SFG2840 REV

# VIETNAM SCALING UP URBAN UPGRADING PROJECT

## ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS

# EXECUTIVE SUMMARY

**BAC LIEU CITY SUBPROJECT**

**BEN TRE CITY SUBPROJECT**

**LONG XUYEN CITY SUBPROJECT**

**SOC TRANG CITY SUBPROJECT**

**TAN AN CITY SUBPROJECT**

**VI THANH CITY SUBPROJECT**

**VINH LONG CITY SUBPROJECT**

**Hanoi, 16 February 2017**

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# ABBREVIATION AND ACRONYMS

| | |
|---|---|
| Ahs | Affected Households |
| CSC | Construction Supervision Consultant |
| CPC | City/Commune People's Committee |
| ESIA | Environmental and Social Impact Assessment |
| ESMP | Environmental and Social Management Plan |
| IEMC | Independent Environmental Monitoring Consultant |
| LIAs | Low Income Areas |
| MDR UUP | Mekong Delta Region Urban Upgrading Project |
| MOC | Ministry of Construction |
| NUUP | National Urban Upgrading Program |
| PMU | Project Management Unit |
| PSC | Provincial Steering Committee |
| RPFs | Resettlement Policy Framework |
| RP | Resettlement Plan |
| PPC | Provincial People's Committee |
| SUUP | Scaling Up Urban Upgrading Project |
| VMD | Vietnamese Mekong Delta |
| WB | World Bank |
| WWTP | Wastewater Treatment Plant |

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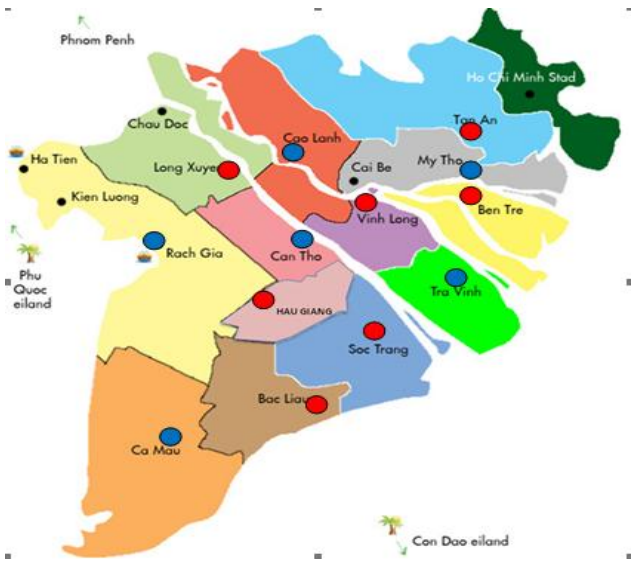
# CHAPTER 1. INTRODUCTION OF SCALING-UP URBAN UPGRADING PROJECT

## 1.1. Background

The Government of Vietnam (GoV) understands the strategic role of sustainable urbanization in achieving its development aspirations as stipulated and updated in 2009 in the Framework Master Plan for Urban Development in Viet Nam to 2025 and Vision to 2050 (hereby referred to as the Master Plan). The Master Plan focuses on achieving balanced and strategic growth, through a national urban system consisting of urban centers of various grades and types distributed throughout the country. Specifically, it envisages the development of secondary and tertiary cities as hubs to drive development within larger urban areas and provinces.




In alignment with the Master Plan, a National Urban Development Program 2011-2020 (NUDP)1 was created in 2012 with a vision to develop provincial capitals in different regions as models to boost the local economy and to balance regional development. The Program emphasizes urban development and the efficient use of natural resources to tackle the increased demand for infrastructure and services resulting from ongoing urbanization. It also aims to help the Government respond effectively to climate change and natural disasters affecting urban areas.

The NUUP was developed as part of a World Bank-funded Vietnam Urban Upgrading Project (VUUP), which piloted a participatory approach to urban upgrading in Nam Dinh, Hai Phong, Can Tho and Ho Chi Minh City. The principles of urban upgrading under NUUP have been operationalized through various urban projects in Vietnam, including two World Bank-funded projects: (i) a results-based National Urban Development Program in the Northern Mountains Region, approved in 2014; and (ii) a Mekong Delta Region Urban Upgrading Project (MDR UUP) covering provincial cities in the MDR, approved in 2012.

While investments under VUUP and MDR UUP have contributed to the betterment of the lives of urban poor, there is a need for urban upgrading interventions to move away from the narrowly focussed basic infrastructure investments in the the current context. Unlike their larger counterparts, the small and medium sized cities in the MDR present a crucial window of opportunity to develop into compact urban form, direct their expansion to low-risk areas, lower their carbon emissions through public transport and pedistrian oriented development, and incorporate universally accessible infrastructre designs to cater for increasingly elderly populations in the country.

The proposed Scaling Up Urban Upgrading Project (SUUP) builds on the Bank's on-going MDR UUP operation in six provincial cities, and will extend upgrading efforts in the remaining seven provincial cities of Bac Lieu, Ben Tre, Long Xuyen, Soc Trang, Tan An, Vi Thanh and Vinh Long. These cities serve as economic hubs for trade, services and industries in the region and have consequently experienced growth due to in-migration from rural areas. Take for

[1] Government of Vietnam. Prime Minister Decision 1659/QĐ-TTg National Urban Development Program (NUDP) 2011–2020. November 7, 2012.

example Ben Tre, which has seen a 10 percent increase in in-migration while the rate of natural increase has remained the same. Lack of basic infrastructure translates into low living standards and poor quality of life for LIA residents, while suboptimal connectivity adds to the exclusion of the urban poor. In addition to addressing the needs of LIAs, it is critical for these smaller, rapidly urbanizing MDR cities to focus on densification and compact urban design in order to improve accessibility within the urban core, and guide development away from high-risk and flood prone areas.

The Urban Upgrading project (SUUP) is in alignment with the Government's priority, stock taking the ongoing investments and the built up experiences in the areas. Investments under the project will promote a risk-informed approach to infrastructure design and construction (including screening disaster and climate risks, promoting green/permeable infrastructure, storm-water storage etc.). The selection of infrastructure sub-projects has been prioritized to ensure: (i) benefits to the urban poor; (ii) alignment to long-term sustainable urban development goals and attention to urban resilience; (iii) adherence to key principles of compact urban design and universal accessibility; and (iv) technical and economic soundness.

### 1.2. Project objectives and Financing

**Project Objectives:** The proposed project development objective is to improve access to infrastructure in priority city areas and improve urban planning in the participating cities.

### Project Financing:

The financing instrument used for the Project will be Investment Project Financing (IPF). The total investment to be made is US$311 million, of which the World Bank IDA will finance US$140 million, accounting for 45% of the total investment and World Bank IDA SUF2 will finance US$100 million, making up 32%. Counterpart funding will provide US71 million, accounting for 23% of the total investment.

Total investment is determined based on project investment proposals and estimates under provisions for norms and unit prices of the cities and implemented projects with similar conditions. These proposals might require adjustment during implementation. A detailed breakdown by component is shown in Table 2 below:

**Table 1.1. Project Cost by Component**

| Component | Total | World Bank | Counterpart | Proportion of |
|---|---|---|---|---|
| **Component 1**: Tertiary Infrastructure Upgrading in Low Income Areas | 49.7 | 39.9 | 9.8 | 80% |
| **Component 2**: Priority Primary and Secondary Infrastructures | 175 | 148.6 | 26.4 | 85% |
| **Component 3**: Resettlement Sites | 17.3 | 6.7 | 10.5 | 39% |
| **Component 4**: Implementation | 19.9 | 3.2 | 16.7 | 16% |
| VAT (10%) and contingency (10%) | 49 | 41.5 | 7.5 | 85% |
| **TOTAL** | **311** | **240** | **71** | |

The MOF has proposed the application of a blended mechanism, in which the World Bank loan is partly provided as a grant and the remaining is on-lent to the local governments for the project implementation.

[2] In March 2016 the World Bank Board of Directors approved a proposal to establish a one-off facility—IDA Scale-Up Facility (SUF)—to provide additional support to IDA clients for the remainder of the IDA17 period. The SUF will finance IDA operations to be approved before the end of FY17. The special category of credits under this facility—IDA Scale-Up Facility Credits—is offered at non-concessional terms to eligible clients.

**Table1.2. Project Finance by City**

| City | IDA ($ mil) | IDA SUF ($ mil) | Total ($ mil) | Counter-part Funds ($ mil) |
|---|---|---|---|---|
| Long Xuyen | 20 | 20 | 40 | 10.9 |
| Vinh Long | 20 | 15 | 35 | 8.5 |
| Soc Trang | 20 | 15 | 35 | 8.6 |
| Tan An | 20 | 15 | 35 | 11.4 |
| Bac Lieu | 20 | 15 | 35 | 11.9 |
| Ben Tre | 20 | 15 | 35 | 11.9 |
| Vi Thanh | 20 | 5 | 25 | 7.8 |
| **Total** | **140** | **100** | **240** | **71** |

### 1.3. Safeguard lesson learnt

Under the MDR-UUP, the environmental safeguards implementation in the six participating cities has been assessed as "Moderately Satisfactory" or better. Drawing on the experience gained so far in environmental management and supervision, the following lessons will be applied for the SUUP during preparation:

- From an early stage, close monitoring and guidance from the Bank's safeguards team is necessary to ensure proper functioning of the safeguards management system;
- Full supervision of ESMP implementation by Construction Supervision Consultant (CSC) is necessary to ensure project progress in accordance with the safeguard requirements;
- Close monitoring and enforcement by PMUs is important in ensuring compliance with safeguards standards. Each city established an Environmental and Social Unit (ESU), with which the Bank team have worked closely to ensure continued compliance and maintenance of adequate safeguards standards;
- Mobilization of Independent Environmental Monitoring Consultant (IEMC) has been delayed. In order to ensure the delivery of consistent and effective training for stakeholders from city subprojects, mobilization of IEMC shall be carried out rapidly and in a timely manner during the early stages of project implementation.
- While compliance of contractors has increased over time, the repetition of several safeguards issues over the monitoring period necessitates more stringent monitoring by CSCs and PMUs. A safeguards compliance framework has been included in ESIAs of SUUP in order to enhance compliance.
- In terms of land acquisition and resettlement, working closely with local authorities to understand outstanding issues or complaints from affected households and to gain a full understanding of and implementation of RPFs/RPs is critical.

### 1.4. Project components

The SUUP project finances seven subprojects and comprises of 4 sub-components. Each compoent is described below:

***Component 1: Upgrading tertiary infrastructure in Low Income Areas (LIAs)***

The Project will support tertiary investments in about 30 LIAs, covering about 650 ha, including: (a) construction, rehabilitation, and upgrading of roads and lanes; (b) construction and rehabilitation of drains; (c) improvements to environmental sanitation by rehabilitating or constructing public sewers, constructing septic tanks, providing access to septic management services, and house connections to public sewers; (d) improvement of water supply including the

installation of metered domestic connections; (e) provision of metered domestic connections for electricity and public lighting in residential lanes and streets; and (f) construction and rehabilitation of social infrastructure facilities such as schools, markets, community halls, public places and green spaces.

The package of tertiary investments in each LIA is determined in conjunction with a Community Upgrading Plan (CUP) based on extensive community consultations and social surveys to identify priority investments. Investments are designed with flexible standards, attention to universal accessibility and screened to minimize social and environmental impacts. Attention has also been paid to align inundation solutions at the tertiary investments with recommendations from the hydrological modelling at the primary and secondary scale. The consultation process and updating of CUPs is on-going throughout the project cycle, from upstream identification through to construction.

***Component 2: Priority Primary and Secondary Infrastructures***

Component 2 provides support to improve priority networked infrastructure in line with the broader city development agenda, and with a view to increasing connectivity between primary and secondary infrastructure with tertiary infrastructure in LIAs. Details on project investments including length of newly constructed drainage or rehabilitated roads can be found in Annex 2. Social infrastructure facilities such as markets, community halls, public places, schools and green spaces will also be included to benefit urban poor, where needed. Assessments of disaster and climate risk will be used to inform the technical design of investments. An initial hydraulic model will be developed for the catchment areas of the upgrading sites and integrated with existing urban plans for flood and salinity intrusion control, drainage, and waterways investments. Investments that increase urban connectivity of roads and drainage networks are prioritized to encourage compact urban development and reduce flood risk within the core city and particularly for populations living in LIAs.

***Component 3: Resettlement Sites***

This component will include the construction of resettlement areas for affected persons, including construction of primary, secondary and tertiary infrastructure and public facilities. An estimated 1,200 households will be resettled across the seven project cities (refer to Annex 2 for further information on status of resettlement site by city).

***Component 4: Implementation Support and Capacity Building***

This component will provide support for project implementation as well as capacity building in the following areas: (i) undertaking review of Master Plans, sectoral plans and existing strategies, (ii) support for better land use planning, (iii) technical inputs on the design of green and resilient infrastructure; (iv) promoting the development of public spaces and infrastructure using principles of accessibility for disabled and elderly, and (iv) strengthening the capacity of cities with regard to leveraging ICT in city planning functions.

### 1.5. Detailed Descriptions on Subprojects Investments

The proposed investments of each subproject and its respective components are the

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**Table1.3. Proposed Investments in each City**

| Comp. | Proposed Investments |
|---|---|
| **1. Bac Lieu City Subproject** | |
| 1 | **Tertiary Infrastructure Upgrading in Low Income Areas; 5 LIAs with total area of 70.38 ha, and 7,000 people.**<br>- Widening main alleys with current width of 3-4 m into concrete ones with minimal width of 4 m, total length of 5.9 km.<br>- Upgrading, rehabilitating small alleys with current width of 2-3 m into concrete ones, total length of 4.9 km.<br>- Building D400 – D800 reinforced concrete culvert system, total length of 26.5 km<br>- Dredging small canals with a total length of 0.13 km.<br>- Install water supply pipes with diameter of D63, total length of 15.9 km<br>- Provision of lighting and waste bins |
| 2 | **Priority Primary and Secondary Infrastructures** |
| 2.1 | Rehabilitating Cau Xang Canal<br>- Dredging Cau Xang Canal with current depth of 1.2-1.5 m to the designed depth of 1.5 m along existing width from 4-17 m, length of 4.5 km;<br>- Construction of operational road along both sides of the canal with average width of 3 m, length of 7.4 km/side<br>- Construction of B60 reinforced concrete drainage ditches along both sides of the canal with the length of 7.4 km.<br>- Provision of lighting and tree planting. |
| 2.2 | Upgrading Lo Ren Street<br>- Upgrading existing Lo Ren Street from 3 - 4 m wide to 25.5 - 30.5 m wide, with the length of 6.0 km.<br>- Constructing the drainage system including: storm water system for 1 sidewalk with a D400-D800 reinforced concrete pipeline of 3.2 km long; (ii) UPVC 220 wastewater collection system of 3.2 km long<br>- Provision of lighting and tree planting along the road |
| 2.3 | Upgrading Lo Bo Tay Street<br>- Upgrading the existing 3-m wide Lo Bo Tay Street to 15 m wide one (7m road bed and 8m sidewalks both sides), length of 6.1 km.<br>- Constructing 12 reinforced concrete box culverts with length of 21 m, width of 3.3 - 6.0 m; 01 reinforced concrete bridge of 18 m long and 15 m wide at intersections with the irrigation canal.<br>- Installing the drainage system, including: storm water drainage system for 1 sidewalk with a D400-D800 reinforced concrete pipeline, length of 6.1 km; UPVC 220 wastewater collection system with the length of 6.1 km.<br>- Provision of lighting and tree planting along the road. |
| 2.4 | Upgrading Huong Lo 6 Street<br>- Rehabilitating existing 4 m wide asphalt road into 9 m wide asphalt road (7 m road bed, 1x2=2 m earth sidewalks both sides) with the length of 1.0 km.<br>- Provision of lighting and tree planting along the road |
| 2.5 | Constructing internal roads connecting Nguyen Dinh Chieu and Ba Huyen Thanh Quan Streets.<br>- Constructing a new road section with the width of 17 m (7 m road bed and 2x5=10 m pavement for both sides), 0.55 km in length.<br>- Constructing the drainage system, including: storm water drainage system for 2 sides |

| Comp. | Proposed Investments |
|---|---|
| | with a D600 reinforced concrete pipeline, 1.1 km in length; UPVC 220 wastewater collection system with the length of 1.1 km.<br>- Provision of lighting and tree planting along the road. |
| 2.6 | Constructing extended Hai Ba Trung Street<br>- Constructing a new road section of 0.1 km long and 29 m wide (14.4 m road bed, 9 m median strip, 2.8x2=5.6 m sidewalk for both sides)<br>- Installing the drainage system, including: storm water drainage system for 2 sidewalks with a D600 reinforced concrete pipeline, 0.2 km in length; UPVC 220 wastewater collection system with the length of 0.2 km.<br>- Provision of lighting and tree planting along the road |
| 3 | **Constructing resettlement area Ho Dieu Hoa, 3.1 ha**<br>- Constructing an internal road system of 1.12 km long, 24 m wide (15 m road bed, and 2x4=8m pavement for both sides)<br>- Constructing the water supply system with D60-D90 pipeline, 2.24 km in length<br>- Constructing the drainage system, including: storm water drainage system with a D600 reinforced concrete pipeline of 2.24 km long ; UPVC 220 wastewater collection pipeline with a length of 2.24 km<br>- Provision of lighting and tree planting along the road |
| 4 | **Implementation Support and Capacity Building**<br>- Support for improving capacity for project implementation (management capacity for social safeguards, finance, procurement, monitoring and evaluation, including audits and learning inside/outside Vietnam).<br>- Support for strengthening the capacity of MOC and participating cities for strategic and integrated urban planning, land management and utilization of GIS and enhanced capacity for disaster and climate risk-informed urban planning. |
| **Ben Tre City Subproject** | |
| 1 | **Tertiary Infrastructure Upgrading in 04 LIAs (1, 2, 6, and 7) with a total area of 118.15 ha and 5,000 people. Proposed work includes:**<br>- Enlarging major alleys into concrete alleys of at least 3 - 4 m in width with a total length of 1.58 km;<br>- Upgrading and rehabilitating existing 2-3 m branch alleys into concrete alleys with a total length of 10.18 km;<br>- Constructing a storm water drainage system of D400 – D800 steel-reinforced concrete sewers with a total length of 7.16 km;<br>- Constructing a wastewater collection system of 220 UPVC pipes with a total length of 8.95 km;<br>- Installing a water supply pipeline of D63-D100 with a total length of 10.74 km;<br>- Dredging small canals in LIAs to depths of 0.2.-0.3 m with a total length of 2.97 km; building 5.7 km of upright riprap embankments;<br>- Provision lighting and waste bins. |
| 2 | **Priority Primary and Secondary Infrastructures** |
| 2.1 | Constructing extended Ngo Quyen Street<br>- Constructing Ngo Quyen Street into an asphalt concrete street with a total length of 1.61 km and a width of 18 – 20.5 m;<br>- Building a drainage system, consisting of: (i) storm water drainage system of D600 pipes on both sidewalks with a total length of 3.22 km; (ii) wastewater collection system of 220 UPVC pipes with a total length of 3.22 km; |

| Comp. | Proposed Investments |
|---|---|
| | - Provision of lighting and tree planting along the road. |
| 2.2 | Constructing Dong-Tay Road<br>- Construction of the asphalt concrete Dong-Tay Road of 2.15 km long and 41 m wide (road surface of 25m wide and pavements of 2x8 m)<br>- Constructing 03 small concrete bridges on the road at the intersection with with Ca Loc Canal at: (i) Km0+717.5: a bridge 18 m long, 28 m wide; (ii) Km1+443.5: a bridge 15 m long, 28 m wide; and (iii) Km1+997.15: a bridge 33 m long, 28 m wide<br>- Building a drainage system along the avenue, consisting of: (i) a storm water drainage system of D600 steel-reinforced concrete pipes on both sidewalks of 4.3 km long; and (ii) a wastewater collection system of 220 UPVC pipes of 1.6 km long<br>- Provision of lighting and tree planting along the road. |
| 2.3 | Constructing linking branch roads<br><u>N6 Street</u><br>- Constructing asphalt concrete N6 Street of 1.31 km long and 17 m wide<br>- Building 03 box culverts along the street: 01 culvert of 19 m in length, 2 m in height and 3 m in width at the intersection with 30/4 Canal (Km0+292.88), and 02 culverts of 19 m in length, 2 m in height and 2 m in width in the intersection with Chin Te Canal (Km0+665.83);<br>- Building a separate drainage system, consisting of: (i) a storm water drainage system of D600 steel-reinforced concrete pipes on both sidewalks with a total length of 2.62 km; and (ii) a wastewater collection system of 220 UPVC pipes with a total length of 0.76 km;<br>- Provision of lighting and tree planting along the road.<br><u>N18 Street</u><br>- Constructing new asphalt concrete N18 Street of 1.32 km long and 24 m wide<br>- Building 02 box culverts along the street 28 m in length, 2 m in width and 2 m in height at the intersection with Chin Te Canal (km0+683.65);<br>- Building a drainage system, consisting of: (i) a storm water drainage system of D600 steel-reinforced concrete pipes on both sidewalks with a total length of 2.64 km; and (ii) a wastewater collection system of 220 UPVC pipes with a total length of 0.92 km;<br>- Provision of lighting and tree planting along the road. |
| 2.4 | Rehabilitating Chin Te Canal<br>- Dredging the Canal from its existing depth of 1.5 m to a designed depth of 2.0 m within the existing width of 3 – 4 m, with a dredging length of 2.5 km;<br>- Building embankments on both sides of the Canal with a total length of 4.8 km: embankments of upright riprap structure with walls 1.5 m high and 0.3 – 0.75 m thick; embankment base of 1.35 m wide and 0.5 m thick; 1.0 m-wide green space on embankments;<br>- Building 3m-wide concrete operational roads on both embankments: 2.25 km on the left and 0.13 km on the right sides of the embankment.<br>- Building a drainage system for the operational roads, consisting of a storm water drainage system of D400 steel-reinforced concrete pipes with a length of 1.88 km; and a wastewater collection system of D200 UPVC pipes with a length of 1.5 km. |
| 2.5 | Rehabilitating 30/4 Canal<br>- Dredging the canal from its existing depth of 1.2 m to a depth of 1.7 m, within the existing width of 3 - 4m and total length of 0.7 km;<br>- Building embankments on both sides of the canal: upright riprap structure with walls 1.2 m high and 0.3-0.6 m thick; embankment base of 1.26 m wide and 0.5 m thick; 1.5 m-wide green space on embankments; |

| Comp. | Proposed Investments |
|---|---|
| | - Building 3 m-wide concrete operational roads on both sides: 0.48 km on the right and 0.22 km on the left side of the embankment<br>- Building a drainage system for the operational roads, consisting of a storm water drainage system of D400 steel-reinforced concrete pipes of 1.26 km long; and a wastewater collection system of D200 UPVC pipes with a length of 1.0 km. |
| 3 | **Resettlement site (to be developed in Phu Tan Ward)**<br>- A 5.4 ha resettlement site with internal road system, water supply & drainage will be developed under private local funds for relocated HH under the SUUP; land acquisition will follow the provisions of the RPF;<br>- The Project will purchase ground plots available in this Resettlement Site to relocate HHs displaced by the Project. |
| 4 | **Implementation Support and Capacity Building**<br>- The same as the above Component 4 of Bac Lieu subproject. |
| **3. Long Xuyen City Subproject** | |
| 1 | **Upgrading Tertiary Infrastructure in 4 LIAs (No.1, 3, 5, 6) with a total area of 74.78 ha and 24,936 people. Proposed work includes:**<br>- Expanding 3-4 m wide alleys to concrete alley with minimum width of 4 m and total length of 7.65 km.<br>- Upgrading existing 2 – 3 m wide alleys to concrete alleys total length of 7.04 km.<br>- Constructing concrete drainage pipe culvert D400-800 with total length of 10.5 km.<br>- Installing water supply pipelines D63 – 100 with total length of 19.9 km.<br>- Provision of lighting and waste bins. |
| 2 | **Upgrading roads connecting to LIAs; Reconstruction of Inner City Canals** |
| 2.1 | Constructing the extension of Hung Vuong Street<br>- Constructing new Hung Vuong Street with width of 24m, 1.2km long<br>- On the road alignment, constructing a 60.2 m long, 13.0 m wide bridge at the intersection with Tam Bot Canal (Km0+87.67) and a culvert box þ2000, 28.0 m long at km0+910.72.<br>- Installing drainage system: (i) rainwater drainage D600 reinforced concrete pipe in 2.4 km long; (ii) wastewater collection pipe UPVC 220, 2.4 km long.<br>- Provision of lighting and tree planting along the road |
| 2.2 | Constructing Tran Quang Dieu Street<br>- Construction of road with 20.5 m in width and 0.9 km in length.<br>- On the road alignment, constructing a 40.2 m long, 15.0m wide bridge (over Ong Manh Canal) and a 12.0m long, 20.5 m wide bridge at Km0+366.53 (over Ba Bau Canal)<br>- Installing drainage system: (i) rainwater drainage D600 reinforced concrete pipe in 1.8km long; (ii) wastewater collection pipe UPVC 220, 1.8 km long.<br>- Installing technical infrastructure: drainage and lighting systems, and planting (greenery space). |
| 2.3 | Rehabilitating Long Xuyen Canal<br>- Embankment with rubble stone for the proposed canal section of 1.9 km long, 2.5-3.0 m high, including 03 sub-sections:<br>(i) Section 1 (0.6 km) from Nguyen Du Street– My Binh Ward, slope embankment with rubble stone, 2.5 m high, 1:1 slope; 5m wide operation road with 5m wide sidewalks.<br>(ii) Section 2 (0.44 km) from Le Thi Nhien Street – My Long Ward: vertical embankment, reinforced concrete, 2.5-3.0 m high; 4m wide operation road |

| Comp. | Proposed Investments |
|---|---|
| | (iii) Section 3 (1.3 km) from Nguyen Thai Hoc Bridge to Ton Duc Thang Bridge: slope embankment with rubble stone, 2.5 m high, 1:1 slope; 5 m wide operation road with 5m wide sidewalks<br>- Installing drainage system: (i) rainwater sewage pipeline of reinforced concrete D600 along the pavement, 4.6 km long; and (ii) Domestic wastewater collection pipeline UPVC D200, 2.3 km long.<br>- Installing lighting system and ornamental planting tubs in one road side. |
| 2.4 | Rehabilitating Cai Son Canal<br>- Dredging from the existing depth of 1.3 m-2.4 m to the design depth of 4.0 m in the current width of 12 m-23 m, 1.5 km long;<br>- Embanking Cai Son Canal with combined hard and soft structure:<br>+ Vertical embankment with reinforced concrete, 2.0 m high from the canal bed<br>+ Soft soil embankment, 1.4m high, slope 1:1, 0.6m wide covered by grass<br>+ Green space with tree planting above of 0.4 m high, slope 1:1.25, 0.6 m wide<br>- Constructing operational roads along both sides of the canal of 3-4 m wide and 3.0 km long.<br>- Domestic wastewater collection pipeline UPVC D200, 1.5 km long.<br>- Provision of lighting and tree planting along the road |
| 2.5 | Rehabilitating Ong Manh Canal<br>- Dredging from the existing depth of 1.2 m-2.4 m to the design depth of 4.0 m in the current width of 8 m-27 m, 1.6 km long;<br>- Embanking Ong Manh Canal with the combined hard and soft structure<br>+ Vertical embankment with reinforced concrete, 2.0 m high from the canal bed<br>+ Soft soil embankment, 1.4m high, slope 1:1, 0.6 m wide, grass planting<br>+ Green area with tree planting above of 0.4m high slope 1:1.25, 0.6 m wide<br>- Constructing operational roads along both sides of the canal, 4 m wide, 3.2 km long<br>- Domestic wastewater collection pipeline UPVC D200, 1.6 km long |
| 2.6 | Rehabilitating Ba Bau Canal<br>- Dredging from the existing depth of 1.9m-2.8m to the design depth of 4.0 m in the current width of 5.6 m-17 m, 1.0 km long;<br>- Embanking Ba Bau Canal with hard and soft structure combination<br>+ Vertical embankment with reinforced concrete, 2.0m high from the canal bed<br>+ Soft soil embankment, 1.4 m high, slope 1:1, 1.4m wide, grass planting<br>+ Green area with tree planting above of 0.4m high, slope 1:1.25, 0.6 m wide<br>- Constructing operational roads along both sides of the canal, 4m wide, 2 km long.<br>- Domestic wastewater collection pipeline UPVC D200, 1.0km long. |

| Comp. | Proposed Investments |
|---|---|
| 3 | **Constructing a resettlement area of 4.5 ha**<br>A RS will be built under the SUUP with the following characteristics:<br>- Constructing an internal road system with 10 - 15 m wide and a total length of 1.77 km;<br>- Constructing the water supply system with the D63-D90 pipeline, 3.54 km in length.<br>- Constructing the drainage system, including: storm water drainage system with a D600 reinforced concrete pipeline, 3.54 km in length; UPVC 220 wastewater collection pipeline with a length of 1.77 km.<br>- Provision of lighting and tree planting along the road.<br>- Construction kindergarten, clinic |
| 4 | **Implementation Support and Capacity Building**<br>• The same as the above Component 4 of Bac Lieu subproject. |
| **4. Soc Trang** | |
| 1 | **Tertiary infrastructure upgrade in Low Income Areas (LIA)**<br>- Upgrading and widening of 2 main alleys which are Phan Huynh Ho và Tran Quoc Toan from the existing 3.5 m wide to the concrete asphalt of 5 cm thick, 4m wide, 0.7 m sidewalk each side and total length of 1.6 km.<br>- Widening 58 small alleys from the existing 1.5 - 3.5 m wide to the concrete asphalt of 15cm thick, 2.5 – 4 m wide and total length of 10.4 km.<br>- Installation of drainage concrete pipe D600 - D800 along the main alleys with total length of 1.6 km; and brick type drainage ditch in small alleys with width of B300 and length of 10.4 km;<br>- Provision of lighting system for the alleys. |
| 2 | **Priority Primary and Secondary Infrastructures include:** |
| 2.1 | Dredging and embankment of Tra Men A Canal<br>*From Km0+0.00 to Km1+076 &from Km1+295 to Km2+000 with the following details:*<br>- Dredging the canal of existing 8 m wide, 1.78 km long, +0.2 m deep to the design 0.5 m;<br>- Construction of soft embankment (2 stepped steep earth revetment with geotextile filter) with slope of 1:0.27. First step: vertical riser 2.7 m. Grass is planted between sand bags. Second step: vertical riser 0.8 m, horizontal distance of 0.47 m with grass planted for green appearance<br>- Construction of operational roads along two sides of the embankment with 2mwide, total length of both sides is3.5 km; installation of drainage concrete pipe B400, total length of 3.5 km; installation of lighting system along the roads.<br>*From Km1+0.76to Km1+295 with the following details:*<br>- Dredging the canal of existing 8 m wide, 0.22 km long, +0.3m deep to the design -0.5 m deep.<br>- Construction of concrete drainage box with 2.5x2.5m dimensions underground and a 5 m wide, 0.22km long road on top of the box pipe.<br>*From Km2+000 to Km2+636:*<br>- Dredging the canal of existing 6-8 m wide, 0.22 km long, -0.15m deep to the design 12m wide and 0.5m deep, 0.22 km long.<br>- Construction of a sluice gate on Tra Men A canal at the receiving point with Maspero River: concrete gate with 3 m wide, 50 m long; sluice bottom at -2m deep and sluice ceiling at +3 m deep. |
| 2.2 | Dredging and embankment of Hi Tech Canal (total length of 3.2 km)<br>- Dredging the canal of existing 10-14 m wide, 3.2 km long, +0.08m deep to the design |

| Comp. | Proposed Investments |
|---|---|
| | 14 m wide, 0.5 m deep;<br>- Construction of soft embankment (2 stepped steep sandbag revetment with geotextile filter) with slope of 1:0.27. First step: vertical riser 2.7m. Grass is planted between sand bags. Second step: vertical riser 0.8 m, horizontal distance of 0.47 m with grass planted for green appearance;<br>- Construction of operational roads along the two sides of the embankment with 2 m wide, total length of both sides is 6.4 km; provision of lighting systems for operational roads |
| 2.3 | Construction of Nguyen Van Linh bridge and road<br>- Construction of Nguyen Van Linh Y shaped bridge over the Maspero River, with of concrete structure, 11m wide and 145 m long. The bridge is comprised of 5 pillars (4 pillars with diameter of 1.5m; one of 2.5 m); 3 bridge abutments each has1.9 m long, 14 m wide.<br>- Upgrading of the approach road from the existing +1.82 m elevation to the design height of +2.5 m. The road is made of concrete asphalt with 14 m wide, 0.552 km long and 2 sidewalks each of 5 m wide. - Provision of lighting system. |
| 2.4 | Construction of bridge and ring road No2<br>- Construction of a concrete asphalt road of 14 m wide, xx m long and 5 m wide sidewalks each side.<br>- Installation of drainage concrete pipes D600-800 and manholes along both sides of the road with total length of 2.13 km.<br>- On the road alignment, construct a concrete bridge over Maspero river of 97 m long and 11.5 m wide. Bridge includes 4 pillars with diameter of 1.5m and 2 bridge abutments each has 1.9 m long, 14m wide. The ramps at both ends are 136.38 m wide and 14m; wide.<br>- Provision of lighting system on bridge and road. |
| 2.5 | Upgrading of Dien Bien Phu Road<br>- Upgrading the Dien Bien Phu road with the total length of 2.8 km<br>o Section 1 (0.92 km): upgrading the existing 5 m dirt road into 6 m wide concrete asphalt road, 1 sided pavement of 3 m wide.<br>o Section 2 (1.9 km): Upgrading of 5m dirt road into 15 m wide concrete asphalt road, 2 sided pavements of 5 m wide.<br>- Installation of drainage concrete pipes D600-800 and manholes along 1 side of the road with total length of 2.82 km. Installation of lighting system and tree planting on the pavement side. |
| 2.6 | - Installation of drainage system in the city center<br>- Upgrading of drainage system along Phu Loi Road from drainage ditch B400 into concrete pipes D2000 of 0.775 km long; D1800 of 2.21 km long; and D1500 of 0.25 km long.<br>- Upgrading of drainage system along Tran Binh Trong Road from drainage ditch B400 into concrete pipes D1500 of 1.61 km long; D1200 of 0.2 km long; |
| 3 | **Resettlement site**<br>The Project proposes to build a Resettlement Site (RS) for relocated PAHs under the SUUP. This RS is located in Ward 4, on Mac Dinh Chi Street with an area of 1 ha. Current land use is agricultural land belonging to 6 households. This is an extension of an existing resettlement site of Soc Trang city. The number of plots planned in the RS is 64, which include 58 plots of 100 $m^2$ and 6 plots of 50 $m^2$. |
| **5. Tan An City Subproject** | |
| 1 | **Tertiary Infrastructure Upgrading in 04 LIAs** |

| Comp. | Proposed Investments |
|---|---|
| 1.1 | - Upgrading, widening of alleys; drainage and lighting system and sanitation in LIAs<br>- Upgrading and widening of 11 main alleys from existing 3 - 4 m wide to cement concrete of 4.0 m wide and total length of 2.1 km.<br>- Upgrading, rehabilitation of 02 small alleys from existing 1.5 m wide to cement concrete of 2m wide, and total length of 0.1 km.<br>- Installation of a drainage concrete pipe D600 - D800 along main alleys with total length of 2.1 km; and a brick-type drainage ditch B400 in small alleys with total length of 100 m.<br>- Provision of lighting system, waste bins and garbage trolleys |
| 1.2 | Rehabilitation of polluted canals ponds in LIAs<br>- Embankment of Ao Quan: Dredging from existing depth at 5-7m, total length of 0.103 km; Sand embankment from the existing -0.29 m high to the designed height of +2.0 m. The embankment foot is reinforced by reinforced concrete pile of 8m long, the embankment roof is reinforced by reinforced concrete at the slope of 1:2.0, 1m high and 0.103 km long; Construction of operational roads with cement concrete structure of 2m wide and 0.103 km long; installation of drainage system on a road side by UPVC pipe D200 with a length of 0.103 km.<br>- Rehabilitation of canals in LIAs: (i) Mui Tau canal; (ii) Cau Tre canal in LIA; (iii) Rot canal.<br>+ Mui Tau canal: Dredging of the canal of 0.168 km long and 2-4 m wide from existing depth at +0.2m to the designed depth at 0.5 m; Construction of concrete drainage box 2.0m x 2.0m dimensions underground in combination with cement concrete road of 4m wide and 0.168 km on the top of the box pipe.<br>+ Cau Tre canal (segment 1): Dredging of the canal of 0.550 km long and 3-8 m wide, from existing depth at +0.2 m to the designed depth at -0.5 m. Construction of concrete drainage box 3.0 m x 3.0 m dimensions underground in combination with cement concrete road of 4m wide and 0.550 km long on the top of the box pipe.<br>+ Rot Canal: Dredging of the existing canal of 1.2km long, 2-8m wide, from current depth at + 0.2 m to the designed depth at 0.5 m; soft embankment by eco-bags with the slope of 1:1.0, height of 2.2 m, width of 6m wide and length of 1.2 km with grass planted on the top. The green space on the soft embankment is 0.8 m high and 0.47 m wide; building of drainage ditch B400 along the embankment sides with total length of 2.4 km. |
| 1.3 | Construction of a green park in LIA 2 – Mui Tau<br>Construction of Terrazzo-brick-type paths in the park with the width of 4m and length of 0.2 km; Construction of drainage ditch of 20cm width, 20cm height and 0.2 km length. Provision of lighting system and trees planted in the park. |
| 2 | **Priority primary and secondary infrastructures** |
| 2.1 | Embankment and construction of Bao Dinh river park in ward 3 and 4; construction of an extension of the embankment in ward 7<br>- Segment 1: Embankment and construction of Bao Dinh river park<br>+ Dredging of both sides from the existing depth at 0.9m to the designed depth at 2m with total length of 1.3km.<br>+ Hard embankment for Bao Dinh River: (i) Placing reinforced concrete (RC) sheet pile D400, construction of retaining wall 2.3 m high.<br>+ Construction of operational roads and Terrazzo-brick-type paths in the park behind the embankment (width of 4m, length of 0.65 km)<br>+ Construction of a drainage system on sides of operational roads and paths in the park by RC pipe D600, total length of 0.65 km; |

| Comp. | Proposed Investments |
|---|---|
| | + Tree planting and installation of lighting system along operational roads and paths in the park.<br>- Segment 2: Construction of an extension of Bao Dinh river embankment<br>+ Embanking sand from the existing depth at 0.89 m to the designed depth at 1.85 m with a length of 1 km<br>+ Construction of concrete asphalt road with pavement of 7m wide and sidewalk of 2.5m wide on each side, total length of 1km.<br>+ Construction of a drainage system and manholes with RC pipe D600 along a road side, total length of 1km.<br>- Supply of lighting system and tree planting along sidewalks with the length of 1 km. |
| 2.2 | Rehabilitation of Cau Tre Canal (segment 2)<br>- Dredging of the canal of 1.24 km long, 3-8m wide from existing depth at +0.2 to the designed depth at -0.5.<br>- Soft embankment by eco-bags with the roof slope of 1:1.0, a height of 2.2 m, a width of 6 m and a length of 1.24 km, and grass planted for green appearance with 0.8 m high, 0.47m wide, 1.24 km long;<br>- Construction of cement concrete operational roads on each side of the embankment with a width of 2 m, total length of 2.48 km.<br>- Construction of drainage ditches B400 along embankment sides with total length of 2.48 km. |
| 2.3 | Construction of the Ring Road<br>- Segment 1 (existing road of 6m wide, 4.2km long and stone pavement): widening of the existing road to concrete asphalt of 14 m wide, sidewalk of 5 m wide along each side, total length of 4.2 km;<br>- Segment 2 (the rest): construction of concrete asphalt road segment with a width of 14 m, sidewalk (5 m wide each side), length 1.8 km.<br>- Construction of drainage system and manholes by RC pipe D600 along road sides, total length of 12 km.<br>Installation of lighting system, tree planting along sidewalk on both sides of the road with total length of 12 km. |
| 2.4 | Rehabilitation and upgrading of Luu Van Te Road<br>- Upgrading of the existing road of 4 m wide to the concrete asphalt with a width of B = 7 m, sidewalk of 3.5m wide on both sides, total length of 1.85 km.<br>- Construction of a drainage system and manholes by RC pipe D600 along road sides, total length of 3.7 km<br>Installation of lighting system, tree growing along sidewalk on both sides of the road with total length of 3.7 km. |
| 2.5 | Construction of link between Tran Phong Sac and Nguyen Minh Duong Roads<br>- Construction of a new concrete asphalt road with a width of 7m, sidewalk of 2.5m wide on both sides, total length of 0.5 km; construction 01 reinforced-concrete residential bridge across Cau Tre Ccanal with 1 span, 7m wide and 10m long.<br>- Construction of drainage system and manholes by RC pipe D600 along road sides, total length of 1km;<br>Installation of lighting system, tree planting along sidewalk on both sides of the road with total length of 1 km. |

| Comp. | Proposed Investments |
|---|---|
| 3 | **Resettlement sites**<br>- A RS has just been completed in Ward 3 near the city center. The RS was built under city funds. The total area of the RS is about 2.2 ha (225 plots). |
| **6. Vi Thanh City Subproject** | |
| 1 | **Upgrading tertiary infrastructure systems of the four LIAs (1, 2, 3, 7) (total area of 75.00ha; 7,732 HH members)**<br>- Expanding the key alleys of 3 – 4m wide into concrete alley roads with minimum width of 4 m and total length of 13,052 km;<br>- Upgrading existing branch alleys of 2 – 3 m wide into concrete alley with total length of 0.5 km;<br>- Dredging small canals in LIA 3 and LIA of total 3.94 km long<br>- Installing round concrete culvert system, D=400-600 , L=1.92 km;<br>- Installing water supply pipelines (D63) with total length of 13.6 km;<br>- Providing light system and trash bins |
| 2 | **Prioritized primary and secondary infrastructure systems** |
| 2.1 | Upgrading Nguyen Hue Road<br>- Upgrading Nguyen Hue Road with total length of 2.3 km consisting of 3 sections:<br>+ (i) Section 1: from Diem Tua Canal to Xa No Bridge, with total length of 1.5km and width of 10.5 m (7 m of road-bed and 3 m of sidewalk)<br>+ (ii) Section 2: From Hau Giang Provincial Party Committee to Canal 62, with total length of 0.43 km and width of 23 m (15 m of road-bed and 8 m of sidewalk)<br>+ (iii) Section 3: From Tac Huyen Phuong Canal to Ba Huyen Canal, with total length L= 0.38 km and width of 13.5 m (7.5 m of road-bed and 6.0 m of sidewalks)<br>- Constructing separate drainage system along the road consisting of storm-water drainage system (RC, D600, 2.3 km long) and wastewater collection system (UPVC 220, 2.3k m long)<br>- Constructing light system and tree planting |
| 2.2 | Rehabilitating Muong Lo Canal and construction 01/05 Road<br>- Dredging Muong Lo Canal from existing depth of 1.1m to design depth of 2.5 m, with existing width of 22 m and length of 2.3 km<br>- Construction of Muong Lo Canal embankment on the side of 01/05 Road with the combined soft and hard structure<br>+ Reinforced concrete embankment foot of 2.0 m wide, and 0.3m thick reinforced underneath using timber sheet piles;<br>+ Stone embankment section at the lower part with trapezoidal shape: 1.2 m high; lower side of 1.4 m wide, upper side of 0.2 m wide; non-base side has slope of 1:1 and width of 1.2 m. Reinforced beams of 0.2 m x0.2 m is above embankment wall.<br>+ Earth embankment section at the upper part, with slope of 1:1, height of 1.2m, width of 1.2 m and grass grown above<br>- Construction of 1/5 road of 2.6 km long, 13.5 m wide (road-bed 7.5 m and sidewalks 3 m each side); construction of technical infrastructures for the road: lighting, tree planting, storm water concrete drainage pipes along two sides of the road with D=600, 5.2 km long, wastewater pipelines of UPVC 2.6 km long |
| | Rehabilitating Cai Nhuc Canal<br>- Dredging Cai Nhuc Canal from existing depth of 0.4 m to design depth of 2.5 m with existing width of 18-20 m and length of 2.4 km;<br>- Constructing embankment for Cai Nhuc Canal with the soft structure |

| Comp. | Proposed Investments |
|---|---|
| | + The trench part is built of rubble gabions (2x1x0.5m) reinforced underneath using cajeput sheet piles (16 piles/m2)<br>+ Soft embankment part of eco-soil mixed with grass seeds, 1.5 m high, slope of 1:1.5 and 2.25 m wide<br>+ Green part above soft embankment of 0.46 m high, 0.92 m wide, slope of 1:1.2 and trees planted above<br>- Constructing, rehabilitating roads on embankment sides:<br>+ Rehabilitating Tran Ngoc Que earth road on the left side into asphaltic road on existing base of 7m, with sidewalk on residential house side of 3m wide and sidewalk on embankment side of 8 m wide, total length of 1.9 km<br>+ Constructing asphalt road on the right side with total length of 1.6 km, width of 4 m, sidewalk on embankment side 3m wide<br>- Constructing drainage systems for these two roads: (i) storm-water drainage system (RC D600 3.4km long); (ii) wastewater collection system (UPVC 220, 3.4 km long)<br>- Constructing light systems and tree planting trees along the roads |
| 2.4 | Upgrading Canal 62 and Le Hong Phong Road<br>- Dredging Canal 62 from existing depth of 1.7m to design depth of 2.5m based on existing width of 22 m and length of 2.3 km;<br>- Constructing embankment for two banks of Canal 62 with the soft structure, total length of 2.3 km:<br>The trench part is built of rubble gabions (2x1x0.5m) reinforced underneath using cajeput sheet piles (16 piles/m2)<br>+ Soft embankment part is built of eco-soil mixed with grass seed, with height of 1.5 m, slope of 1:1.5 and width of 2.25 m<br>+ The green part above soft embankment with height of 0.46 m, width of 0.92 m, slope of 1:1.2, and trees planted above<br>+ On right side there's a combined green stripe and flower beds 2m wide acting as the protective corridor for the embankment<br>- Constructing asphaltic operation roads on embankment sides with width of 3.0 – 4.0 m and length of 4.4 km;<br>- Upgrading existing 7 m wide Le Hong Phong concrete road nearby the operation road on the left of the embankment into 20-m wide asphalt road, of total 2.2 km long . Provision of road infrastructure: drainage pipeline (UPVC D200, 2.2km long); tree planting, lighting. |
| 2.5 | Rehabilitating Tam Giac Lake<br>- Dredging Tam Giac Lake with total area of 3.0 ha from existing depth of 1.4 m to design depth of 2.5m;<br>- Constructing embankment around the lake with the combined soft and hard structure with total length of 0.76 km;<br>+ Reinforced concrete embankment foot of 2.0 m wide, 0.3 m thick reinforced underneath using timber sheet piles.<br>+ The stone embankment section at the lower in trapezoidal shape: 1.2 m high, lower side of 1.4 m wide, and upper side of 0.2 m wide, non-base side has 1:1 slope and width of 1.2 m. Reinforced beams of 0.2 m x0.2 m is above embankment wall.<br>+ The earth embankment section at the upper of 1.2 m high, slope of 1:1, width of 1.2 m, and covered with grass above.<br>- Constructing asphalt operation road around the lake of 0.76 km long and 3-m wide<br>- Constructing drainage system along operation road consisting of reinforced concrete storm-water drainage pipe( D600, 0.76 km long) and wastewater collection system |

| Comp. | Proposed Investments |
|---|---|
| | (UPVC 220; 0.764 km long)<br>- Constructing light system and green area 5m wide around the lake. |
| 3 | **Resettlement area**<br>No RS will be built under the SUUP. The subproject will purchase plots of land in existing RS: Lien Minh and Ward 4. |
| 4 | ***Implementation Support and Capacity Building***<br>The same as the above Component 4 of Bac Lieu subproject. |
| **7. Vinh Long** | |
| 1 | **Tertiary Infrastructure Upgrading in 3 LIAs, covering total area of 49.9 ha and involving 4,715 people. Proposed work includes:**<br>- Widen existing main alleys of average 2.5m width to the width of 4.0 to 5.5 m with concrete/asphalt structure, with the total length of 4.4 km.<br>- Widen and upgrade existing small alleys to the minimum width of 2.0 m with concrete structure, with the total length of 4.52 km.<br>- Provide concrete sewerage system with box/pipe's diameter from D400-800, total length of 8.75 km. The wastewater from household will be collected to the wastewater receptors and to be treated under a WWTP funded by ADB.<br>- Provide water supply pipes D63-100, with the total length of 13.12 km<br>- Provide street lighting, waste bins and garbage trolleys.<br>- Dredging, embankment and tree landscaping for 4.1km small canals in LIA1, 3, 4 |
| 2 | **Priority Primary and Secondary Infrastructures** |
| 2.1 | Upgrading Bo Kenh Road (Ward 3)<br>- Upgrade the existing Bo Kenh 3-m wide earth road to the asphalt road, with the width of 14 m, and 12 m pavement (2x6m). The total upgrading length: 2.2 km.<br>- Construction of drainage system of total 3 km storm-water concrete pipe D600 and 3km wastewater UPVC sewer pipe D220 along 2 sides of the road. |
| 2.2 | Upgrading P2-P9 (Ward 2, 9) Road connecting national way 53 and national way 1A.<br>- Upgrading the existing 3-4 m wide concrete P2-P9 road to the asphalt road of 19.5 m (10.5 m road bed and 2 side pavements of 4.5 m each), total length of 1.9 km.<br>- Construction of drainage system of total 3.5km storm-water concrete pipes D600 and 3.5 km wastewater UPVC sewer pipes D220 along 2 sides of the road. |
| 2.3 | Construct and upgrading Vo Van Kiet Road, connecting to the city center in the areas of the ward 2,3,4<br>- Construct Vo Van Kiet asphalt road with total length of 1.1 km, width of 16 m and 15 m sidewalks (2x7.5 m).<br>- Construction of drainage system with 3.5km storm-water concrete pipe D800 and 3.5km wastewater UPVC sewer pipe D220 along 2 side of the road. |
| 2.4 | Embankment and upgrading of Cau Lau Canal<br>- Dredging Cau Lau Canal from current 22-28 m wide, 3.76 m depth to the designed width of 22-28m wide, and depth of 5.3 m, total length of 0.86 km<br>- The canal structure of Cau Lau combines of 2-step soft and green revetment (a sallow step of 1m wide; a steep step of 1:1.5 slope and 2.37m wide) and a vertical concrete pile of 3.78 m height from the canal bottom. The steep slope of the revetment will be covered by grass while landscaping trees will be planted on the shallow slope in eco-sandbags.<br>- Construction of operational roads at the two sides of the embankment of 4.0 m road wide and 1 m each side for segregation row (by flower pots). Total length is 0.86 Km. |

| Comp. | Proposed Investments |
|---|---|
| | - Installation of drainage system along 2 sides of the operational roads with storm water concrete pipe D=600 m, wastewater UPVC D200. Pipe length is 0.86 km each side.<br>Embankment and upgrading of Kinh Cut Canal<br>- Dredging Kinh Cut canal from the existing 15-20 m wide, 2.76m deep to the designed 18-20m wide and 5.3m depth. Total canal length is 0.54 km.<br>- The canal structure of Kinh Cut combines of 2-step soft and green revetment (a sallow step of 0.63m wide; a steep step of 1:1.5 slope, 1.58 m height and 2.37 m wide) and a vertical concrete pile of 3.78 m height from the canal bottom. The steep slope of the revetment will be covered by grass while landscaping trees will be planted on eco-sandbags.<br>- Construction of operational roads at the two sides of the embankment. Left side of the canal will be provided with a 4.0 m wide operational road, canal adjacent sidewalk of 3m wide and residential sidewalk of 2 m wide). Right side of the canal: the operational road will make use of the current Nguyen Du street, which is 6 m wide. The sidewalk along the canal side will be 3 m and the sidewalk adjacent to the residential house is 2 m.<br>- Installation of drainage system along 2 sides of the operational roads with storm water concrete pipe D=600 m, wastewater UPVC D200. Pipe length is 0.54 km each side. |
| 3 | **Resettlement Sites**<br>No RS will be built under the SUUP. The subproject will purchase plots of land in existing RS in Ward 4 (9.4 ha). |
| 4 | **Implementation Support and Capacity Building**<br>The same as the above Component 4 of Bac Lieu subproject. |

## 1.6. National and World Bank Safeguards Policies and Guidelines

The project is required to comply with the prevailing environmental laws in Vietnam, which include the Law on environmental protection No. 55/2014/QH13 dated 23/06/2014, Decree No.35/2014/ND-CP dated April 29, 2014 of the Government; Decree No.35/2014/ND-CP dated April 29, 2014 of the Government; Circular No.27/2015/TT-BTNMT dated May 29, 2015 of Ministry of Natural Resources and Environment for preparation of strategic EIA reports,; and Vietnamese standards and regulations.

This SUPP project is classified as a "Category A" due to its significant impacts related to land acquisition and resettlement issues. Therefore, as per the Bank policy, one executive summary and seven ESIAs are required to assess and manage the potential adverse impacts and ensure safeguard compliance. The project must also comply with the triggered safeguard policies of the World Bank, as summarized in Table 1.2 below.

**Table 1.4. Summary of Safeguards Policy Actions Undertaken Under SUUP**

| Safeguard Policy | Actions |
|---|---|
| **Environmental Assessment OP/BP 4.01** | • This policy is triggered.<br>• A Category A project<br>• Environmental Assessment Executive Summary prepared for the whole project<br>• A Full ESIA including an Environment Management Plan (ESMP) has been prepared for each participating city.<br>• Social Assessments have been conducted as part of the ESIAs. |

| Safeguard Policy | Actions |
|---|---|
| **Natural Habitats OP/BP 4.04** | • This policy is triggered.<br>• The project will not affect any protected area or any site having high biodiversity values.<br>• River dredging and embankment sliding may have moderate impacts on natural habitats in the rivers.<br>• Impacts and mitigation measures have been included in the relevant subproject ESIAs and ESMPs. |
| **Physical Cultural Resources OP/BP 4.11** | • This policy is triggered.<br>• The project will not necessitate relocation of physical cultural resources (PCRs) such as monuments, temples, churches, religious/spiritual and cultural sites<br>• The project will involve relocation of graves, acquisition of the year and fence some pagodas in Soc Trang and Vinh Long, and moderate earthworks.<br>• A chance finds procedure has been included in the subproject ESMPs. |
| **Indigenous Peoples OP/BP 4.10** | • This policy is triggered.<br>• In two cities, Bac Lieu and Soc Trang, ethnic minorities (mainly Khmer, Chinese and some Cham HH) are present in the sub-projects' areas. Khmer form specific communities in some of the LIAs to be upgraded under the SUUP in these two cities. An EMPF and two EMDPs were prepared for Bac Lieu and Soc Trang cities. |
| **Involuntary Resettlement OP/BP 4.12** | • This policy is triggered.<br>• Land acquisition is required for the construction of proposed investments under Components 1, 2 and 3 in each participating cities. A total of 157 ha of land will be acquired under the SUUP. 10,166 HH will be affected including 1,201 HH to be relocated..<br>• Project RPF has been prepared and will be approved by Government/ PPC. RPs were prepared for each of the 7 cities and will be approved by Provincial People's Committee. |
| **Projects on International Waterways OP/BP 7.50** | • This policy is triggered.<br>• In accordance with paragraph 1(a) of OP 7.50, the policy is triggered as the proposed interventions of 06 cities subprojects (i.e. Ben Tre, Long Xuyen, Soc Trang Tan An, Vi Thanh, Vinh Long) will be implemented on the basin of Mekong River, an International Waterway<br>• The project falls within the riparian notification exception under paragraph 7(a) of OP 7.50, and that no riparian notification is required.<br>• The memorandum for approval of the riparian notification exception was approved by the Regional Vice President in 30 December, 2016. |

The negative impacts will be mitigated by the application of comprehensive mitigation measures that indicated in the Environmental and Social Management Plan (ESMP) of the Sub-project, including monitoring plan and the requirements of health and safety for construction workers. The implementation of the ESMP will be a requirement for contractors during subproject implementation. Each subproject ESIA report complies with the current environmental impact assessment requirements stipulated by the Vietnamese Government and WB's safeguard policies.

# CHAPTER 2. BASELINE CONDITION OF THE PROJECT AREA

## 2.1. Bac Lieu City Subproject

Bac Lieu city situates in Southeast of Bac Lieu Province, on the East Coastline, and in the Mekong Delta Region. The total natural area of land is 17,525.88 ha, and a population of 32,662 people which includes 3 ethnic minority groups, about 21% of the population. The topography of Bac Lieu city is relatively flat and low, inclining from Northwest to Southeast. The average altitude ranges about 0.2 - 0.8 m and the average slope ranges about 1 - 1.5 cm/km.

Bac Lieu city has 7 internal wards (1, 2, 3, 5, 7, 8 and Nha Mat ward) and 3 suburban communes (Hiep Thanh, Vinh Trach, and Vinh Trach Dong). The proposed construction works for the components are expected to be implemented in 8 wards, include: Ward 1, 2, 3, 5, 7, 8, Nha Mat Ward and Hiep Thanh Commune.

Bac Lieu city has sedimentary originality of river - wetland, river-sea, wetland - sea sediment types and marine sediments formed about 6,000 years ago (Holocene). Alluvial materials mainly include clay and sand, fine powder together with flora relics, shells. The climate conditions of Bac Lieu city generally features the equatorial monsoon climate regime in the Mekong Delta region and the specific characteristics of Ca Mau Peninsula. The climate factors indicate two distinct seasons, the rainy season and the dry season. Bac Lieu has numerous rivers, canals and ditches such as Bac Lieu river, Cau Xang Canal, 30-4 Canal, etc. meeting water demands for agriculture, aquaculture and drainage in urban areas.

The ambient air quality in the project area is good condition with all parameters (CO, NO2 being within the allowable limits. In canals and ditches in Bac Lieu city, the analysis results show that organic pollution could be observed. The reason for organic pollution is direct discharge of untreated domestic wastewater from people living along the canal. Groundwater exceedsof COD parameter in comparison with allowable limit in the standard of QCVN 09:2008/BTNMT. The content of Pb, Zn, As, Cd of monitoring soil samples meets the requirement of QCVN 03-MT:2015/BTNMT. Sediment samples meet the requirements of QCVN 07:2009/BTNMT (hazardous waste thresholds) and QCVN 03-MT:2015/BTNMT (limits of heavy metals in the soils)

There are no important biological resources in the subproject area as the urban areas have been developed extensively by human interventions for long time.

Two water treatment plants (capacities of 10,000 m3/day and 12,000 m3/day respectively) supply water to 100% urban residents and 100 % of local households have access to the national power grid. The city generates around 100 tons of solid waste per day, which is collected and treated by the Bac Lieu Center of Urban Service.

There are some physical cultural resources in the subproject area including the Ong Chau Pagoda, Cemetery of Bac Lieu Buddhist Association, Vinh Phuoc An Pagoda, Phuoc An Pagoda, Bac Lieu Baptist Association, Tinh That Phap Tanh Pagoda, Thieu Quang Sung Thien Duong Pagoda within 30 m from the subproject construction sites.

## 2.2. Ben Tre City Subproject

Ben Tre City is one of 9 administrative authorities and is an economic, cultural and social center of Ben Tre Province. Ben Tre City is located in the center of the province, within the area of Cu Lao Bao, influenced by the tidal regime of the Ben Tre River and a part of Ham Luong River.

The natural area of Ben Tre city is 6,748.78 ha (about 67.5 km2) and a population of 152.078 people with 16 administrative municipalities. The proposed subproject components are expected to be implemented in 8 wards: 1, 3, 4, 5, 6, 8, Phu Khuong, Phu Tan and a part of Phu Hung commune, Ben Tre city.

Ben Tre City is a flat islet with a dense and interlaced canals system. Its terrain tends to lower from Northwest to Southeast with an average altitude is 1-5 m above sea level. The City is an alluvial land on a low-lying area surrounded by the Ham Luong River in the West, Ben Tre River in the South, Chet Say canal in the East. The City's inner area has Cai Ca canal, Ca Loc canal, Kien Vang canal and Go Dang canal.

The analysis results indicate that air quality of the subproject area is relatively good with the parameters of particulate matters, $SO_2$, CO, $NO_2$ lower than the national standards for ambient air quality. The surface water quality in Chin Te and 30/4 canals are contaminated with organic substance. Because Chin Te and 30/4 canal are currently receiving waste and domestic wastewater from households living along the two rivers' embankments. The groundwater parameters meets the permitted limits regulated by QCVN 09-MT:2015/BTNMT. The soil and sediment sampled at the subproject sites meet the national standards on heavy metals in the soil for agricultural and residential land.

The ecosystems within the direct influence of the subproject are urban and agricultural ecosystems with dominated by rice, shrubs, invasive plants, and household livestock such as ducks, dogs, and cats. The aquatic species in Chin Te and 30/4 canals are mainly some phytoplankton, zooplankton, and benthic species. There are no endemic aquatic species or species listed in the Red Book in the subproject construction area.

Two water treatment plants (capacities of 31,900 $m^3$/day and 6,000 m3/day respectively) supply water to 97.7 % urban residents and 100 % of local households have access to the national power grid. With assistance from ADB ODA, a wastewater treatment plant (capacity 8,500 m3) is being constructed to serve Ben Tre City.

There are some physical cultural resources in the subproject area including the Kim Quang Pagoda, Ba Chua Xu Temple, Ngoc Truoc Pagoda within 3-35 m from the subproject construction sites.

### 2.3. Long Xuyen City Subproject

Long Xuyen City, An Giang province, is located to the right of Hau River, in central Mekong Delta (MD). By 2015, the city's natural area is 115.22 km2 with a population of 280,862 people. Long Xuyen City have 11 administrative units as wards and communes. The proposed project components are expected to be implemented in 07 wards of My Binh, My Long, My Xuyen, Dong Xuyen, My Hoa, My Phuoc and My Quy.

Long Xuyen city's terrain is generally quite flat with average ground elevation 1.0 – 2.5 m. Soil type of Long Xuyen City is categorized as alluvium soil, riverside inning soil, river, ditch, canal land. The weather is governed by tropical monsoon climate. Hydrological regime in Long Xuyen is affected by the hydrological regime of Hau River under irregular semidiurnal tide. Long Xuyen city has 2 major rivers: Hau River and Long Xuyen canal. Besides, Long Xuyen city has some branch canals: Can Xay canal, Goi Lon canal, Goi Be canal, Cai Dung canal, Cai Sao canal, Cai Son canal, Ba Bau canal, Ong Manh canal, Muong Khai canal.

The ambient air quality of the subproject area is relatively good with the parameters of particulate matters, $SO_2$, CO, $NO_2$ lower than the national standards. The surface water quality in Chin Te and 30/4 Canals are contaminated with organic substances from unregulated and untreated domestic effluents from households living along the two rivers' embankments. The groundwater parameters meets the permitted limits regulated by national technical regulation QCVN 09-MT:2015/BTNMT. The soil and sediment sampled at the subproject sites meet the national standards on heavy metal in the soil for residential land.

The ecosystems within the direct influence of the subproject are urban and agricultural ecosystems with dominated by rice, shrubs, invasive plants, and household livestock such as ducks, dogs, and cats. The aquatic species in Long Xuyen, Cai Son, Ong Manh and Ba Bau

canals are mainly some phytoplankton, zooplankton, benthic species, eel, black carp, tilapia, barp, shrimp, snail and some molluscs. There are no endemic aquatic species or species listed in the Red Book in the subproject construction area.

Long Xuyen city has the water supply system which is quite complete, supply water to 100% urban residents. The sources of water supply take directly from the Hau River. 100% of local households have access to the national power grid. With assistance from Korea ODA, a wastewater treatment plant (capacity 45,000 $m^3$) is being constructed to serve Long Xuyen City.

There are some physical cultural resources in the subproject area including the Ong Bac Pagoda, Dong Thanh Pagoda located within 70m from the subproject construction sites.

### 2.4. Soc Trang City Subproject

Soc Trang is a province in the Mekong Delta, located at the end of the Mekong basin. The provincial capital of Soc Trang province is Soc Trang City, the geographical coordinates of which is 9046' - 9048' North Latitude and 105054' - 105058' East Longitude. The City is located at the center of key roads such as the NH1A, NH60, lying between NH91C (South of Hau River) and National Highway Quan Lo - Phung Hiep, linking Soc Trang City with two major economic centers, that is, Can Tho City and HCMC, the Southwest region. Waterways include the Maspero and Santard rivers that flow into Dai Ngai, enabling easy traffic to Cai Con, Cai Cui ports in the North and Tran De port in the South. Soc Trang City is among the key urban cities of the Mekong Delta. It is the political, economic, cultural, scientific and technological hub, as well as economic exchange point of the province.

The climate regime of Soc Trang City is subequatorial tropical monsoon. The city's average air temperature is relatively high, at $27^0$C.The air humidity of the city ranges around 83-84%. The average annual rainfall of Soc Trang City is around 130-180 mm. The engineering geology of Soc Trang province shows that the soil composition includes mainly clay, clay mud, a mixture of organic impurities, usually in black and dark gray. The soil here is a combination of sea and marine sediments with a high content of clay and consisting of many organic substances. In the 6 wards, it has no wild ecosystem, rare species or endangered species are found in the terrestrial ecosystems and there is no aquaculture; the freshwater ecosystem has phytoplankton, zooplankton, zoo benthos and shrimp. There are no endemic aquatic species or species listed in the Red Book in the subproject construction area.

The physical cultural resources, which are located within the direct area of influence of the Soc Trang subproject, include Long Hung pagoda; Ngoc Hung Monastery; Ngoc Phuoc Monastery; Huong Son pagoda and Van Dien temple. Some sensitive locations include Bong Sen market and racing boat station (Ok Om Bok Festival) will be affected by construction activities.

### 2.5. Tan An City Subproject

Tan An City is the key economic area of the Southern zone, and is also the gateway to the Mekong Delta region, with geographical coordinates from 106°21′ to 106°27′East longitude and from 10°20′ to 10°00′North latitude. The area of Tan An City: 81.9494 $km^2$ (8,194.94 ha). In which: Urban land 3,916 ha; Suburban land is 4,278.94 ha. The topography of Tan An city shows the same characteristics as the Mekong Delta region. The terrain is enriched continuously and regularly, which forms the flat and horizontal plain.

The climate conditions of Tan An city generally features the equatorial monsoon climate regime in the Mekong Delta region. There are 2 distinct seasons –the rainy season from May to November and the dry season from December to April. River and canals systems in Tan An City are interlaced, which are characteristic of the Mekong River Delta region, and is influenced by semidiurnal tide from the South China Sea, peak tidal amplitude in the month from 117- 135cm, the maximum tidal peak in December is 150cm, a tidal cycle is about 13-14 days. Because of being near sea gate, tidal peak in the beginning of the northeast wind season is subject to

salivation. Every year from in May, pH increases from 4 to 4.3 and gradually decreases in July with the advent of the flooding season. Currently, in the inner city, local inundation occurs as a result of heavy rain and tidal surges in some areas.

The physical cultural resources, located within the influence of the Tan An subproject, include Thien Khanh pagoda, Thien Chau pagoda, Binh Yen Dong temple and Long Chau pagoda.

### 2.6. Vi Thanh City Subproject

Vi Thanh city located at the west of Hau Giang province is the center of the west of Hau river, with geographical coordinates: $105^o$19' 38" - $105^o$ 30' 11"E; $09^o$ 49' 30" - 09o 40' 49" N. Vi Thanh city is access to the follow areas: The west bordered by Go Quao district, Kien Giang province; the north bordered by Giong Rieng district, Kien Giang province; the east bordering Vi Thuy district; the south bordered by Long Vi province. Vi Thanh city has 09 administrative units including 5 wards and 4 communes. By September 31, 2015, the total population of Vi Thanh was 75.017 persons with total area of 118.6 $km^2$.

The proposed project components are expected to be implemented in 07/09 administrative units of Vi Thanh city, including: I, III, IV, V wards and Vi Tan commune.

The physical cultural resources, located within the direct area of influence, include Vi Hung Church, cemetery of Vi Hung Church. In addition, there are some physical cultural resources which are nearby or close to subproject area but not in direct influence of subproject area such as Vi Thanh Church, Quan De Temple, Hung Thanh Tu.

### 2.7. Vinh Long City Subproject

The young and dynamic Vinh Long is currently class III city and aims to leapfrog to class II city by 2020 with total land area of 48.01 ha, and a population of 141,136 people. The City has 16 administrative sub-units including 7 wards and 4 communes. The city is the political, administrative, cultural, economic, education and tourism centre of Vinh Long province.

Vinh Long City is located in the centre of the Mekong Delta, lying between the Tien River and Hau River (Co Chien river). It borders with Tien River to the north, with Long Ho district to the South East; with Chau Thanh district of Dong Thap province to the West. The SUUP-Vinh Long the sub-project wil be taken place in 5 wards which are ward 1, 2; 3, 4 and 9.

Vinh Long City has a flat terrain which is slightly tilted in different directions. The land is formed by the deposit of retro gradation sea during the Holocene period (5,000 – 11,200 years ago) under impacts of the Mekong River. Soil type of Vinh Long city is categorized as alluvium sedimentation, sand ridge soil; soil from river dredging. The weather is governed by tropical monsoon climate. Vinh Long city is under the irregular semi-diurnal regime from the East sea via 2 major rivers of Tien (Co Chien river) and Hau, Mang Thit river and a system of canals such as Kinh Cut, Cau Lau

The physical cultural resources, located within the direct area of influence, include Long An pagoda,, the Protestant Church (located LIA1); Giac Hoa pagoda and Ngoc Thuan Monastic (Located in LIA3); Long Hoa Pagoda and Tan Giai communal house (Located in LIA 4); Tòa Giám Mục –Church (Kinh Cut Canal) and Hung An Tu pagoda (Cau Lau Canal).

The population living in the areas where investments will be implemented have different socio economic characteristics and will be affected differently. People living in LIAs to be upgraded under Component 1 are generally characterized by a high poverty rate and poor housing. In addition, their livelihoods are often unstable and seasonal (i.e. hired labor, vendors or small business). People in LIAs have also poor sanitation conditions, lack of services (i.e. garbage collection, narrow alleys which don't allow access to emergencies vehicle) and lack of public space. Presence of Khmer communities is also noted in LIAs in Bac Lieu and Soc Trang cities. Along the canals, to be upgraded under Component 2, there is an important number of

encroachers lacking security of tenure. These population have also unstable sources of income i.e. hired labor, vendors or small business). Better sanitation and housing conditions, security of tenure and more stable jobs are the main socioeconomic features of HH located along the project roads to be upgraded or built under Component 2.

# CHAPTER 3. ANALYSIS OF ALTERNATIVES

Alternative analyses were carried out during the preparation of ESIAs in order to assess and compare the level of potential environmental and social impacts as well as opportunities between "with" and "without" the project scenarios, and the technical options considered. Comparisons between the "with" and "without project" show that the existing social and environmental problems related to the existing drainage and sewerage infrastructure would be increased in the continued urbanization process of the participating cities. Wastewater generated would be increased but not collected and treated in some areas causing pollution to land, surface water bodies, groundwater, and the sea. Flooding issues would not be addressed, increased urban population would be suffered from environmental pollution and pressure from traffic the aspects together including technical, social and environmental, and economic dimensions.

The project's proposed investments are in line with the cities' master plans which have been approved by the Government. Alternatives were considered in the preparation of the master plans, which are also subject to review by environmental authorities as per Vietnamese law. The EIAs were conducted sufficiently early in the feasibility study to influence the choice of site-specific technical alternatives. The options selected were based on considerations of all the aspects together including technical, social and environmental, and economic dimensions.

For the investments under component 1 of all seven participating cities, alternatives to upgrading alleys with or without extension were considered. The selected option was extension of the main alleys to a minimal width of 4 m while small alleys will be upgraded based on their current status to a width of 2 m. This option was selected based on various merits i.e. moderate construction cost, moderate scale of land acquisition and resettlement; while improved living conditions, landscape, and public amenities of local people are ensured.

For the investments under Component 2, alternatives have been analyzed for the types of embankment for rehabilitated canals, rivers, lakes and ponds. For the water courses which have large hydrological flows and waterway traffic such as Long Xuyen Canal (Long Xuyen subproject) or Bao Dinh River (Tan An subproject), various alternatives for hard embankment structures have been considered to ensure the stability of construction work, and harmonization with the existing sections of the embankment for the watercourse.

For other pond, lakes and canals in city subprojects that have small or moderate hydrological flows and do not have waterway traffic, alternatives were considered to maximize the use of soft embankment structures or at least combine soft and hard structures. The selected options are based on the consideration of all aspects including: (i) ensuring sustainability of infrastructures and the hydrological flow of the water courses during operation, (ii) enhanced aesthetically pleasing landscape with the green space above the soft embankment part, (ii) minimizing land acquisition to the extent possible; (iv) harmonizing with the existing embankment sections of the water courses.

# CHAPTER 4. IMPACT ASSESSMENT AND MITIGATION MEASURES

Impact assessments and mitigation measures were assessed based on document reviews, meetings with key agencies and stakeholders, field visits to project sites, collection of environmental data and household survey. Each ESIA preparation took into account the Social Impact Assessments (SIAs), Resettlement Plans (RPs) and Ethnic Minority Development Plans (EMDPs) in line with the Bank safeguard policies.

## 4.1. Overview of the Project Impacts

### *Potential Positive Impacts*

In general, the proposed Project would bring about significant positive impacts to the participating cities. Local people will be benefited from a healthier and sustainable living environment. Among others, specific positive impacts may include: (i) Improve environment and sanitation in LIAs from alley upgrading, sewage and storm water collection and domestic waste collection; (ii) Improve the air quality and reduce dust as earth alleys to be replaced by concrete alleys; (iii) Reduce local flooding as the drainage would be improved and alleys' base elevation would be leveled up as same as that of the main roads; (iv) Address the environmental pollution in the main drainage network of the city; (v) Canal embankment would help to protect canal bank and prevent from bank erosion; (vi) Dredging the canals would improve the environment, ensure water flow and increase drainage capacity; eliminate the encroachment and thus prevent the direct discharge of waste and waste water into the canals; (vii) additional economic, social, environment and aesthetic values via the construction of linear parks and green spaces along the lakes and embankment ; (viii) Increase the connectivity by road and bridge construction, reducing the flood risks; (ix) Increase climate resilience by improving drainage/ flood retention capacity, strengthening the weak soil foundation and applying the construction standards and designs adapted to climate change.

Each subproject-specific benefits are highlighted below:

- **Bac Lieu:** The entire city will benefit from the subproject: 111,807 persons ( including 8,103 poor HH). In LIAs to be upgraded under the SUUP, the population (mainly poor and near poor HH, including Khmer communities) will be benefited from upgrading infrastructures in alleys. The city's population generally, and road users specifically, will benefit from improved road access and connectivity at intercity and regional level. Construction Cau Xang embankment, dredging the canal help to improve environmental sanitation and improve urban landscape.
- **Ben Tre:** People who live in the low income areas will benefit from improvements in drainage, solid waste management. Construction of the 04 new roads would benefit the overall population of the city generally, and road users and residents of the new urban areas that the roads will serve. And upgrading Chin Te and 30/4 canal would improve drainage and flood control capacity as well as improving water and environmental quality in the project areas
- **Long Xuyen:** Upgrading Long Xuyen, Cai Son, Ong Manh, Ba Bau Canals would improve drainage and flood control capacity as well as improving water and environmental quality in the project areas. Construction and renovation of the existing infrastructure would improve living conditions of affected populations, while constructing new roads and bridge would improve connectivity within and between cities and promote socio-economic development of the regions within which they are located.
- **Soc Trang:** In Soc Trang sub-project, nearly 150,000 people in the city will be beneficiaries of the project. Over 7,400 households (including Khmer communities) in LIAs will be benefited directly from upgrading infrastructures in alleys in LIAs. In addition, the project

will create job opportunities for unskilled labor during the construction period (i.e. development of services such as room renting, food stalls etc.) and jobs in the construction. Even if it will be mainly short-term jobs, it will increase income for local residents. Upgrading canals will also improve drainage and flood control capacity as well as improving water and environmental quality in the project areas. Construction of new roads and bridge would improve connectivity in the city and will promote socio-economic development

- **Tan An:** Total beneficiaries of Tan An sub-project is 133.000 people. Infrastructures upgrading in LIAs will benefit 60.000 people (16.216 households) with a high proportion of poor and near poor HH. The project will promote Tan An city to be the socio-economic development center of Long An province. When these infrastructures will be completed, it will help the city to have high economic growth, thereby reducing the social costs, improving social welfares and living standards of people especially in LIAs.
- **Vi Thanh:** When completed, the project will bring benefits to the local people in Vi Thanh City such as reduced congestion, increased traffic connections, travel convenience especially in the evenings and in rainy season; risk of flooding will be reduced due to sewer system and improvement of the flow of the canals and the lake was dredged; about 7,732 people in LIA 4 will be connected to the City common sewer system. Living and environmental conditions and landscape of the City will be improved.
- **Vinh Long:** The entire city will benefit from the subproject. 9.917 persons or 1983 households ( including 114 poor HH) will be benefited from upgrading infrastructures in alleys in LIAs. The city's population generally, and road users specifically, will benefit from improved road access and connectivity at intercity and regional level. Construction of the Kinh Cut river and Cau Lau embankment, dredging the canal systems help to improve environment sanitation, improve urban landscape.

***Potential Negative Impacts***

The project will result in some negative impacts on the local environment and populations. Key direct impacts for all the 07 cities arise from (a) land acquisition and resettlement, (b) site clearance and construction, and (c) operation after completion. Section 4.2 below summarizes the key impacts due to land acquisition and resettlement. Sections 4.3 summarizes key impacts during site clearance, construction and operation, Section 4.4 addresses Physical Cultural Resources impacts, Section 4.5 deals with Natural Habitats, and Section 4.6 provides an overview of cumulative impacts.

### 4.2. Impacts during the Land acquisition and resettlement phase

During the preparation phase, technical options were carefully analyzed in all cities to minimize the scope of resettlement and its consequent impacts , especially for alley, roads and canals. Land acquisition is however unavoidable land acquisition in all seven of the project cities for all components. Land acquisition could be particularly significant for investments under Component 2. Table 4.1 summarizes the number of affected households, the area of land to be acquired, and the number of graves to be relocated for each city.

**Table 4.1. Involuntary resettlement impacts of 07 city subprojects**

| Subprojects | Number of AHs | Relocated HHs | Severely Impacted Hs | Relocated business | Permanent Land Acquisition ($m^2$) | Relocated graves |
|---|---|---|---|---|---|---|
| Bac Lieu | 2,092 | 98 | 163 | 45 | 340,001 | 43 |
| Ben Tre | 2,169 | 103 | 37 | 45 | 244,442 | 92 |
| Long Xuyen | 863 | 276 | 26 | 25 | 165,380 | 27 |
| Soc Trang | 917 | 58 | 148 | 45 | 165,776 | 16 |
| Tan An | 901 | 198 | 172 | 81 | 288,599 | 40 |
| Vi Thanh | 1920 | 275 | 177 | 161 | 242,439 | 87 |
| Vinh Long | 1304 | 193 | 64 | 116 | 123,202 | 168 |

Ethnic minorities are also present in Bac Lieu and Soc Trang cities. Khmer ethnic minority will be affected in Bac Lieu (118 HH) and Soc Trang (136 HH). Therefore, An *Ethnic Minority Development Plan* (EMDP) was developed for Bac Lieu and Soc Trang subprojects , consistent with the World Bank policy OP 4.10 on Indigenous Peoples. These EMDPs are based on Social Assessments prepared and on, interview and group discussions with affected ethnic minority people. The discussion focused on mitigating adverse impacts and enhancing socio-economic benefits from the project for the affected ethnic minority people in the project area. Broad community support was received from the ethnic minorities present in the sub-projects areas. Ethnic minorities are mainly located in LIAs where they will receive direct benefits from the proposed investments with minor negative impacts.

### 4.3. Impacts during Site Clearance, Construction, and Operation

Key generic and site-specific impacts are highlighted in the following paragraphs, while more detailed specific impacts and mitigation measures are addressed in details in the subproject ESIA and RP. The main social impacts/risks due to construction of civil works would include: (i) loss of crops, trees, livelihoods, and other properties due to permanent and temporary land acquisition and relocation of households; (ii) disproportionate impacts/benefits from project activities on the more vulnerable such as poor, and elderly, and (iii) impacts on local pagodas, churches, and temples, and relocation of graves.

*Negative impacts on livelihoods.* Loss of livelihood may occur for the 518 households based business to be relocated (especially along canals to be improved) and for farmers losing productive land (i.e. for road project located in peri-urban areas such as the Ring Road in Tan An). Regarding businesses to be affected, around two thirds are non-registered businesses. These businesses are also mainly managed by woman as it is convenient for women to operate small business within their house. Temporary impacts, during the construction period for business located in the project area are also anticipated (i.e. restriction of access, adverse environmental effects). The RPs/ESIAs, prepared for each city, proposed measures to assist these HH to restore income and to minimize impacts during construction.

*Negative impacts due to influx of outside workers.* The expected influx of outside workers in the project area, during the construction period, may lead to an increase of health and social problems (such as HIV/AIDS, drug use, infectious diseases, violence...). Awareness programs will have to be implemented among workers and local population.

Typical and site-specific environmental adverse impacts during pre-construction and construction include: (i) safety risk due to UXOs; (ii) increased levels of dust, noise, vibration; (iii) pollution risks related to the generation of waste and wastewater, particularly moderate amounts of non-contaminated excavated/dredging materials; (iv) traffic disturbances, and increased traffic safety risks; (v) risks of bank erosion and embankment subsidence as well potential negative impacts to existing weak facilities during the river/canal embankment process; (vi) disturbance to the habitats of aquatic species; (vii) interruption of existing infrastructure and services such as water and power supply; (viii) disturbance to daily socio-economic

activities in the project area; (ix) health and safety issues related to the public and the workers at construction sites; and (iv) social impacts associated with land acquisition and construction disrupting businesses, agriculture and aquaculture activities as well as waterway traffic due to construction related activities and mobilization of workers to the site.

For each type of common construction impacts discussed above, the causes, the nature, the duration and level of impacts, and receptors vary between by type of investments and the sensitiveness of receptors. Therefore, for effective management of the potential impacts and risks, the ESIAs have also identified the type-specific impacts and sensitive receptors in the Project area.

*Management of excavated soil and sediments*. Rehabilitation of canals, rivers, lakes, and ponds within the cities subprojects would generate a moderate total amounts of sediments, varying from dozens to a few hundred thousand cubic meters for each city subproject.

- Bac Lieu: 96,000 cubic meters ($m^3$) of dredged sediment from the Cau Xang Canal and small canals in LIA2; and 227,000 $m^3$ excess soil from the earth work
- Ben Tre: about 5,000 $m^3$ dredged sediment from 30/04 and Chin Te Canals; and 129,000 $m^3$ excess excavated soil from the earth work
- Long Xuyen: about 92,000 $m^3$ sediment from Cai Son, Ong Manh and Ba Bau Canals, and 142,000 $m^3$ excess soil from the earth work
- Soc Trang: about 22,000 $m^3$ sediments from Tra Men and Hi-Tech Canals; and 270,000 $m^3$ excess soil from the earth work
- Tan An: about 20,000 $m^3$ sediments from Cau Tre and Rot Canals; and 84,000 m3 excess soil from the earth work
- Vi Thanh: about 300,000 $m^3$ sediments from Tam Giac Lake, Muong Lo, Cai Nhuc and No62 Canals, and 246,000 m3 excess soil from the earth work
- Vinh Long: about 56,000 $m^3$ sediment from Cau Lau and Kenh Cut Canals, and 91,000 $m^3$ excess soil from the earth work

The excess excavated soil could be used for levelling at low land area. The sediments from dredged work are not hazardous, with concentrations of heavy metals that fall within the national standards. However, they contain pathogenic microorganism (e.g. *Escherichia coli*) and have relatively high levels of organic compounds. This sediment could be disposed at the landfill or be used for urban tree planting or agricultural purposes after temporary storage in dry conditions to remove microorganism and partially decompose the organic compounds.

The main issues during the operation of project investments includes the small amount of sludge generated from sewage and drainage systems, management of the small amount of wastewater and domestic solid waste from the upgraded LIAs and resettlement areas; traffic management during the operation of the newly constructed roads and bridge; maintenance to ensure the stability of the embankments and aesthetic values of the rehabilitated canals/rivers/lakes and ponds. These impacts are long-term, moderate and manageable.

### 4.4. Potential Impacts on Natural Habitat

The subprojects under SUUP are located in the urban area and will not impact any sensitive forest or critical terrestrial natural habitat. Some of civil works will be implemented on existing water courses such as Long Xuyen Canal in Long Xuyen, Bao Dinh river in Tan An; Muong Lo, Cai Nhuc and No 62 Canals, Tam Giac Lake in Vi Thanh; Cau Lau and Kenh Cut Canals in Vinh Long, etc.; these works would potentially impact the natural habitat.

The project is anticipated to have potential positive impacts on the natural environment of the rivers, canals, lake within or running through the city as it includes interventions on water

environmental sanitation i.e. wastewater collection, dredging and embankment activities. The embankment of the canals, rivers, lake, and pond will reduce soil erosion on the shore banks, reduce the pollution load and prevent the encroachment of local people on the water courses.

The results of the ESIAs process indicated that the proposed project would not impact any protected area nor will it affect important/endangered flora or fauna species or biodiversity areas of high value. The impact of the dredging process could cause the loss of benthic habitat and disturbance of benthic organisms during the construction process. It should be noted that the watercourses are polluted by unregulated, untreated domestic effluents and could be exacerbated during dredging by remobilization of sediments and increased turbidity. The impacts are localized, varying from a minor to a moderate scale depending on whether dredging is conducted in dry or wet conditions. In the long term, the water quality will be enhanced during operation and the impacts are therefore assessed as temporary and reversible and could be mitigated by good construction and management practices. The mitigation measures to address these impacts have been included in the subprojects' ESMPs.

### 4.5. Potential Impacts on Physical and Cultural Resources

In all seven cities there are temples, pagodas, and churches located within the area of direct influence by the project. These PCRs include**:**

(i) Bac Lieu: about 43 graves will be relocated. There are 11 sensitive sites and PCRs identified and examined including 05 pagodas, 02 temples, 01 church, 01 cemetery and 2 schools in a distance of 0-70 m to the work location.

(ii) Ben Tre: about 92 graves will be relocated. There are 4 sensitive sites and PCRs identified and examined including 03 pagodas and 01 temples in a distance of 2 - 35 m to the work location.

(iii) Long Xuyen: about 17 graves will be relocated. There are 9 sensitive sites and PCRs identified and examined including 03 pagodas, 03 Hospitals, 02 markets and 01 school in a distance of 4 - 70 m to the work location.

(iv) Soc Trang: Relocation of 16 graves by construction Ring road No.2 (subcomponent 2.3). Other cultural resources include:

- Long Hung pagoda, Ngoc Hung pagoda (10 m away from the construction site of Dien Bien Phu road – section 1 and Tra Men A embankment). Ngoc Phuoc pagoda (20 m away from the construction site of Tra Men A embankment). Huong Son pagoda (20 m away from the construction site of Lia 5).
- Van Dien temple of Cao Dai religion (20 m away from the construction site of Nguyen Van Linh bridge).

(v) **Tan An:** Relocation of 40 graves by construction Ring road (subcomponent 2.3). Other cultural resources include:

- Thien Khanh Pagoda (at a 30m distance from the construction site in LIA 3);
- Phuong Hong Kindergarten (at a 50m distance from the construction site in LIA 3);
- Thien Chau Pagoda (50 m from Bao Dinh Embankment);
- Binh Yen Dong Temple (30 m from Bao Dinh Embankment);
- Long Chau pagoda (20m from extension road of Bao Dinh river embankment);

(vi) **Vi Thanh –** Hoa Luu agroville (About 30m away from LIA 7). Other cultural resources include:

- Vi Thanh Church (about 15m away from LIA 2)
- Quan De Shrine (about 30m away from 01/05 Road)
- Hung Thanh Temple (about 20m away from 01/05 Road)

- Vi Hung Church On the side of Nguyen Hue Road – Section 1

**(VII) Vinh Long:** Relocation of about 168 graves. Other cultural resources include 17 sensitive sites, 04 pagodas, 03 churches, 01 Monastic, 01 communal house,01 Oratory, 02 markets and 05 schools in a distance of between 5 to 55 m to the work location.

The project implementation will result in land acquisition of some yards and fences of religious facilities; i.e. in Soc Trang: 328 m2 of gardening land of the Van Dien religious facility; 100 m2 of gardening land and 200m of fence of the Ngoc Hung pagoda; 36 m2 of Long Hung Pagoda; and in Vinh Long city, 130 m2 garden land of the Hung An Tu Pagoda.

During construction period, the potential negative impacts would be decreased aesthetic values; disturbance caused by the workers' presence and activities, or noise and vibration from construction machineries and vehicles; traffic safety risks to local people, particularly at peak hours; and increased traffic safety risks. In addition, vibration could also cause the risks on structure cracking/collapse to the gates and fences of certain PCRs and sensitive receptors located within the immediate vicinity to the constructed work (about 5 m distant). The impacts and risks are temporary, could be mitigated and prevented by application of appropriate construction method and good construction practices.

Mitigation measures to address impacts to PCRs and a chance finds procedure have been included in the subproject ESMPs and RP.

### 4.6. Cumulative Impacts

The SUUP seven subproject cities are located in different geographical areas and provinces within Vietnam. No cumulative impacts between the seven cities, subprojects and other associated subprojects are anticipated because of the geographical distance and the types and limited scales of investment activities.

In each individual city, cumulative negative impacts might have occurred in the case of a subproject activity causing significant negative impacts that add in a measurable and significant way to those that are being caused by nearby projects or by projects that take place in the same area, either before or after in time. The individual EIAs however have not identified any cumulative negative impacts. This is largely due to the small scale of most works, the type of works, and their location.

### 4.7. Mitigation measures

These environmental and social impacts and corresponding mitigation measures are addressed in details in the ESIA and RP/EMDP reports. During the detailed design of the project works, attention will be given to mitigating these impacts to the extent possible by incorporating into the designs, bidding documentation, and resulting contracts. Specifically, the bidding documents and the contracts will reflect (i) the provisions of the comprehensive Environmental Codes of Practice (ECOPs) for addressing common general impacts associated with construction works that have been prepared for the project (see Table 4.2 below); and (ii) site specific impact and mitigation measures that have been prepared for each of the project works where impacts and mitigation measures are beyond, or in addition to, the provisions of the ECOPs. The site specific details include impacts and mitigation measures for each of the works once they have been completed and have entered service. Full details on the ECOPs and the site-specific mitigation measures are included in the subproject ESIAs.

Contractors are required to prepare their own contractor's site-specific Environmental Management Plan (CSEMP) which incorporates all construction-related measures in the ESMP and the World Bank Group Environment, Health and Safety Guidelines (EHS guidelines) and good practices, including good housekeeping at construction site, waste management, provision of adequate water and sanitation facilities, provision of safety corridors/passageways,

installation of barrier fences around dangerous areas and wearing of PPEs. The CSEMP will be reviewed and approved by the PMUs before construction can commence in the site.

**Table 4.2**. **Common impacts, mitigation measures and instrument of implementation**

| Common Impacts | Typical Mitigation Measures | Instrument |
|---|---|---|
| Increased nuisance from dust | Regular watering of affected areas during dry days.<br>Imposition of vehicular speed limits in residential areas. | ESMP<br>CSEMP |
| Increased nuisance from noise | Avoid construction activities at night.<br>Ensure all equipment are in good condition. | ESMP<br>CSEMP |
| Temporary increase in sedimentation of receiving water channels and increased turbidity of surface water | Reuse of non-hazardous construction spoils and disposal of construction spoils and excess soils into designated sites.<br>Stockpiling excavated materials from water channels and runoff.<br>Provision of perimeter canals around stockpiled materials.<br>Regular clearing of canals and drainage.<br>Practice of good construction site housekeeping. | ESMP<br>CSEMP |
| Increased health and safety risks for the local residents and workers due to exposure of hazards from construction activities, non-resident population and traffic | Provision of barriers/fences and warning signs at dangerous areas.<br>Imposition of speed limits in residential areas.<br>Medical screening of workers by the contractors.<br>Provision of adequate water and sanitation facilities at campsite.<br>Wearing of personal protected equipment (PPE).<br>Provision of temporary safe passageways for residents.<br>Proper waste disposal and good housekeeping. | ESMP<br>CSEMP |
| Interruption in utilities services | Proper scheduling and timing of affecting repair activities.<br>Consultation with the utilities companies and users.<br>Provision of alternative sources. | ESMP |
| Damage to existing infrastructure due to construction traffic especially the hauling of embankment materials | Contractor to undertake regular repairs of construction routes.<br>Construction of temporary detours to avoid weak bridges. | ESMP<br>CSEMP |
| Loss of crops, trees and other properties due to permanent and temporary land use by the subproject. | Conduction consultations with the affected households for an agreed compensation plan.<br>Implement the agreed compensation plan. | RP |
| Possible land and soil degradation in the construction sites and | Contractor to practice good construction site housekeeping.<br>Avoidance of spillages of fuel, oil and grease. | ESMP<br>CSEMP |

| Common Impacts | Typical Mitigation Measures | Instrument |
|---|---|---|
| vicinities include lands used for temporary easements and quarries due to compaction, litters, improper disposal of construction wastes and spoils. | Disposal of construction spoils into the designated landfill only.<br>Clearing and restoration of construction sites after completion.<br>Practice proper waste collection and disposal system. | |
| Loss of land (land use rights) of some households due to permanent land use by the subprojects | Undertake consultation with the affected households and agree a resettlement/compensation plan which is compliant with the World Bank OP/BP 4.12.<br>Undertake the process of land clearance.<br>Implement the resettlement plan. | RP |
| Possible chance finds of archaeological sites, artefacts | Adopt a Change Find Procedure. | Chance Find Procedure |
| Possible encounter of unexploded ordnance (UXO) | Immediately stop activities, secure the site and contact authorities. Contact details of the authorities should be available.<br>Follow UXO procedure. | UXO Procedure |
| Lack of means for lodging complaints or claims for compensation of damage during construction | Set up a Grievance Redress Mechanism for the sub-project | Grievance Redress Procedure in ESMP |

*Management of dredged materials.* The analyses on sediments quality showed that they are not hazardous, with the concentrations of heavy metals within the national standards. However, the sediment do contain pathogenic microbes and have relatively high levels of organic compounds. This sediment could be disposed of at the landfill or be used for urban tree planting or agricultural purposes after temporary storage in dry conditions to remove microbes and allow partial decomposition of organic compounds. Draft Dredged Material Management Plans (DMMPs) have been prepared for investments involving dredging works for each city subproject. The DMMPs will be updated during the detailed design stage with additional necessary analysis of sediment quality, detailed information on the amount of sediment generated, and with requirements relating to the contractor's dredging method, transportation and disposal that are appropriate and cost-effective.

### 4.8. Due Diligence Reviews

A due diligence review was undertaken by the Borrower for the Waste Treatment Plants (WTP), landfills and Wastewater Treatment Plants (WWTPs) which will be used by the project for disposal of the wastes and dredged sediment during construction and for treatment of wastewater generated by the project during operation. Most of the WTPs and WWTPs are in the planning phase or under construction. However, they will be completed in time for receiving wastes and wastewater from the project.

For Vinh Long City, due diligence was conducted for expanding the 2nd Landfill in Hoa Phu Commune which will be completed by 2018, and Vinh Long City WWTP which is expected to be completed in 2020. Due diligence was also for the existing Soc Trang City WWTP and WTP in Soc Trang; An Giang Solid WTP (To be completed in 2017) and Long Xuyen WWTP (To be completed in 2017) for Long Xuyen City; Ben Tre WTP (To be completed in 2017) and Ben Tre City WWTP (To be completed in 2020) for Ben Tre City; Existing Thach Hoa Domestic WTP

for Tan An City; and Solid WTP in Hoa An commune (To be completed in 2018) and Vi Thanh City WWTP for Vi Thanh City.

The results of the review show that all the existing and futures WTPs, landfills, and WWTPs have enough capacity to receive and treat wastes and wastewater that will be generated by the project during construction and operation. Preparation and construction of these facilities have been in compliance with the government environmental impact assessment requirements. The existing facilities are licensed and operating in line with the related national environmental management regulations.

A due diligence review of land acquisition activities has also been conducted for the RS in Long Xuyen, Soc Trang, Tan An, Vinh Long and Vi Thanh, developed by local funds but to be used for relocated households under the SUUP, to ensure that land acquisition activities were conducted in line with the GoV regulations and are consistent with the WB OP 4.12 objectives. For all these RS, land acquisition and compensation complied with the relevant national/provincial policies at the time of the compensation and are consistent with WB policy; no complaint or dispute was noticed: all affected households had received compensation, assistance, and resettlement and handed over their land to the project. There is no legacy issue. The preparation and implementation of these projects are in compliance with the government environmental impact assessment requirements. The due diligence reviews were included in all sub-project RPs and reflected in the subprojects ESIAs.

Due diligence was also conducted for another linked project in Tan An City: the construction of Huynh Van Nhut road along the Bao Dinh river where investments under the SUUP are planned. Corrective actions were proposed in the RP for Tan An City to ensure compliance with the RPF. Some other planned projects have also been identified as linked to the SUUP (i.e. ring road and Construction of Bao Dinh river embankment, in Tan An City; construction of Vo Van Kiet road in Vinh Long City). The time of implementation for these projects is not yet known. Once implemented, land acquisition and compensation should follow the provisions of the RPF.

# CHAPTER 5. ENVIRONMENTAL MANAGEMENT PLAN

Seven Environmental and Social Management Plans (ESMPs) were prepared as part of the subproject ESIAs prepared by the PMU. The objectives of the ESMPs are to: (i) ensure compliance with the applicable provincial, national, laws, regulations, standards, and guidelines; (ii) ensure that there is sufficient allocation of resources on the project budget for implementation of ESMP-related activities; iii) ensure that environmental risks associated with a project property managed; iv) respond to emerging and unforeseen environmental issues not identified in the subproject ESIA; v) provide feedback for continual improvement in environmental performance.

The ESMPs consist of the set of good practice mitigation measures to address common construction related impacts which referred to as Environmental Codes of Practices (ECOP), site-specific environmental and social measures to deal with the impacts specific to the subproject areas and activities. The ESMPs also include 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. Each subproject ESMP includes a Compliance Framework which lays out the role and responsibilities of the contractor and a penalty system to address no-compliance cases of the contractor to the environmental management requirements of the subproject. Each subproject ESMP also includes a Grievance and Redress Mechanism (GRM) to provide the framework within which complaints about environmental and safety issues can be handled, grievances can be addressed and disputes can be settled quickly. The GRM will be in place before the subproject construction commences. Finally, the ESMPs include the budgets for their implementation including for capacity building in project environmental management.

## 5.1. Management Organization and Responsibilities

The subproject owners, which are the provincial City Project Management Units (PMUs), will include content of the corresponding ESMPs into the standard tender documents to be used as a basis for contractors to implement environmental management during construction phase. The PMUs will be responsible for overall supervision and monitoring of the subproject including implementation of the ESMPs and will provide safeguard training to the subproject staff.

To facilitate effective implementation of the ESMPs, the city subproject PMUs will: (a) establish an Environment and Social Unit (ESU) responsible for ensuring timely implementation of the ESMP, including monitoring, reporting, and capacity building related to safeguards; (b) hire the Construction Supervision Consultant (CSC) to be responsible for supervision of the contractor's safeguard performance as part of the construction contract and this requirement will be included in the CSC terms of reference (TOR); and (c) hire qualified the Independent Environmental Management Consultant (IEMC) to assist the ESU in performing these tasks.

The city water supply, drainage, and urban maintenance companies, as appropriate, will be responsible for implementing the mitigation measures during the operation stage of the project and they will ensure that the mitigation measures are implemented and adequate budget is provided. The Provincial Steering Committee (PSC) chaired by the Chairman or Vice Chairman of the Provincial People's Committee (PCP) of the respective province will provide the overall policy guidance and oversight of project implementation.

Safeguard management responsibilities have been defined in the ESIAs, RAPs. Social safeguard management include PMUs, PPC, DPC, independent monitoring consultant (please refer to city specific RAP for detailed arrangement).

## 5.2. Environmental Monitoring

It is essential to design the monitoring program and monitoring frequency appropriately to be able to demonstrate both the overall performance of the project works as well as the short- term impact due to peak construction activities. More specifically, as the integral and critical part of each subproject ESMP, the environment monitoring program has the following objectives: i) Determine the actual extent of the impacts; ii) Control impacts which are generated from construction process and mentioned in ESIA report; iii) Check environmental pollution standards applied to the project during construction; iv) Check and supervise implementation of environmental protection solutions during construction based on ESIA report; v) Suggest mitigation measures in case of unexpected impacts; vi) Suggest to the Client to coordinate with central and local environmental organizations to solve pending issues relating to environmental protection under the scope of the Project; vii) Assess the effect of mitigation measures in pre-construction, construction and operation stages; and viii) Confirm the impacts forecasted in the ESIA.

Monitoring will focus on compliance with the ESMP and CSEMP. This will be done by the project owner on a daily basis as part of the ground supervision of construction. Environmental quality monitoring will also be conducted by the project owner as part of the standard requirements of the national legislation.

*The Subproject Owners,* the through their PMUs, has responsibility for ensuring that the ESIA is effectively implemented. The sub-project owner will carry out the task, but not limited to the following: (i) Assign a qualified staff to be responsible for taking actions related to environmental safeguard and ensuring effective and timely implementation of ESIA; (ii) Assign a Construction Supervision Consultant (CSC) and/or field engineer to be responsible for supervision of the contractor's safeguard performance as part of the construction contract; (iii) Include the subproject ESMP/ECOP, into bidding and contract documents and ensure that contractors are aware of these obligations; and (iv) Prepare monitoring reports to submit to WB.

*Contractor Responsibilities:* Contractor is responsible for carrying out civil works and informs Subproject owner, local authority and community about construction plan and risks associated with civil works. As such, contractor is responsible for implementing agreed measures to mitigate environmental risks associated with its civil works as indicated in the ESMP and contractual documents.

## 5.3. Environmental Supervision

Environmental supervision during construction will be the responsibility of the CSCs, who will be required to include in their supervision teams personnel with experience in supervising the environmental aspects of projects financed by international agencies such as the World Bank. They must also be familiar with the environmental legislation requirements of the Government. In accordance with their supervision contracts, and with the provisions of the construction contracts, the CSCs will be responsible for supervising all construction activities, including the mitigation measures that have been incorporated into the contracts on the basis of the ESMPs, and more broadly for ensuring that any negative environmental impacts of the project are minimized.

## 5.4. Independent Environmental Monitoring Consultant (IEMC)

The monitoring and related audit of the subprojects will be carried out by Independent Environmental Monitoring Consultants (IEMC) appointed by each of the city PMUs for their respective subprojects. The IEMCs will be responsible for carrying out environmental sampling and monitoring at least twice a year, on all environmental-related issues regarding the works. They will check, review, verify and validate the overall environmental performance of the respective subprojects through regular inspections and review. This review will provide confirmation that the results reported by the contractors to the construction management consultants and the PMUs are

valid and that the relevant mitigation measures and monitoring programs provided in the subproject ESMPs are being fully complied with. The IEMCs will also supply specialized assistance to the PMUs and, if required, to the CSCs, on environmental matters.

On RP implementation, an independent consultant will be retained by implementing agencies to periodically carry out external monitoring and evaluation of the implementation of RPs. The independent agencies would be an academic or research institutions, non-Governmental Organizations (NGO) or independent consulting firms, all with qualified and experienced staff and terms of reference acceptable to the World Bank. Depending on the magnitude of project impact, borrower with consultation from Task's Team of the World Bank will decide the extent of using independent monitoring consultant. In addition to verifying the information furnished in the internal supervision and monitoring reports of the respective PMUs, the external monitoring agency will collect information from affected households. A Resettlement Plan could not be considered complete until a completion audit or survey confirms that all entitlements have been received by beneficiaries and livelihood restoration is progressing on schedule.

**Safeguard Capacity of Borrowers**. The seven cities have in general limited experience in implementing the World Bank safeguards. All implementing agencies, through their dedicated staff/unit, will be responsible for implementing and monitoring the safeguard instruments (ESMPs, RPF, RPs) as well as mitigation measures defined in the ESIAs. The implementation of safeguard instruments will be internally monitored by the PMUs in close coordination with the respective Peoples' Committees and the line departments at different administrative levels and externally supervised by independent monitoring agencies. Implementing agencies will ensure that activities related to environmental and social safeguards will be properly tracked, reported and documented. Independent monitoring will start around the same time as implementation of activities and will continue until the end of the project/sub-project. During the project implementation, appropriate training will be provided to the PMUs, consultants and local community representatives on the safeguard instruments to be applied to the Project.

### 5.5. Costs of Environmental and Social Management Plan

The costs of land acquisition and resettlement are included in Table 5.1. The ESMP cost for each city will comprise: (a) cost for implementation of the mitigation measures by contractor, (b) cost for supervision by the CSC, (c) cost for the independent environmental monitoring consultant (IEMC), (d) monitoring of environmental quality, and (e) PMU safeguard management costs. Costs for the implementation of the mitigation measures during construction will be part of the contract costs while the costs for monitoring by the CSC is provided for in the construction supervision contracts. Costs for PMU operations related to the ESMP are provided for in the project management budget of the PMU. None of these costs can be easily calculated separately. For each city the cost of (c) will be about US$100,000, of (d) will be about US$50,000. In addition each city has budgeted US$25,000 for a safeguards capacity building program to be implemented during the project. The costs estimates for land acquisition and assistance for the implementation of 7 subprojects are presented in Table 5.1.

**Table 5.1**. Estimated cost for Involuntary resettlement of 07 city subprojects

| Subprojects | Budget VND | Budget US$ |
|---|---|---|
| Bac Lieu | 209,900,000,000 | 9,287,000 |
| Ben Tre | 241,450,000,000 | 10,863,000 |
| Long Xuyen | 300,120,000,000 | 13,279,000 |
| Soc Trang | 168,446,977,776 | 7,486,532 |
| Tan An | 217,140,627,790 | 9,637,844 |
| Vi Thanh | 237,276,987,476 | 10,675,650 |
| Vinh Long | 383,234,035,000 | 17,216,264 |

# CHAPTER 6. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

## 6.1. Public consultation during preparation of the ESIAs

Two public consultations were carried out during the preparation of each of the subproject EIAs. In line with the Government's consultation procedures and the Bank's safeguard policies the first consultation was conducted to collect opinions from the Provincial People's Committees (PPCs), City/Commune People's Committees (CPCs), and the affected people in subproject wards. All comments and concerns expressed during the consultation have been taken into account during the preparation of the subproject's safeguards documents. The second consultation focused on the results of the impact assessment and the proposed mitigation measures. Details are provided in the ESIA reports and summarized in Table 6.1 and 6.2.

**Table 6.1. Public Consultation Activities Carried out**

| | **Round 1** | | | **Round 2** | | |
|---|---|---|---|---|---|---|
| | Time | Total Participants | Female Participant | Time | Total Participants | Female Participant |
| Bac Lieu | | | | 27-October to 30-October-2016 | 673 | 253 |
| Ben Tre | 25-July to 26-July - 2016 | 88 | 33 | 26-October to 30-October-2016 | 548 | 210 |
| Long Xuyen | 28-July to 29-July - 2016 | 63 | 22 | 27-October to 30-October-2016 | 261 | 113 |
| Soc Trang | 11- 14 July 2016 | 147 | | 6-9 Dec 2016 | 157 | |
| Tan An | 1- 4 July 2016 | 225 | | 2-7 Dec 2016 | 221 | |
| Vi Thanh | 27-July to 28-July 2016 | 77 | 27 | 16 Dec -18 Dec-2016 | 125 | - |
| Vinh Long | 25-July to 27-July - 2016 | 91 | 35 | 19 Dec -21 Dec-2016 | 120 | - |
| **Total** | | | | | | |

During those consultation meetings, PMUs and consultant teams have presented the project components, potential environmental/social impacts and associated mitigation measures. Feedbacks from communities and other stakeholders have been used to finalize the safeguard instruments (ESIAs/SIAs, RPF, RPs) as well as other aspects of project design. Summaries of received feedbacks/comments are presented in Table 6.2.

**Table 6.2. Feedbacks Received from Public Consultations**

| **City** | **Key Comments/Questions** |
|---|---|
| Ben Tre | ○ People agreed with subproject implementation<br>○ There should be policies to support and publicize information to households affected if the project is about to last<br>○ Provide specific and clear schedules and plans<br>○ Materials transport trucks must be fully covered to prevent material spillage, affecting sanitation Issues of generated dust and emissions are included in the ESIA and mitigation measures will be applied. |

| City | Key Comments/Questions |
|---|---|
| | ○ Allocate reasonable traffic flow and make temporary construction of local roads<br>○ Construction by concentration method to avoid prolonging the construction<br>○ During construction, make sure of clean water; restrict production of waste at the source of the people<br>○ The compensation must be clear and timely implemented to stabilize the lives of residents. |
| Bac Lieu | ○ Unify the content in the report of environmental impact assessment of the project.<br>○ Notice people on compensation plans as soon as possible.<br>○ Avoid material gathering along the route affecting regional traffic.<br>○ Transparency in the relocation, clearance and resettlement.<br>○ Perform electrical work safety and fire protection to avoid affecting the residential<br>○ During the construction of embankments, there must be measures to avoid subsidence.<br>○ Ensure the safety of construction workers and traffic safety during transport.<br>○ Use rolling method to avoid prolonging the construction<br>○ Materials transport vehicles are required to be screened and comply with the traffic law. During the construction process, measures must be taken to combat flooding affecting residents in the region. |
| Long Xuyen | ○ Unify the content in the report of environmental impact assessment of the project.<br>○ Properly arrange the sewers and materials collection, avoid long set up at residents' houses, hindering their transportation<br>○ Notice people on compensation plans as soon as possible<br>○ The compensation for clearance and resettlement should harmonize the community and individual interests, and create conditions for relocated households to stabilize their lives.<br>○ Use rolling method to avoid prolonging the construction<br>○ Pay attention to the construction piling, avoid affecting the lives of residents<br>○ Spray water to avoid dust generation during construction<br>○ Ensure the safety of construction workers; take measures to handle household waste and hazardous waste generated during construction.<br>○ Materials transport vehicles are required to be screened and comply with the traffic law. During the construction process, measures must be taken to combat flooding affecting residents in the region<br>○ The mosquitoes will grow while dredging, there needs to be sanitation teams to prevent disease and to spray sanitizer for disease reduction. |
| Soc Trang | ○ Must have appropriate construction methods to limit damage to the property of the people as well as public utilities (electricity, water supply)<br>○ There are many Khmer and low-income households in LIA3, therefore the contractor should pay attention to the impact on the cultural life and community activities of the Khmers.<br>○ Dredging of Hi Tech canal in ward 3 should provide associated infrastructures such as lighting system, drainage system along sides of the canal.<br>○ Provide appropriate compensation support to affected households.<br>○ Ensure not to disrupt local traffic. Inform the local community and authority about the construction plan to avoid social conflicts.<br>○ Proper finish the site to avoid delaying the work disrupting the local residents.<br>○ Care should be taken to avoid local flooding to other areas while installing drainage system in Tran Binh Trong and Phu Loi roads.<br>○ Impacts on waterway navigation on Maspero River should be taken into account while construction of Nguyen Van Linh bridge is carried out.<br>○ Contractor should mitigate the impacts on pagodas that are close to one end of Tra Men A canal and section 1 of Dien Bien Phu road<br>○ Do not carry out construction work during noon or at night to limit the noise impacts at the populous areas.<br>○ Mitigation measures are to be applied for 3 days of full Moon on the 10th Month of |

| City | Key Comments/Questions |
|---|---|
| | the Lunar Calendar when the boat racing festival is taking place. |
| Tan An | ○ • Currently, drainage systems in the area is poor, project must take consideration into the issue to avoid flooding, inundation and ensure sanitation surrounding environment.<br>○ The vast majority of households in Ao Quan lake area are poor and disadvantaged; the project should support an amount or land for people.<br>○ Alley 80 locate in low area where is under water once water level rise. People face many difficulties, especially the canals in residential area is seriously polluted because of illegal encroachment as a result from people's low awareness. The project should rehabilitate, dredge the canal to protect and improve environmental conditions in the area.<br>○ Provide appropriate compensation and resettlement support to affected households.<br>○ Water supply in Alley 89 Huynh Van Nhut road is too poor to deal with inundation in rainy season; the project should take consideration for measures for addressing.<br>○ Reservoir of Bao Dinh river used for water storage is currently not used and become a polluted swamp where creates infectious diseases; the project should propose a settlement methods.<br>○ Cau Tre canal running through 3 area are causing serious impacts on people's health and mentality of the.<br>○ In alley 92 Nguyen Cuu Van road, the drainage capacity is poor with frequent flooding; causing difficulties for people, the project should rehabilitate and upgrade the alley.<br>○ Reduce vibration, noise and dust on households near the construction site.<br>○ Disseminate information on project implementation time and provide appropriate policies.<br>○ In Quyet Thang 2 street, roads are poor; thus, material transportation must be informed to people and ensure the load of roads.<br>○ Construction and materials transportation must apply measures to minimize dust<br>○ Have bypasses for people travel during road construction.<br>○ When upgrading and rehabilitating Phan Van Tuan road to NH1 crossing the agricultural land area, a ditch for drainage must be built for business households. |
| Vi Thanh | ○ Supports project implementation;<br>○ Client and construction contractors needs to implement auxiliary items such as drainage sewer system and waste collection system. Due attention must also be paid to application of proper measures to mitigate environmental impacts and improve people's life quality.<br>○ People hope that the Client will upgrade the roads in Area 1 to improve traffic convenience, and will make waste collection available for each HH to help improve their life quality.<br>○ During construction phase, Client and construction contractors needs to closely co-operate with Ward 5's PC and people in the project areas to ensure labor safety and implement well environmental mitigation measures. Material transportation vehicles must be well covered to avoid generating dust affecting environment and people in the area.<br>○ Demolition of structures within the wards must be notified in advance to the ward's PC and HHs and must not be implemented at sensitive times such as lunch time or late night.<br>○ Proper calculations need to be made on storm-water and domestic WW drainage sewer systems to avoid risks of flooding upon raining; |
| Vinh<br>Long | ○ People agreed with subproject implementation<br>○ Need to implement the adequate compensation policies for the affected households.<br>○ During the implementation of subproject, the environmental protection measures need implementing strictly to avoid affecting people health, and environmental pollution<br>○ Ensure sustainability and avoid damage to local infrastructures during the subproject |

| City | Key Comments/Questions |
|---|---|
| | implementation when implementing subproject.<br>o Ensure traffic situation in the area.<br>o In the subproject construction, Contractor must ensure good drainage system to avoid flood when raining.<br>o When getting environmental problems, it need to be solved immediately.<br>o Construction supervision need to implemented by households.<br>o Agree with impacts and mitigation measures mentioned in ESIA report<br>o Client needs to fully ensure labor safety; ensure traffic safety during transportation of construction materials to construction sites; practice fire prevention and fighting and maintenance of order and security at construction sites.<br>o Client needs to pay attention to environmental impacts during construction time: personal waste of the workers, harmful waste of construction activities, and handling of generated dust and noises, etc.<br>o Client needs to fully implement commitments about environmental impact prevention, mitigation measures. |

## 6.2. Information Disclosure

In compliance with EA process requirements of the Government and the World Bank, prior to project appraisal the draft Environmental Assessment Executive Summary, ESIAs, RPF, RPs were locally disclosed at PMUs' offices and subproject sites in January 10 2017. The draft English versions of these safeguards instruments have also been disclosed at the World Bank's Operation Portal on January 11, 2017. The final safeguard instruments in Vietnamese will be finally disclosed locally at the subproject sites, and their final English versions will be also disclosed at the World Bank's Operation Portal.