

PROJECT INFORMATION DOCUMENT (PID) CONCEPT STAGE

Report No.: PIDC23544

Project Name	Can Tho Urban Development and Resilience (P152851)
Region	EAST ASIA AND PACIFIC
Country	Vietnam
Sector(s)	Sub-national government administration (10%), Information technology (5%), Urban Transport (30%), Sanitation (10%), Flood protection (45%)
Theme(s)	Climate change (15%), Municipal governance and institution building (20%), Other urban development (25%), Natural disaster management (40%)
Lending Instrument	Investment Project Financing
Project ID	P152851
Borrower(s)	Can Tho City People's Committee
Implementing Agency	Can Tho City People's Committee
Environmental Category	B-Partial Assessment
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Concept Review Decision	Track I - The review did authorize the preparation to continue

I. Introduction and Context

Country Context

Vietnam has made remarkable progress in economic growth and poverty in recent years, and has recently graduated to lower middle income country status. Over the last two decades, the country has recorded among the highest growth rates in the world, which in turn enabled poverty reduction at record pace. GDP growth, however, fell from an average rate of 7.3 percent during 2000-07 to 5.8 percent during 2008-2012, and down to around 5.3 percent in 2013. The external sector has held up well despite the global situation, but domestic demand remains weak on account of subdued private sector confidence, overleveraged state-owned enterprises and (undercapitalized) banking sectors, and shrinking fiscal space. The slowing of the growth rate has had limited impact in large cities which continue to attract domestic and foreign investment.

An integral part of Vietnam's transition from low- middle income to advanced status has been its transition from a largely rural to urban economy. Economic progress has coincided with rapid urbanization, with Vietnam sustaining a 3 percent annual urban population growth rate from 1999 to 2011. Most of the country's urban and economic growth over the past ten years has been concentrated in Hanoi and Ho Chi Minh City and their economic regions. However, medium size cities, such as Can Tho, have also been urbanizing rapidly and have over time increased their contribution to Vietnam's economic growth.

Can Tho City is the 4th largest city in the country, with a population of approximately 1.25 million, and an urban annual growth rate of 5.0 percent between 2005- 2012. The city is the economic engine of the Mekong Delta Region and currently enjoys 11.67 percent annual GDP growth (2013). Moreover, Can Tho is becoming a hub for high-tech agro-industrial production and aquaculture, food processing, and export, thereby becoming a major actor in promoting food security in the Mekong Delta.

Low-income areas within the city are characterized by high population densities and lack of, or poorly maintained, infrastructure and inadequate social services. The poverty rate of the whole city is still rather high despite that in the past years, poverty rate had decreased in average 1 percent per year. According to the poverty standards of MOLISA, the percentage of poor and near-poor in Can Tho city is about 6,1 percent (2014). The percentage of poor and near poor people will increase if accounted for students and immigrants from other provinces in the region coming to the city to study and work. According to a 2009 survey, 31 percent of the population is within the bottom 40 percent income, ranked 11th out of 63 provinces/central cities of the country (meaning that poverty rate of Can Tho city is higher than other 4 central cities and 6 provinces).

The Mekong Delta is considered vulnerable to climate change and disasters. People living in the Mekong Delta have faced serious challenges from alluvial and tidal flooding, salt water intrusion, and sea level rise. Flooding has significantly impacted the socio-economic development of the city and the entire Mekong Delta as a whole, given the major role the city plays in the development of the Region. Each year, about half of the Delta is flooded by overflow of 1 to 3 meters in depth.

As one of the 13 Mekong Delta provinces, and being located along the Bassac River (Hau River), Can Tho City shares the hazards of the larger Mekong Delta. The city is susceptible to flooding caused by Mekong alluvial overflow, high tides, and extreme rainfall events. Seasonal flooding typically impacts 30 percent of the city area, but has recently increased to 50 percent. Close to 95 percent of the total land area is less than 1.0 meter above mean sea level, except for the built-up urban area located along the bank of the Hau River, which is about 2.0 meters above mean sea level. The maximum water level reached about 2.15 meters during a major flood event in 2011.

Sectoral and Institutional Context

The Mekong Delta is a complex natural system that includes significant human development. Competing interests are balanced between types of agricultural production (agriculture and aquaculture) while needs are also balanced between protecting communities from flooding and ensuring efficient agricultural production. In recent times, economic development and climate change have stressed the Mekong Delta system, which has resulted in increasing disaster risk today and greater risk in the future. These risks include flooding, drought, and storms as well as increasing natural challenges such as subsidence and salinity.

To support the Government in proactively adapting to these changes, the Bank is working to develop two investments. The first investment analyzes the Mekong Delta system as a whole and will propose interventions to address the complex balances for competing resources to strengthen integrated climate resilient management and development. It will support structural and non-structural measures to strengthen regional and provincial-level planning capacity for sustainable Delta-wide development. The second investment – this Can Tho Urban Development and Resilience Project – will invest in supporting the urban core of Can Tho, as a Mekong regional socio-economic development hub, to become more resilient to a changing delta and promote sustainable urbanization and transport corridors.

Any intervention made in Can Tho could impact other provinces and vice versa. Therefore, the flood intervention approach for Can Tho must be in line with the Delta-wide approach. Given the potential of specific investments in the Mekong to negatively impact other provinces, there are several flood risk management plans that have been, or are being, developed for the Mekong Delta Region and Can Tho City. Each of the Mekong Delta plans converge on the priority to protect the developed urban areas/cities in the Mekong Delta, including Can Tho, through a set of flood protection structures and tidal prevention gates. In addition, the flood risk management plans for Can Tho City prioritizes protecting the core urban area of the city as a necessary immediate action. This prioritization takes into consideration the importance of the urban core to the economic growth and development of the City and the entire Mekong Delta Region.

In recent years, the city drainage system in the core urban area of Ninh Kieu District has been improved with funding from local resources, the central government, KfW , and the World Bank. However, the prevention of river flooding, including tidal effect, has not been adequately addressed. As a result, the city was seriously flooded in 2011, 2012, 2013 and 2014. The current Flood Control Master Plan, developed by Ministry of Agriculture and Rural Development (MARD), proposes a series of interventions to mitigate the impact of tidal flows to the city’s canal network particularly in the high tide season. At the same time, the drainage and sewer system master plan for the city lay out a set of immediate actions to improve the drainage capacity of the existing canal and pipe systems. A combination of “low-regret” engineering solutions , including closed embankment, tidal gates/valves and improved drainage is necessary to address the flooding problem in the urban core. None of these interventions alone is sufficient to reduce the flood risk in the city.

Can Tho is urbanizing rapidly. In fact, the built up area is growing at a compounded annual growth rate of almost 17 percent while the annual urban population growth has been 5 percent. Approved by the Prime Minister in 2013, Can Tho’s Master Plan is up-to-date and comprehensive, but support is needed to help prioritize spatial developments that integrate transportation with designated land-use by offering guidelines for a phased implementation of the Master Plan in line with the goals identified in the Socio-Economic Development Plan. Moreover, this rapid urban growth is straining the city’s ability to keep up with demands for infrastructure such as roads, drainage, and sanitation.

Recent flooding has affected an average of 2,000 ha (about 69 percent of the total core urban area) and more than 200,000 people each year. In addition to the serious damages to assets, flooding also interrupts economic activities in these core urban areas. According to the city’s analysis, urban flooding caused direct economic damages of more than US\$300 million in the last 5 years. A recent study by the International Institute for Environment and Development estimates total (direct and indirect) annual economic losses due to flooding at US\$ 642 per household, which represents 11 percent of each household’s annual income. City-wide, this could represent some US\$130 - 190

million in damages and losses per year due to flooding.

A number of factors contribute to flooding in Can Tho, including heavy rainfall, tidal increase, poor drainage in built-up urban areas, and land subsidence. In 2000 and 2011, the Hau River overflowed and caused serious flooding in the Ninh Kieu and Binh Thuy districts. In addition, the core urban area is affected by high tides and heavy rains during flood season.

Recent analyses show that the maximum water level in Can Tho has continuously increased over the last 15 years even though the water level upstream did not change. The increased water level in the city is caused by stronger influence of tides due to morphology changes of the Hau River and probable land subsidence. In addition, sewer systems in the city are generally old and of insufficient capacity to deal with high rainfall events, while many parts of the city do not yet have drainage systems. Rapid and uncontrolled urbanization has resulted in encroachment on many natural canals, significantly reducing water drainage capacity of the city drainage system. As a result, urban flooding from rainfall events and high tides is a regular occurrence. Projected climate change impacts are expected to worsen this situation.

Addressing the challenges associated with flooding and rapid urbanization in Can Tho is necessary to improve the quality of life for urban residents. Doing so will sustain and strengthen economic growth in agriculture, aquaculture and the tertiary sectors. Improving the city's resilience to disasters and capacity to manage urbanization are critical to the larger goal of reducing extreme poverty and boosting shared prosperity.

Transport infrastructure in Can Tho is predominantly dependent on roads, rendering the transport sector vulnerable to disruptions caused by seasonal flooding. While the city has proactively assessed transport investments based on flood risks, the link between transport and urban land-use planning is not fully taken into consideration. In general, road investments in Can Tho have tended to focus on providing improved access to existing communities or providing access to large-scale economic development sites. The scale and nature of land-use along the roadways has not been sufficiently monitored or planned, and the result has been sprawling growth into low-lying areas.

Transport plays a major role in inducing and guiding urbanization, and transport investments in Can Tho should be used to strengthen the role of the urban core as the locus of development and growth. Over 85 percent of manufactured goods are transported through roads in Vietnam, while an increasing number of bottlenecks is hampering the movement of goods and people. Thus, improving the efficiency of road freight transportation is critical to support industrialization and modernization of Vietnamese economy as well as to increase the economic returns from investments. Increased accessibility and connectivity as a result of new and improved transport infrastructure is also likely to increase land values and investment opportunities along transport corridors, which is value-creation that the local government can capture using a variety of mechanisms and convert into public revenue.

Global experience indicates that rapid urbanization and increasing incomes are normally accompanied with fast growing motorization, which in turn generates or increases problems such as traffic congestion and air pollution. While it is perhaps unavoidable to construct new roads in order to accommodate rapid urban growth, road construction needs to be accompanied by sound urban planning and management. This will include a feasibility study for a Bus Rapid Transport (BRT) and concepts such as transit oriented development (TOD) and pedestrian oriented design (POD) will

be utilized to guide land-use planning and development along integrated transport corridors.

The urban transport system of Can Tho is formed and oriented along vertical and horizontal axes. There are only a few horizontal axes connecting to the vertical axes. These horizontal axes are far apart from each other thereby limiting interconnectivity. Thus, transport flows through the urban center, creating increased traffic density in the urban core, increasing transport costs and subsequently product costs, reducing investment attractiveness and competitiveness. Unlinked transport infrastructure also decreases regional and interregional transport connectivity, lowering the speed of goods circulation and subsequently affecting the economic development capability as well as access of residents to social infrastructure. Main urban axes such as 30/4 road, 3/2 road, Nguyen Van Cu road, Quang Trung – Cai Cui road play the role to connect National Highways to port clusters, airport to provinces in the region and is the main urban transport corridor of the city.

With the rapid and inadequately planned urban and economic growth, development of urban transport will become more urgent and difficult. Poor connectivity will reduce investment opportunities especially in the rapidly urbanizing areas of Ninh Kieu, Binh Thuy and Cai Rang. If left unaddressed, traffic congestion will increase, leading to decreased traffic safety, air pollution and decreased access to urban services.

Can Tho has an opportunity to address the two primary threats to its socio-economic development goals—flooding and uncontrolled urbanization—by more proactively guiding urban growth to areas with lower flood risk, including the higher elevation areas near the heart of the city. However, the current lack of coordination among institutions hampers integrated management of flood risks and effective investments in flood prevention from being realized.

There are two entities with a mandate to coordinate and mainstream flood management in Can Tho—the Climate Change Coordination Office (CCCO) and the City Committee for Flood and Storm Control (CCFSC)—and there are four departments involved in the design, operation, and maintenance of the drainage and flood control systems. Specifically, the Department of Transport (DOT) manages the piped drainage system and part of the open canal system in the city. The Department of Agriculture and Rural Development (DARD), under which the CCFSC is located, manages open canals with an agricultural drainage purpose as well as the flood control system, including embankments and tidal gates. The Department of Natural Resources and Environment (DONRE) is responsible for water resource management. Finally, the Department of Construction (DOC) is responsible for issuing building codes for drainage systems, but does not manage or operate them. There is a need to consider these structures as part of one flood management system with one consolidated operations and maintenance procedure. This project will seek to promote coordination across relevant agencies and build management systems to improve spatial planning and flood risk management, while also supporting the development of a transport management system.

Relationship to CAS

The proposed project is consistent with the World Bank Country Partnership Strategy (CPS) for Vietnam (2012-2016) and contributes directly to all three pillars of the strategy: “Competitiveness”, “Sustainability” and “Opportunity”. Furthermore, the proposed project would address the cross cutting theme of “resilience” by increasing the ability of Can Tho and its people, economic assets, natural resources, and businesses to withstand the impacts of natural and man-made hazards, including the consequences of climate change. The operation’s cross-cutting nature is reflected in its

direct support to the following CPS outcomes:

- Outcome 1.2: Improved Quality and Efficiency of Infrastructure Services.
- Outcome 2.2: Strengthened Environmental Protection and Management.
- Outcome 2.3: Enhanced resilience to natural hazards and climate change.
- Outcome 3.2: Improved basic infrastructure and public service delivery and access.

The proposed project is well aligned with the Bank’s “twin goals” of eliminating extreme poverty and boosting shared prosperity through economic growth among the bottom two quintiles. According to the 2009 census, 12 percent of the population in Can Tho is poor and 31 percent of the population belongs to the national bottom 40 percent of income, which is much higher than that of the other 4 central cities and 6 other provinces. The proposed project is expected to have a positive effect on Vietnam’s poverty reduction efforts by improving mobility, flood prevention, and sanitation in the urban core of Can Tho City. Although the two inner city districts Ninh Kieu and Binh Thuy have the lowest proportions of the city’s poor, 1 and 5 percent respectively, they host most of Can Tho’s commercial and business activity providing income opportunities for residents from neighboring districts and provinces, including numerous small vendors and informal service providers.

The proposed project will also help to support shared prosperity objectives. The danger of erosion for the last pockets of slum dwellings in the urban core will be reduced. The project would help induce growth in the city’s lower risk areas through investments in urban corridors and public transportation will allow a growing number of low-income households to settle in safe areas nearby the city center. The city’s requirement to allocate 10 percent of land parcels to public use, including resettlement, will ensure that low-risk areas are made available to the lowest income groups. In addition, poverty and flood maps will be updated during project preparation to show the poverty rate and bottom 40 percent population distribution in relation to flood-prone areas

II. Proposed Development Objective(s)

Proposed Development Objective(s) (From PCN)

The project objective is to reduce flood risk and increase access to urban services in project areas of Can Tho City.

Key Results (From PCN)

At the project level, PDO indicators for the proposed project include the following, and will be disaggregated by gender and income level (bottom 40 percent), where appropriate.

- Reduction in the number of households within existing urban area exposed to 1 in 50 year floods
- Reduction in hours of business disruption in Ninh Kieu due to flooding
- Reduction in travel time between Ninh Kieu and Cai Rang

Intermediate outcome indicators include the following:

Reduced Flood Risk:

- Length of new embankment installed
- Length of upgraded embankment

- Length of drainage/wastewater system upgraded
- Area provided with irrigation and drainage services (CSI)
- Comprehensive flood risk information system established
- Percentage increase of digitized detailed area plans (as opposed to paper-based plans)

Increased access to urban services:

- Length of non-rural roads constructed and rehabilitated (CSI)
- Number of people in urban areas provided with access to all-season roads within a 500 meter range under the project (CSI)
- Length of bridges constructed
- Number of participants in consultation activities during project implementation (CSI)

III. Preliminary Description

Concept Description

The proposed project is part of the World Bank's long-term engagement on the topics of urban development, disaster risk management, and climate change in Can Tho over the last decade. This includes lending operations such as the Vietnam Urban Upgrading Program (VUUP1) (approved in 2004 with additional financing in 2009; US\$ 50.7 million for Can Tho) and its successor the Mekong Delta Region Urban Upgrading Project (VUUP2) (approved 2012; US\$ 69.9 million for Can Tho) as well as numerous studies and technical assistance initiatives. The project leverages non-structural infrastructure measures within areas of resilience planning (Local Resilience Action Plan, 2013; City Strength Diagnostic, 2014), climate adaptation (TA for Can Tho City Steering Committee on Climate Change, 2009) and disaster risk management with a focus on flooding (Integrated Flood Risk Management Plan for Can Tho, 2013). To date, this bundle of activities has succeeded in: i) constructed or rehabilitated over 50km of primary, secondary, and tertiary drainage; ii) dredged and upgraded over 8 km of canals; iii) extended water supply to 13,500 households; iv) provided sewer connections to 84,000 households, and; v) connected 7,000 households to the power grid. When completed in 2017, the two urban upgrading operations will have addressed most of the large low-income areas (LIA) in the urban core.

While previous investments have focused exclusively on urban upgrading, the proposed project will support resilient development by proactively guiding growth to low risk areas near the heart of the city while improving connectivity in the city center, sanitation and the living and working environment. Integrated flood risk management and compact urban development require a balance of structural and non-structural interventions. Therefore, the proposed project comprises two structural components (1 and 2) and an infrastructure systems component (3).

The construction of transport links such as link between CMT8 – provincial road 918, Tran Hoang Na road and bridge, and 2nd unit of Quang Trung bridge is necessary and urgent to address the aforementioned urbanization issues and increase connectivity, decrease transport time from main urban axes to the national highways, port clusters, airport branching to other provinces in the region. Furthermore, the transport investments will promote land development along the routes, which will increase public revenues and connect residential areas, sport centers, and university villages. These investments are expected to redistribute the population to live in areas with lower risks from climate change impacts.

Increased accessibility and connectivity as a result of the new and improved transport infrastructure

is likely to increase land values and investment opportunities along transport corridors, which is value-creation that the government can capture using a variety of mechanisms and convert into public revenue. The City has an opportunity to address the two primary threats to its socio-economic development goals, flooding and uncontrolled urbanization, by more proactively guiding urban growth to areas with lower flood risk, including the higher elevation areas near the heart of the city.

A combination of “low-regret” engineering solutions , including surrounding embankment, tidal gates/valves and improvement in the drainage system is the most appropriate and necessary solution to address the flooding challenges in the urban core. However, none of these interventions alone is sufficient to reduce the flood risk in the City. It is necessary to complement the engineering interventions with sustainable non-structural measures, including green structures, water retention areas, multi-stakeholder coordination, flood response standard operating procedures, and early warning systems. Due to extensive needs and limited financial capacity, it was agreed by both the national entities and city authorities that a phased approach should be considered, with each phase having clear targets for institutional development and infrastructure investments.

To address the City’s two primary threats, flooding and uncontrolled urbanization, Can Tho City must improve the quality, responsiveness, and coordination of physical planning and infrastructure maintenance. Efficiently processed information would help better plan sustainable urban development pathways and make risk sensitive investment decisions. Such an approach would also improve operation of the drainage and flood control systems, and provide support to emergency and public early warning operations.

Component 1: Flood risk management, and environmental sanitation (Bank financing: US\$130 million)

The objective of this component is to reduce flood risk in the urban core of Can Tho. This component would support the city in implementing structural measures for flood protection, drainage, and sanitation included in the Mekong Flood Control Plan, Can Tho Flood Control Master Plan, and Drainage System Master Plan. A combination of “low-regret” engineering solutions , including surrounding embankment, tidal gates/valves and improvement in the drainage system is the most appropriate and necessary solution to address the flooding challenges in the urban core.

Preliminary hydraulic model results have benefitted from extensive consultation with both policy makers and urban flood risk management experts of the City and line ministries. The consensus was confirmed that polder approach, including the existing National Road #91 and right bank embankment of Can Tho river, plus an additional set of flood protection structures and tidal prevention gates, would be the most appropriate engineering solution. Such an approach will address the short and medium term challenges and will protect the core urban area of the city. Moreover, the undeveloped low-lying area in Binh Thuy district would be reserved for flood retention and public park area in accordance with Can Tho’s Master Plan.

The combined flood protection and retention system will protect the core urban area effectively. Annex 1 provides more information on the potential solutions, of which Option 4 and 5 are preferable. These approaches are most effective at reduction the: i) population and assets exposed to the flood hazard; ii) complexity level of operation and maintenance; iii) size of resettlement and relocation; and, iv) financial costs. More importantly, those options would enable better flexibility

in adapting to the future uncertainties caused by climate change, rapid urbanization and land subsidence. Once the investment approach is confirmed, an in-depth analysis, including detailed hydraulic modelling, as well as cost-benefit and multi-criteria analyses, is required to further analyze Options 4 and 5.

- Sub-Component 1.1: Priority Flood Control Investments in Urban Core (Ninh Kieu and Binh Thuy districts). A limited polder approach with combined-use road allows for a flexible and cost effective approach. The Hoang Na road, under Component 2, runs across the city, and aims to increase the connectivity from the urban core in the east to the under-developed university area in the west. This road system can function as a flood protection structure to prevent the overflow from Binh Thuy and Cai Khe canals. As a result, the core urban area would be protected from flooding, while the impact of higher water levels outside the protected area would be reduced. The design of the level of flood protection, especially for the combined function Hoang Na road, needs to be considered. In addition, two tidal sluice gates on the Binh Thuy river and Cai Khe canal would better manage the water level in the mouth of both the Binh Thuy river and Cai Khe canal before entering into the core urban area.
- Sub-Component 1.2: Drainage and Waste Water Systems: Many parts of the existing sewer system in the urban core is very old (over 40 years), and the capacity of the system has been substantially reduced over time. Moreover, the City faces challenges due to tidal intrusion in its canal network. In addition, the City still faces serious issues with disposal of solid waste and industrial waste in its canal network. This component will finance the rehabilitation and improvement of canal, drainage and sanitation infrastructure and associated management systems. Based on further development of the city's hydraulic model, the highest impact investments will be selected.
- Sub-Component 1.3: Planning and operation of the city integrated flood risk management system. Currently, there is significant fragmentation and overlap in managing and operating the flood risk management system among the key authorities. This lack of clarity makes it challenging to effectively plan, implement, and operate the flood risk management system in Can Tho. Improved flood risk management systems will help the city develop: i) improved protocols in operating the city flood control and drainage systems in case of emergency (high tide, river flood discharge, etc.); ii) clearer responsibilities of the key agencies, including DARD, DoC and Water Drainage and Supply Company, in managing and operating the city flood control and drainage systems; iii) an operations & maintenance (O&M) funding framework for the systems; and iv) a coordination protocol between the City and other Mekong provinces for integrated river basin management, and to share information and enhance flood early warning.

Component 2: Urban corridor development (Bank financing: US\$113 million)

The objective of the transport investments is to increase regional connectivity and encourage new urban development in the less flood prone area of Cai Rang. This component will support the city in implementing priority transportation investments identified in the city's Transport Master Plan (2013) and approved SEDP (2013). Three road links will be financed, including: i) the Quang Trung bridge crossing the Can Tho River; ii) the Tran Hoang Na Road, including NH1 side roads from Tran Hoang Na to IC3 intersection ; and iii) the Cach Mang Thang Tam to PR 918/Bui Huu Nghia road. The last of these road links will serve the dual purpose of providing flood protection for the urban core.

This project will affect about 3,300 households, 1,400 of which would need to be relocated. A resettlement site of about 40 ha has been identified in An Binh ward, Ninh Kieu district, to accommodate relocation needs of about 1,250 households currently living in Ninh Kieu district. For other districts, there are land plots available in existing residential or resettlement areas which can be bought for relocated people. This component will cover these costs.

- Sub-Component 2.1: Quang Trung bridge crossing from Ninh Kieu to Cai Rang: The rationale for enhancing this urban corridor is to promote a strong link between the existing urban core and the Cai Rang district, which is planned to be the biggest growth area between now and 2030 (growth from current 80,000 population to 400,000). The project would support a doubling of the capacity of the bridge (proposed bridge is a second unit of a twin bridge, of which the first unit of 11m width was built in year 2005) and capacity to plan for higher density, inclusive development in Cai Rang (under component 3). The proposed bridge would be about 870m in length, including the 480m of bridge and 390m approaching road section. There is a bottle neck because the road has a width of 40m on one side and 56m on the other side that would also need to be addressed. The bridge width would be 11m, consistent with the existing bridge.
- Sub-Component 2.2: Tran Hoang Na road and bridge: The rationale for this link is to provide connectivity from the new city bus terminal to the city center and is expected to share traffic with other roads like Quang Trung bridge, NH91b. It is also expected to relieve the traffic jam that occurs during flood episodes. Finally, the road would also help to reduce traffic at the IC3 intersection where two existing bridges (Quang Trung and Hung Loi) are now joining to this intersection. This corridor would connect the city center starting from Nguyen Van Cu, crossing 3/2 road, 30/4 road and end at National Highway 1 near an inter-provincial bus terminal, which is under construction. The proposed road would be 3.5 km long including a bridge of about 594m crossing the Can Tho river. Side roads along NH1A will facilitate the connection of Tran Hoang Na road to bus terminal and to NH1A. The solutions for ensuring not only smooth traffic but also road safety will be carefully studied and confirmed. The feasibility study and design will be financed by city budget and is expected to be commenced by mid of June, 2015.
- Sub-Component 2.3: Cach Mang Thang Tam- Nguyen Van Link: The rationale for the proposed road is to provide access to a planned university complex, sport center, new resettlement areas, and LIA areas along the road to commercial areas of the city. In addition, it is expected to serve as a ring road section to help the connection with other provinces like Hau Giang, Soc Trang, Bac Lieu, Ca Mau, and HCMC so that traffic, especially freight traffic, can bypass the city without going through the city center. The proposed 5.3 km road will start at Cach Mang Thang Tam road, crossing Vo Van Kiet road, NH91B/Nguyen Van Linh and end at provincial road 918/Bui Huu Nghia road. This road link would be dual purpose and serve as a key portion of the flood risk management investments to protect the urban core. The width of the road is proposed to be 40m, pending the finalization of the FS/basic design and DD.
- Sub-Component 2.4: Transport systems management and feasibility: This sub-component would support i) a study on establishment of Public Transport Authority; and ii) preparation of a pilot bus rapid transit (BRT) corridor for the city. This activity is an opportunity for the city to utilize the concept of transit oriented development (TOD) and pedestrian oriented design (POD) guiding land use planning and development along integrated transport corridors. The proposed Quang Trung bridge could create an excellent candidate for a mass transit corridor along Vo Van

Kiet – Quang Trung bridge – Vo Nguyen Giap corridors. The corridor will be about 20km long with good conditions for a BRT corridor as it is connecting the international airport to the existing city core in the north to new development area in Cai Rang in the south of Can Tho river, and it has good physical features (width, median etc.) as required for a BRT route.

Component 3: Management systems to improve spatial planning, flood risk management and transport (Bank financing: US\$7 million):

The objective of this component is to build management systems to improve spatial planning and flood risk management, while also supporting the development of a transport management system (US\$7 million). This component would also support project management, including administrative oversight, monitoring and evaluation, monitoring and works and contracts.

As urban populations and vulnerability grow, managing urban growth in a way that fosters cities' resilience to natural hazards and the impacts of climate change becomes an ever-greater challenge that requires detailed, up-to-date geographic data of the built environment. To meet this challenge requires innovative, affordable, precise, open, and dynamic data collection and mapping processes that support management of urban growth and disaster risk.

- Sub-Component 3.1: City-Level Geospatial systems for urban development and flood risk management. Currently in Can Tho, detailed area plans that provide guidance on infrastructure development are paper-based. This slows the planning process, makes enforcement of construction permitting less transparent and effective, and hinders the efficient sharing of information across departments. Moreover, it makes it difficult to integrate flood risk data into development analysis and decision-making at the neighborhood scale.

This sub-component will create usable information through community mapping techniques, to build applications and tools that inform decision making, and to develop the networks of trust and social capital necessary for these efforts to become sustainable. In addition, hardware, software, equipment and surveying services necessary for establishment of the GIS will be acquired. The new system will include data on public and private assets, technical infrastructure (e.g., drainage/ wastewater networks, water utility infrastructure, electricity supply lines, etc.), as well as transportation and groundwater monitoring data in order to facilitate the overlay of flood risk data. Support to IT skills development will be provided to all City agencies to ensure the regular update and maintenance of information are put into place. This activity will coordinate closely with the World Bank-funded Mekong Adaptation Program currently under the preparation.

- Sub-Component 3.2: Information system for planning and operation decisions: Two separate monitoring networks will be established for canal water quality and land subsidence management, respectively. Support will also be provided to establish a risk sensitive spatial planning system, including data collection, flood modelling, detailed flood hazard mapping, exposure data analysis, and risk mapping. This platform will also support post-flooding damage and loss assessments.

An information system for emergency response and early warning will help the city improve the operation of flood control and drainage systems. To ensure effectiveness and sustainability, the involvement of community and local stakeholders will be central, particularly in order to improve “last mile” early warning efficacy. The processed information would be accessible by relevant

agencies and the public to provide support to emergency and public early warning operations. In addition, the system would be used as a media channel to raise public awareness on flood risk and solid waste management.

IV. Safeguard Policies that might apply

Safeguard Policies Triggered by the Project	Yes	No	TBD
Environmental Assessment OP/BP 4.01	x		
Natural Habitats OP/BP 4.04	x		
Forests OP/BP 4.36		x	
Pest Management OP 4.09		x	
Physical Cultural Resources OP/BP 4.11	x		
Indigenous Peoples OP/BP 4.10		x	
Involuntary Resettlement OP/BP 4.12	x		
Safety of Dams OP/BP 4.37		x	
Projects on International Waterways OP/BP 7.50	x		
Projects in Disputed Areas OP/BP 7.60		x	

V. Financing (in USD Million)

Total Project Cost:	310.00	Total Bank Financing:	250.00
Financing Gap:	0.00		
Financing Source			Amount
BORROWER/RECIPIENT			60.00
International Bank for Reconstruction and Development			0.00
International Development Association (IDA)			250.00
Total			310.00

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