, people and existing structures is the smallest. Where possible existing rights-of-way should be used rather than create new ones.

According to the Vietnamese Construction Regulation Standard Article 3.3 Protection of Natural Resources and Environment construction projects should:

- Not cause adverse effect to environment, and technical regulations on scenery and environment protection should be observed
- Protect the natural preservation areas, and historical, cultural and architectural places
- Extracting natural resource must ensure the rationality and cause no obstacle to the next exploitation
- Respect traditional customs, practices, religions of people living in and around the construction area.

In Construction Regulation Standard there are instructions especially for master plan including general instructions for designing sewerage and drainage system, water supply, alleys and electricity.

In different Vietnamese Design Standard there are more detailed design instructions. However, international design standards have to be introduced and used in design work.

Component 1: Tertiary and Trunk Infrastructure

Special attention has to be paid to design of dredging work of the Xang Thoi Lake and Canal. Due to lack of proper access to the lake it is recommended that as much as possible of the dredged material should be used on site. If possible the dredged material could be used for filling of the Con arroyo. The garbage, which is blocking the canal and arroyos and top layer of the sediment, should be transported to the landfill, but the excavated soil could be used for construction. Handling and disposal
of sediment and solid waste to specified places with suitable means of transportation has to be coordinated with relevant authorities.

Design of construction of embankment has to be done in cooperation with KfD project.

Transportation routes have to be designed in cooperation with traffic police and other relevant authorities.

The width of the bridges has to be adjusted to the width of the streets and alleys. The Vietnamese design standards have to be followed.

Road alignments have to be designed avoiding possible cultural and historical monuments i.e. pagodas, temples and communal houses, also the need of resettlement has to be minimised.

In the design of electricity facilities special attention has to be paid to the safety regulations to prevent possibility of accidents. The Vietnamese design standards and safety regulations have to be followed in the design.

Component 2: Design of Resettlement Site

The resettlement site has to be planned as a complete residential area with sufficiently functions according to Vietnam planning standards. The technical standards applied for resettlement site design should be considered carefully to conform affordability of the modern households. Housing for the poor should be designed suitably with the affordability of the poor households.

In the design of resettlement site has to be followed good design standard for new urban areas. Different facilities have to be located in the logical way, i.e. kindergarten and school near parks and recreational areas. There has to be easy access to market also with motorbikes and cars, and enough parking place has to be reserved and from the very beginning. Houses should be faced in the optimal way to protect from direct sunshine. Proper access road to the resettlement sites has to be designed, too.

In the proposed in situ resettlement site on the Con arroyo connections to the existing infrastructure has to be designed, because the narrow area is located in the middle of the residential area.

Public Consultation and Disclosure

Although there has been community participation from the very beginning of project preparation and Community Upgrading Plans have been prepared and Community Environmental Management Plans will be prepared, it is necessary to inform people about the progress of the works during the design phase.

Draft Environmental Impact Assessment report has to be available in agreed public place in Vietnamese and leaflets have to be delivered to the people.

7.3 Mitigation Measures during Construction Works

All works including to the project have to be implemented following the appropriate standards, specifications and working methods given in the Contract Document. The
following list covers the main subjects, which need mitigation measures during the construction phase:

- Site clearance and relocation need the thorough preparation and the support from households and authorities at various levels
- The construction works should be implemented stepwise in order to minimize the moving/transferring as well as to avoid chaos for the surrounding communities
- To use the most appropriate construction facilities/equipment targeting in minimization of the pollution impacts to the surrounding environment
- To follow previously compiled implementing time schedules
- To implement closely the monitoring activities during the whole construction process, to take immediate measures when dealing with the possible environmental break-down
- To provide appropriate management measures at the sites for gathering of construction materials/facilities, to avoid scattering of materials during transportation
- The transport and gathering of materials/facilities during the whole construction process should be implemented following the time schedule at the agreed time, avoiding the rush hours, using suitably the transport means during the whole transportation route
- When the lane and road excavation is needed, the good management measures should be provided and the time to keep excavation open should be minimized
- Protective fences should be arranged around the dangerous construction sites, power stations and stores of inflammable material
- Dust can be mitigated by dust trap/collectors and according to TCVN 5937-1995
- Noise can be reduced by shortening working time and according to TCVN59498-1998
- Solid and liquid wastes should be collected to transfer stations established to the construction sites and transported to the landfill. Spills of oils and lubricants have to absorbed and collected for disposal
- Waste and disposal of excavated materials are mitigated by disposing at the sites, which are agreed with URENCO
- Potential pollution of piped water is mitigated by clearly pointing out works, good monitoring and complying with articles of CEMP
- Local health and safety regulations at work should be followed
- Construction works and new traffic arrangements during construction works should be announced to the public regionally in newspapers and radio and locally to the ward representatives who will inform the residents
- Access road to in situ resettlement has to be constructed at first to avoid traffic problems in densely populated area
- Co-ordinate with environmental authorities to supervise the quality of air, water, solid waste, noise in residential quarters for timely measures of solution in cases of pollution sources occurrence

7.4 Mitigation Measures during Operation and Maintenance

Component 1: Tertiary Infrastructure

The instructions agreed in CUPs and CEMPs have to be followed, i.e.

- Regular inspection of the condition of drainage system, water supply system and electricity system, possible breakages have to be repaired immediately
- Prevent solid waste disposal into the alleys and drainage by improved solid waste management
- Meet operational and safety standards

Assign the responsibility of channel and arroyo maintenance to each household, each habitant group or each ward.

Component 2: Resettlement Site

The good operation and maintenance governance has to be followed concerning the use of all infrastructure facilities. Possible breakages and problems have to be prepared and solved as soon as possible. Special attention has to be paid to the operation and maintenance of infrastructure facilities.

7.5 Summary of Mitigation Measures

<table>
<thead>
<tr>
<th>Phase</th>
<th>Main mitigation measures</th>
<th>Responsible organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>- International and Vietnamese design criteria and standards to be used</td>
<td>Design Consultant</td>
</tr>
<tr>
<td></td>
<td>- All design works done so that need for resettlement is minimised</td>
<td>Design Consultant</td>
</tr>
<tr>
<td></td>
<td>- Works designed to implemented during dry season</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>- Minimise dust, odour, litter, noise and traffic emissions by good operation management and site supervision</td>
<td>Contractor</td>
</tr>
<tr>
<td></td>
<td>- Appropriate working methods have to be followed</td>
<td>Contractor</td>
</tr>
<tr>
<td></td>
<td>- Sites have to be kept clean and safe during and after the work</td>
<td>Contractor</td>
</tr>
<tr>
<td></td>
<td>- Safety and health regulations has to be strictly followed</td>
<td>Contractor</td>
</tr>
<tr>
<td></td>
<td>- Transportation has to be minimised and routes selected to avoid public nuisance</td>
<td>Contractor</td>
</tr>
<tr>
<td></td>
<td>- Transportation during rush hours and night has to be avoided</td>
<td>Contractor</td>
</tr>
<tr>
<td></td>
<td>- Tight and proper equipment to transport sediment and garbage has to be used to avoid accidental spills and odour nuisances</td>
<td>Contractor</td>
</tr>
<tr>
<td></td>
<td>- Construction sites and time has to be informed to the local people in advance</td>
<td>PMU</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>- Follow Project Operations Manual, CUPs, CEMPs and EMP</td>
<td>PMU</td>
</tr>
<tr>
<td></td>
<td>- Minimise dust, odour, litter, noise and traffic emissions by good operation and maintenance supervision</td>
<td>PMU</td>
</tr>
<tr>
<td></td>
<td>- Appropriate working methods have to be followed</td>
<td>Communities</td>
</tr>
<tr>
<td></td>
<td>- Immediate preparation of breakages</td>
<td></td>
</tr>
</tbody>
</table>

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8 ENVIRONMENTAL MONITORING

PMU coordinates with various local departments and sectors and community work teams to technically, socially and environmentally monitor and supervise the Project during the construction, operation and maintenance of the Works.

Table 8-1 Environmental Monitoring during Construction

<table>
<thead>
<tr>
<th>Upgrading Activities</th>
<th>What to monitor</th>
<th>How often</th>
<th>How</th>
<th>Responsibility</th>
<th>Mitigation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water supply</td>
<td>Excavated soil</td>
<td>Every day</td>
<td>Observation</td>
<td>Community work team</td>
<td>Covering vehicle trunks</td>
</tr>
<tr>
<td></td>
<td>Dust</td>
<td>Every day</td>
<td>(ditto)</td>
<td>(ditto)</td>
<td>Watering in front of houses</td>
</tr>
<tr>
<td>Roads</td>
<td>Excavated soil,</td>
<td>Every day</td>
<td>(ditto)</td>
<td>(ditto)</td>
<td>Covering vehicle trunks</td>
</tr>
<tr>
<td></td>
<td>materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dust</td>
<td>Every day</td>
<td>(ditto)</td>
<td>(ditto)</td>
<td>Watering in front of houses</td>
</tr>
<tr>
<td>Drainage</td>
<td>Excavated soil</td>
<td>Every day</td>
<td>(ditto)</td>
<td>(ditto)</td>
<td>Covering vehicle trunks</td>
</tr>
<tr>
<td></td>
<td>Dust</td>
<td>Every day</td>
<td>(ditto)</td>
<td>(ditto)</td>
<td>Watering in front of houses</td>
</tr>
<tr>
<td>Dredging</td>
<td>Sludge handling</td>
<td>Every day</td>
<td>(ditto)</td>
<td>(ditto)</td>
<td>Using specific vehicles</td>
</tr>
<tr>
<td></td>
<td>Sludge transfer site</td>
<td>Every week</td>
<td>Inspection</td>
<td>URENCO</td>
<td>Sludge water drainage system</td>
</tr>
<tr>
<td></td>
<td>District officer</td>
<td>Every week</td>
<td>Inspection</td>
<td>URENCO</td>
<td></td>
</tr>
</tbody>
</table>

Table 8-2 Environmental Monitoring during Operation

<table>
<thead>
<tr>
<th>Upgrading Activities</th>
<th>What to monitor</th>
<th>How often</th>
<th>How</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water supply</td>
<td>Quality</td>
<td>Every day</td>
<td>Observation</td>
<td>Households</td>
</tr>
<tr>
<td></td>
<td>Pressure, leakage</td>
<td>Every day</td>
<td>Observation</td>
<td>Households</td>
</tr>
<tr>
<td>Drainage</td>
<td>Sediment</td>
<td>Every 6 months</td>
<td>Checking</td>
<td>Community leader</td>
</tr>
<tr>
<td></td>
<td>Clogging</td>
<td>Weekly</td>
<td>Observation</td>
<td>Community leader</td>
</tr>
<tr>
<td>Solid waste</td>
<td>Condition around transfer site</td>
<td>Every day</td>
<td>Observation</td>
<td>Households</td>
</tr>
<tr>
<td></td>
<td>Transport</td>
<td>Every 2 days</td>
<td>Observation</td>
<td>Community leader</td>
</tr>
<tr>
<td>Disposal site</td>
<td>Year</td>
<td>Checking</td>
<td>URENCO</td>
<td></td>
</tr>
<tr>
<td>Air quality</td>
<td>Odour</td>
<td>Every day</td>
<td>Observation</td>
<td>Households</td>
</tr>
<tr>
<td></td>
<td>Smoke</td>
<td>Every day</td>
<td>Observation</td>
<td>Households</td>
</tr>
<tr>
<td></td>
<td>Dust</td>
<td>Every 3 months</td>
<td>Measuring</td>
<td>DOSTE</td>
</tr>
<tr>
<td></td>
<td>Noise</td>
<td>Every 3 months</td>
<td>Measuring</td>
<td>DOSTE</td>
</tr>
</tbody>
</table>

Monitoring of water and sediment quality the Xang Thoi Lake and Canal should be agreed with the PMU and DONRE. It is recommended that the same water and sediment sampling points and parameters should be used as in the survey done in September 2003 to follow-up the impacts of the project.

More detailed sampling programme will be presented in the Final Environmental Impact Assessment report.
PART 3

VUUP CAN THO SUB-PROJECT

CAPACITY BUILDING
9 INSTITUTIONAL ARRANGEMENTS

9.1 Project Management

The People’s Committee of Can Tho City is the Investor of Can Tho Urban Upgrading Project, therefore the World Bank will work directly with the People’s Committee.

The People’s Committee of Can Tho City has established PMU under the direct control of the City People’s Committee for managing and implementing the Project.

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Figure 9-1 Organization chart for Project Implementation

PMU will manage and deal with all issues related to the Project implementation. PMU will also supervise and control activities of Suppliers and Contractors of the Project as well as assist the construction management of the Project. PMU will be responsible for all the work of calculation, filing, reporting and budget for the Project. To PMU staff should include specialists of technique, accounting, environment, social and project management. International and local consultants hired for construction supervision and technical assistance shall directly make reports to PMU on the progress of the contracted work.

PMU will be responsible for:

- Financial management for the project
- Dealing with all issues with contracts related to the project planning and implementation
- Preparation for land acquisition
- Reports on progress of the project implementation to financial and environmental authorities and local authorities
- Co-ordination with other sectors and departments of the Province and City
- Control of the bidding process and selection of construction contractors, including bid invitation, bid evaluation and contract drafting
- Support for planning and implementation of CUPs, CEMPs and EMP
- Strengthening capacity of PMU for operation and maintenance of the current and new environment hygiene equipment

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9.2 Organisation Structure of Urban Management and Operation

Because the project is multi-sectoral PMU should maintain close ties with various sectors and departments in the Province, the City and ministries:

- The People's Committee of the Province is in charge of approval of resettlement site planning, phased projects, project components, technical design and total cost estimate, bid invitation packages and bid results
- Department of Construction is responsible for evaluating resettlement site planning and submission to the PC of the Province for approval
- Department of Planning and Investment is responsible for evaluating technical support reports; evaluating project components; evaluating bid invitation packages; evaluating bid selection results for submission to the PC of the province for approval. Simultaneously the Department is also responsible for allotment of annual capital plan for the project implementation in accordance with the schedule.
- Cadastral Department is responsible for making procedures for land acquisition and hand over to PMU for execution of the resettlement quarter in Thoi Nhat hamlet, An Binh Commune and other work related to compensation and site clearance within the project coverage
- Department of Industry is responsible for evaluating the technical design package of the low voltage power and lighting systems of the primary, secondary and tertiary infrastructure for submission to the PC of the Province for approval.
- Cadastral Board of Can Tho City and the Board of Construction, Housing and Land are responsible for BOLUCs for households within the affected zone of the Project.
- Can Tho Power Company is responsible for co-ordination to assure the connection of the low voltage network and the stations for the power system of the Project
- Urban Works Company is responsible for organization and co-ordination for solid waste collection and handling for upgrading quarters of the Project
- PCs at ward level are responsible for closely co-ordinating with PMU in CUPs, plans for environmental impact assessment in upgrading quarters of the Project as well as in resettlement site
- Department of Transportation is responsible for assessing the projects affecting urban infrastructure such as access roads, water supply and drainage for submission to the Provincial PC for approval
- Department of Natural Resources and Environment is responsible for assessing the environmental impact assessment of the Project for submission to the Provincial PC for approval; and supervising the environmental monitoring

Because component projects fall in categories B and C, the Government has authorized the PC of Can Tho Province directly to approve the project components to shorten the time for procedure dealing for capital construction as well as for the overall time schedule of the Project. Throughout the Project implementation, the World Bank will guide the project with the frequent supervision. The World Bank in Hanoi will co-ordinate activities of the Project, provide comments and support in implementation methods as well as financial procedures for the timely and effective implementation of the Project.

9.3 Community Participation to prepare CUP and CEMP

The community participation helps select correctly the LIAS, which need to be upgraded and the beneficiaries of the Project. It also helps assure the appropriateness
of upgrading plans with demands, capability, habits and life style of the habitats; and assures the smooth progress of the Project due to the support from the habitants.

The community participation is including the following:

- Provision of ideas and opinions in all Project implementation steps through community meetings, through survey questionnaires and depth interviews.

- Through mass organizations as the Women’s Union communities promote credit and saving activities to improve their lives.

- During project implementation communities contribute money, labour or voluntary donation of land for alley widening. For example in An Hoi ward, after the meeting between the consultant team and the habitants, in some place the people themselves made the site clearance for alley widening.

To enhance the awareness of communities and encourage their active participation it is necessary that spreading of information, consultation and training programmes will be implemented on the following principles:

- Leaders at various levels are trained in terms of community development method, listening skill, participation method and community-based planning method.

- Sociological survey is done to objectively assess the status, desire and potential of communities.

Community participation started during pre-feasibility phase, and step and proposed alternatives during feasibility study phase were as follows:

- In August 2002 was arranged the first community meeting under the chairman of the People’s Committee and representatives of unions of ward and management board to present target and criteria of the Project based on community participation. The needs of infrastructure upgrading in selected communities were discussed.

- After recognition of upgrading needs proposed at the first community meeting, the Consultant carried out survey on actual situation of tertiary infrastructure in proposed quarters including alley roads, power and water supply, water drainage, bridges and social facilities such as clinics, kindergartens, primary schools and markets.

- Results of the survey has been reported to the community at the second community meeting held in September 2002 with the same organisations than at the first community meeting but there were more participants. After the second community meeting, Technical Consultant has worked out primary technical alternatives for the areas, which need to be upgraded.

- The third community meeting was held at the end of October 2002 to discuss the selection of technical alternatives for each item to be upgraded. The Consultant based the study on the results of the selection by the community.

Based on the selected alternatives of the community, the Technical Consultant has worked out preliminary drawings according to upgrading scale proposed by the community, promulgate in publicity the drawings and the list of affected households in the quarter one week before the fourth community meeting to agree an upgrading scale and financial contribution level. Results of the fourth community meeting were the basis for preliminary design of items by the Consultant.
9.4 Implementation and Monitoring of CEMP and EMP

PMU has the main responsibility of the implementation and monitoring of the CEMP and EMP. The daily monitoring will be done in the community level, but PMU will be in charge of the sampling and analysing, which might be needed.

PMU should work closely with community authorities to promote community participation in the planning, management, operation and monitoring of the project. The resident shall be educated to understand the infrastructure problems and their role in overcoming the problems like cleaning and maintenance of drainage system, proper in-house plumbing connection, prevention of illegal water supply and electricity connections, solid waste collection, condition of roads and street lighting.

The contractors have to follow and implement the mitigation measures mentioned in CEMP and EMP, and PMU has to follow activities of the contractors.

PMU should have cooperation with the concerning companies in charge of water supply, sanitation, solid waste collection, street maintenance and electricity during the operation of the project to monitor the operation and maintenance.

DONRE is responsible for setting technical standards, for promotion of new environmentally sound technologies and for overall monitoring of compliance with environmental regulations.

PMU should nominate a person to be in charge of monitoring environmental issues, and the person/persons should be trained for environment related inspection. If needed, PMU could establish an inspection team to control and evaluate of the self-inspection and monitoring in the communities and the contractors.

9.5 Training and Support Programmes

Environment education and community awareness enhancement program (for habitants) and environment management capacity building (for management officials) is including the following items:

- Improve people’ awareness on environmental protection to realize that it’s necessary to protect their own living and working environment, and to consider the environment as the asset to be preserved and protected.

- Use mass media and organize training workshops for management officials and habitants to acquire basic contents of the laws on environment and the necessity of strict monitoring.

- Educate the awareness on saving, rational and effective use of the natural resources such as fuel, energy, water and land etc.

- Educate the awareness on environmental protection and hygiene. Hygiene and waste management programs in the quarters should be frequently conducted.

- Take an active part in implementation of environment protection plans according to general regulations and instructions of Can Tho City authorities. Educate and encourage habitants in the quarters to follow the regulations on fire and explosion protection. Health examination should be periodically carried out.

- Observe the laws on environment and report all environmental incidents to relevant authorities.

September 2003
In training of environmental monitoring the community representatives will be trained to do the on-site observing and monitoring of the upgrading activities during construction and operation. Parameters to be observed and observation sites will be selected together with the representatives of the PMU and the communities based on the proposed monitoring programme.

Because the observation and monitoring is abundantly visual, the scale of the indicators has to be agreed and observers trained to follow the same scale all the time i.e. level of noise, dust, amount of excavated soil, amount of solid waste in the channel, cleanliness of solid waste transfer stations etc. Observation table has to be prepared and the observers are trained to fill the table and prepare reports to PMU.

If some equipment is needed for measurements the observers have to trained to use them in the proper way.

The more detailed environmental training plan will be presented in the Final Environmental Impact Assessment Report.
LOCATION OF CAN THO SUB-PROJECT COMPONENT 1 AND RESETTLEMENT SITE

VI TRỊ HÀNG MỤC 1 VÀ KHU TÀI ĐỊNH CỦA TIỂU DỤ ÁN CẦN THƠ

THUỘC TỈ LỆ

GHI CHÚ:

NOTES

KHU VỤC CẤN NÂNG CẤP GD 1
THE AREA TO BE UPGRADED IN PHASE 1

KHU TÀI ĐỊNH CỦA VINH LỘC B
VINH LỘC B RESETTLEMENT SITE

SÔNG RẠCH
RIVER AND CANAL

VIỆT NAM UPGRADE URBAN PROJECT - CAN THO SUB-PROJECT
DU ÁN NÂNG CẤP ĐÔ THỊ VIỆT NAM - TIỂU ĐỤ ÁN TP. CẦN THƠ

CONTENT OF DRAWING

LOCATION OF CAN THO SUB-PROJECT COMPONENT 1 AND RESETTLEMENT SITE

NOI DƯỠNG RÂU VÀ

VI TRỊ HÀNG MỤC 1 VÀ KHU TÀI ĐỊNH CỦA TIỂU DỤ ÁN CẦN THƠ

CÔNG TY CỔ PHẦN DỰ ÁN PHÁT TRIỂN VÀ XÂY DỰNG
THIXCO

DRAWING NO.
MAN YÊU SÔ
CT-02
LOCATION OF IN SITU RESETTLEMENT SITE ON CON ARROYO
VỊ TRỊ KHU TÁI DỊNH CU TẠI RẠCH CÓN

MẶT CẤT NGANG ĐẠI DIỆN
TYPICAL SECTION

KHU TÁI DỊNH CU
RELOCATION AREA

NGỌ HÈM
ALLEY

CÁY XANH
GREEN AREA