Project Information Document (PID)
### BASIC INFORMATION

#### A. Basic Project Data

<table>
<thead>
<tr>
<th>Country</th>
<th>Project ID</th>
<th>Project Name</th>
<th>Parent Project ID (if any)</th>
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<tbody>
<tr>
<td>Vietnam</td>
<td>P171700</td>
<td>Vinh Long Urban Development and Climate Resilience Project</td>
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<thead>
<tr>
<th>Region</th>
<th>Estimated Appraisal Date</th>
<th>Estimated Board Date</th>
<th>Practice Area (Lead)</th>
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<tr>
<td>EAST ASIA AND PACIFIC</td>
<td>14-Apr-2020</td>
<td>15-Jun-2020</td>
<td>Urban, Resilience and Land</td>
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<th>Financing Instrument</th>
<th>Borrower(s)</th>
<th>Implementing Agency</th>
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<tr>
<td>Investment Project Financing</td>
<td>Socialist Republic of Vietnam</td>
<td>ODA PMU of Vinh Long Province</td>
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#### Proposed Development Objective(s)

To improve access to infrastructure and connectivity and to reduce flood risk in the urban core area of Vinh Long city.

#### Components

- Component 1: Flood risk management and environmental sanitation
- Component 2: Strategic corridors development
- Component 3: Resettlement Area Development
- Component 4: Enhancing Climate Resilience and Leveraging Disruptive Technologies in Urban Management

### PROJECT FINANCING DATA (US$, Millions)

#### SUMMARY

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount (US$ Millions)</th>
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<tr>
<td>Total Project Cost</td>
<td>219.40</td>
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<tr>
<td>Total Financing</td>
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<tr>
<td>of which IBRD/IDA</td>
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<td>Financing Gap</td>
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#### DETAILS

**World Bank Group Financing**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount (US$ Millions)</th>
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<tr>
<td>International Development Association (IDA)</td>
<td>142.70</td>
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B. Introduction and Context

Country Context

1. The comprehensive 1986 reforms (known as ‘Đổi mới’) in Vietnam have led to stable and sustained economic growth and inclusive development – transforming the country from a low to middle income economy in one generation. Vietnam’s rapid GDP per capita growth rates have averaged 5.5 percent a year since the early 1990s, yielding a three-and-a-half-fold increase in average income. The $1.90-a-day poverty rate fell from 50 percent in the early 1990s to 3 percent today. Economic growth has brought dramatic structural transformations, with the agricultural sector’s share in GDP falling from more than 40 percent in the late 1980s to less than 20 percent in recent years. Access to basic infrastructure has improved substantially. Electricity is now available to almost all households, up from less than half in 1993. By the World Bank’s measure of shared prosperity (i.e., the income growth of the bottom 40% of the population), Vietnam is one of the most noteworthy cases of long-term shared prosperity, globally.

2. Vietnam’s rapid economic development and structural transformation over the past three decades has led to extensive urban transformation, with urban areas now contributing more than half of the country’s GDP. Vietnam has a low level of urbanization (37.5% of the population in 2017) as compared to most of the countries in the East Asia region, but its urban population has grown from fewer than 13 million urban residents in the late 1980s to more than 30 million today. The urbanization process has accelerated in recent years, with half the country’s population expected to live in urban areas by 2035. The Government of Vietnam understands the strategic role and importance of sustainable urbanization in achieving its development aspirations as stipulated and updated in 2009 in the Framework Master Plan for Urban Development in Vietnam to 2025 and Vision to 2050. The Master Plan focuses on

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1 Vietnam 2035 Report (World Bank 2016)
achieving balanced and sustainable strategic growth across the country.

3. **Vietnam has been ranked among the five countries likely to be most affected by climate change**, due to the concentration of a high proportion of its population and economic assets in **vulnerable coastal lowlands and deltas**. It is estimated that Vietnam’s average annual disaster related losses are approximately US$2.4 billion, or almost 1.5% of GDP. Sea level rise of 0.22m and an increase in rainfall of between 12.4% and 33.3% are expected by 2030, based on scenario RPC4.5, which will further increase flood levels. Vietnam’s urban transformation has also led to a growth in greenhouse gas emissions (GHGs), that has been faster than any other country in the region.

4. **The Mekong Delta area is specifically vulnerable to climate change with sea level rise and weather-related hazards.** These events include typhoons, floods and drought, which are expected to become more frequent and intense with climate change, and have significantly impacted the socioeconomic development of the region. Approximately half of the Delta is flooded to a depth 1 to 3 m annually, and the situation is being further exacerbated by land subsidence and sea-level rise. Many areas of the Delta that were previously safe from all but the most extreme floods, are becoming more vulnerable to flooding due to land subsidence, linked in part to the over-abstraction of groundwater. It’s estimated that the land subsidence rate in the Mekong Delta is about 1-4 cm per year. In parallel, drought disasters are occurring more frequently. During 2015-2016 dry season, the Mekong Delta faced extreme drought, during which 400,000 householder lacked domestic water. The drought resulted in economic damage totaling VND 7,900 billion. The poor, the rapidly increasing elderly population, and the high proportion of people living with disabilities in Vietnam, are especially vulnerable to climate change and hydro-metereological disasters.

5. **The impacts of climate change are compounded by insufficient sanitation services, inappropriate land use planning and environmental degradation that increase vulnerability to water and vector borne diseases.** While access to clean drinking water and modern sanitation in urban areas has risen from less than 20 percent of all households in 1999 to more than 90 percent and 78 percent respectively in 2015, there remains an important gap, particularly to sanitation services in smaller cities. The result of one in five people without access to sanitation, and one in ten without access to water, is adverse health consequences, including increased incidence of water related and vector-borne diseases and increased vulnerability to pandemic events.

6. **Vietnam has been negatively impacted by the health and economic crises caused by the COVID-19 pandemic.** Vietnam’s urban residents are vulnerable to COVID-19 and other disease outbreaks, although publicly reported cases and fatalities have been limited due to government measures to reduce social contact to halt the spread of the virus. While disease spread has been limited, these measures are having an impact on the economy, with the country reporting a GDP growth rate of only 3.8 percent in

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4 Hydraulic modeling report for World Bank Scaling up Urban Upgrading Project (SIWRR, 2017)
5 Climate Resilience in Vietnam: An Assessment in Metropolitan Regions (GIZ 2019)
7 Vietnam is one of the most rapidly aging countries in the world. Around 2035, the old age dependency ratio — the number of people 65 years of age or older for every 100 people aged 15–64 — will have risen to almost 22 (from under 10 today), while the working-age population will begin to decline in absolute terms. Vietnam 2035 Report (World Bank 2016)
the first quarter of 2020. This represents the lowest growth rate since 2009 and is partially attributed to the COVID-19 outbreak. In response to the economic impacts, in March 2020, the authorities announced a credit package totaling VND 250 trillion (about 3.3 percent of GDP) from the banking sector, designed to support affected firms and households. In addition, the government is developing a post-COVID-19 economic recovery and fiscal stimulus package that is designed to create temporary jobs and ensure equitable growth.

C. Sectoral and Institutional Context

7. Vietnam’s secondary cities were recognized as a strategic part of its urban system to achieve balanced growth; however, their spatially dispersed urbanization pattern limits their potential for agglomeration economies. Vietnam’s urbanization is dominated by the twin economic engines of Hanoi and Ho Chi Minh City (HCMC) and their respective economic regions, which together accounted for 38.9 percent of Vietnam’s overall population and more than 70 percent of national nonagricultural employment in 2016. By contrast, secondary cities outside of these two regions have relatively low concentrations of urban population and nonagricultural jobs. These secondary cities have experienced spatially dispersed urbanization since 2010, largely driven by their desire to generate more land related revenues and move up the government’s urban hierarchy. Vietnam’s urban areas, as detected using nighttime light data, expanded four times more over the seven years from 2010 to 2017 than they did during the previous 14 years from 1996 to 2010. As a result, between 2000 and 2015, Vietnam’s urban population density remained at 1,890 residents per square kilometer, which is low compared with other countries. The low urban densities, coupled with poor connectivity, not only impedes labor mobility, agglomeration economies and regional integration, but also contributes to increased vulnerability to climate risks.

8. The Mekong Delta Region (MDR), is one of the most densely populated regions outside the metropolitan regions of Hanoi and HCMC with approximately 430 persons per km² (2015). Despite average economic growth rates of between 13 % and 20 % (2006 to 2010), MDR cities are typically small or medium in size with limited fiscal resources and relatively high poverty rates. In 2016, between 14 % and 30 % of the population in MDR cities consisted of low-income households, including a large proportion of ethnic minority groups and people with disabilities. Access to basic services, such as sanitation, drainage and quality water supply, remains as low as 15% in MDR cities, as compared to 80% in large cities such as HCMC and Hanoi. Less than 8% of MDR cities have appropriate wastewater collection and treatment systems, with the majority lacking any systems. Most MDR cities frequently suffer from flooding and other negative climate change impacts because of their low elevation and infrastructure

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10 Vietnam’s Urbanization at a Crossroad: Embarking on an Efficient, Inclusive and Resilient Pathway (World Bank, forthcoming in 2020)
11 The urban classification system consists of six classes of urban areas that are defined by different levels of economic activities, physical development, population, population density, and infrastructure provision. It serves as a basis for the central government to determine budget transfer allocations to urban areas, thus providing strong incentives for cities and towns to move up the urban class ladder.
12 Vietnam’s Urbanization at a Crossroad (World Bank 2020)
14 More than 20% of Vietnamese households with people with disabilities are concentrated in Mekong Delta Region, where the proportion of households with people with disabilities is as high as 20%, one of the highest ratios among the six regions (only second to the North and Central Coast. Vietnam National Survey on People with Disabilities, 2016
15 Vietnam Urbanization Review (World Bank 2011)
9. **Vinh Long is strategically located along the economic corridor that connects HCMC to the Mekong Delta Region.** Vinh Long city, the capital of Vinh Long Province, is one of the 13 provinces in the MDR, with a population of around 150,000 and an annual GRDP growth rate of about 10%. Regional\(^\text{16}\) and Master\(^\text{17}\) planning has identified Vinh Long province as a center for agri-processing, commercial activities, research and technology transfer services and eco-tourism in the region. Vinh Long is a transportation hub in the MDR with multiple highways intersecting in the city\(^\text{18}\). The HCMC-Can Tho highway, currently under construction and the planned HCMC-Can Tho railway, are expected to pass through Vinh Long to further unlock its economic development potential. Vinh Long’s waterways are also important links that connect it with other provinces in the MDR and the whole country. Vinh Long’s transportation master plan seeks to improve the City’s connectivity while improving traffic safety and reducing environmental pollution, in order to facilitate urban development and to promote stronger integration with the national, regional and local transportation system\(^\text{19}\).

10. **Flooding and poor environmental sanitation are major impediment to Vinh Long’s long-term development.** Located on the Tien river plain, the city has a low elevation of 1.6-2.5m above mean sea level. Approximately 60% of the city is susceptible to flooding due to extreme rainfall and high water levels in the Mekong. Large parts of the city were inundated by flooding in September 2019, causing severe disruption to traffic flows and the livelihoods of many low-income people living in these areas. The Southern Institute of Water Resources Research (SIWRR)\(^\text{20}\) calculated that without any protection measures, the Estimated Annual Damage (EAD) to the City is VND 626 billion. The City lacks a comprehensive approach to managing flood risk which is exacerbated by a lack of flood defenses, an aging drainage system which is in poor condition and a canal network which suffers from sedimentation and human encroachment. Untreated wastewater quality in the city is reported\(^\text{21}\) to exceed the national standard by 1.3-11 times\(^\text{22}\). An estimated 12,000 m\(^3\) of predominantly untreated wastewater is being discharged directly to rivers and canals each day, leading to serious public health impacts. Urban wastewater system upgrades, flood risk mitigation infrastructures and nature-based solutions to increase water retention, are city priorities.

11. **The severe flood risk in the core urban area, together with the lack of integrated planning, has led the city to sprawl outwards along national roads and main waterways in different directions, while large pockets of land in the core urban area remain undeveloped.** This fragmented development pattern results in high and unsustainable costs for infrastructure provision, limiting the ability of the government to provide adequate water and sanitation services to the public. This in turn results in greater vulnerability to water and vector-borne diseases and the spread of disease. The sprawl also causes increased greenhouse gas emissions and high transport costs, along with the loss of productive water-retaining agricultural land. An integrated approach to flood risk management and urban planning will promote

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\(^\text{16}\) 2018 Adjusted Regional Plan for Infrastructure Development of the Mekong Delta

\(^\text{17}\) Decision 1824 of the Prime Minister dated 25 December 2018 on approval of the Master Plan for Socio-economic Development of Vinh Long province to 2030 and the Decision 86/QD-UBND dated 13 January 2020 on approval of adjusted Vinh Long city master plan up to 2035.

\(^\text{18}\) National Highway 1A and highways 53, 54, 57 and 80.

\(^\text{19}\) Resolution 116/ND-HDND dated July 2018 of Vinh Long province People Council On approval of the adjustment Master Plan on transportation network Development in Vinh Long province till 2020 and orientations to 2030

\(^\text{20}\) SIWRR Urban Flood Risk Analysis study

\(^\text{21}\) Vinh Long DONRE report

\(^\text{22}\) Environmental Monitoring Report by the Vinh Long Department of Natural Resources and Environment, 2015.
compact development, lower the cost of basic service provision and reduce vulnerability to climate, disaster and health risks.

12. The institutional arrangements to manage flooding in the MDR are complex, and require an integrated and cross-sectoral approach, particularly for coordination between agencies with overlapping mandates and authorities. In Vinh Long province, the Department of Agriculture and Rural Development (DARD) is responsible for irrigation and flood management; the Department of Construction (DOC) is responsible for urban planning and construction management, while maintenance may be outsourced to private companies; the Department of Transport (DOT) is responsible for the planning, design and maintenance of the transport system, which requires close coordination with DOC for the drainage and wastewater system and with the Urban Public Works Company for urban landscaping and street lighting; and the Department of Natural Resources and Environment (DONRE) is responsible for water resource and environmental management. In addition, the Provincial Steering Committee of Disaster Prevention, Search and Rescue, coordinates flood management and emergency response. There is a need to strengthen coordination of these fragmented institutional structures and consolidate the operations and maintenance strategy as part of an integrated flood management system.

13. The Government of Vietnam (Gov) adopted Resolution No. 120 in 2017 on Sustainable and Climate-Resilient Development of the Mekong Delta, which set out the guidance for the future development of the Mekong Delta. The resolution highlighted the importance of “nature-based adaptation, environmentally sound and sustainable development, on the basis of actively living with flooding”. It also proposed to “develop an Integrated Master Plan for sustainable and climate resilient development of the Mekong Delta.” This is in line with the new Planning Law, approved in 2017, which requires a multi-sectoral integrated planning approach at the national, regional and provincial levels. Linked to this, the Ministry of Planning and Investment (MPI) is preparing a Mekong Delta comprehensive development plan for climate change adaptation and socio-economic development. This plan will guide development planning for the 13 MDR provinces, including Vinh Long.

14. Cities globally are increasingly tapping into information and communication technologies (ICT) to improve the efficiency, effectiveness, and adaptability of their physical, social, institutional and economic infrastructure. In 2018, the Prime Minister identified the MDR as a focus area for the development of sustainable smart cities. There are many smart city solutions globally that Vietnamese cities can learn from in order to improve sustainability and resilience, including those aimed at increasing citizen participation. In Vinh Long, the Department of Information and Communication (DOIC) plans to develop their provincial ICT smart city framework by 2022. DONRE in Vinh Long has created a geodatabase for land management and is developing a smart phone application to allow public access to spatial information. Increasing the transparency of planning, coupled with disseminating information on natural hazards and the socio-economic profile of residents, will help to increase the awareness of risks to the population.

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23 Resolution No.120/NQ-CP issued by the Government on November 17, 2017, following the Regional Sustainable Development Conference held in late September 2017 - hereinafter referred to as Resolution No.120.

24 Decision to approve the scheme for Development of Sustainable Smart Cities in Vietnam in the period of 2018-2025, Vision to 2030
D. Relevance to Higher Level Objectives

15. This operation is consistent with the World Bank Country Partnership Framework (CPF) for Vietnam 2018-2022\(^\text{25}\), including support for two important higher-level objectives. Firstly, the project will contribute to improved infrastructure conditions in the urban core area of Vinh Long and enhanced urban planning and management. This will directly contribute to the achievement of Objective 5 of the CPF to “improve planning, management, and delivery of infrastructure and land in cities” under the first focus area to “enable inclusive growth and private sector participation.” Secondly, the project will support the achievement of Objective 10 of the CPF to “increase climate resilience and strengthen disaster risk management” under the third focus area to “enhance environmental sustainability and resilience”. The proposed project will support resilient urban infrastructure investments and provide technical assistance to improve the disaster risk management of Vinh Long city, including: planning; the operation of flood risk mitigation infrastructure; communication and raising community awareness; and improving the efficiency of infrastructure services through leveraging smart city solutions. The proposed project is fully aligned with the Bank’s Twin Goals of eliminating extreme poverty and boosting shared prosperity through: supporting Vinh Long city to increase access to improved basic services for the bottom 40% of the population; removing infrastructure constraints; and improving connectivity and access to jobs for both male and female members of local communities.

16. The Vinh Long Urban Development and Climate Resilience Project is in line with the World Bank’s new generation of urban interventions in Vietnam which center around a multi-sectoral approach to improve access to urban services and resilience. The project will build on the lessons and experiences of the Bank’s previous and ongoing interventions in the MDR and other countries, and will be guided by the following principles: a) leveraging accessible and affordable new technologies for better managing risk, with a focus on: incorporating flood risk assessment in planning, strengthening operation and maintenance, sharing of information across administrative units, and community participation; b) integrating remedial and preventive measures to increase connectivity and guide future urban development in low risk areas, while improving the living conditions in the urban core; c) harmonizing nature-based solutions with gray infrastructure design in order to increase adaptability and reduce the life cycle costs of operation and maintenance; and d) enhancing the quality of infrastructure with consideration of climate change and the needs of diverse populations including women, ethnic groups, elderly and the disabled.

17. Proposed investments under the project will support the government’s efforts to provide better health and hygiene conditions in response to the COVID-19 pandemic. This project intends to address the COVID-19 challenges through investments in improved and financially sustainable wastewater collection and treatment, as well as Information Communication and Education (IEC) campaigns and contingency planning. A geospatial data sharing platform to be developed under the project will act as an important tool to assist with the management of a disease outbreak such as COVID-19. These measures will protect human health by improving the resilience of the city to infectious disease outbreaks with fecal-oral transmission, including the current COVID-19 pandemic. In addition, the execution of project activities is expected to contribute to the economic recovery since the public works contracts under the project are part of the Government’s post-COVID-19 economic recovery and fiscal stimulus package to create

temporary jobs and ensure equitable growth.

E. Proposed Development Objective(s)

Development Objective(s) (From PAD)

18. To improve access to infrastructure and connectivity and to reduce flood risk in the urban core area of Vinh Long city.

Key Results

19. **PDO Level Indicators**

<table>
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<th>PDO Outcome</th>
<th>Outcome indicator</th>
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<tr>
<td>Improved access to infrastructure</td>
<td>• People provided with access to new or improved drainage and wastewater systems (total number, percentage of which female)</td>
</tr>
<tr>
<td>Improved connectivity</td>
<td>• Reduction in travel time between (i) the north and the south of the city (Ward 8 and Ward 9); (ii) the southeast and southwest of the city (NH1 and NH53 and NH57).</td>
</tr>
<tr>
<td>Reduced flooding risk</td>
<td>• Area protected by 1 in 100 year river flood (ha)</td>
</tr>
<tr>
<td>Improved urban management</td>
<td>• Integrated flood risk management system developed</td>
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F. Project Description

20. The proposed project will take an integrated multisectoral approach to promote the economic and demographic densification of Vinh Long’s urban core, thereby unlocking the City’s development potential and enabling the City to function as an economically and physically integrated metropolitan area. The project investments include a comprehensive set of structural and non-structural interventions to improve access to infrastructure and to reduce the flood and environmental pollution risk in the urban core area of Vinh Long city, through developing flood control systems and nature-based solutions, wastewater collection and treatment, as well as key transport links.

21. These measures will eliminate the physical constraints to development in the urban core, increase land values, stimulate private capital investments, and reduce the pressure for urban sprawl. Increased demand on land will also create an opportunity for the local government in Vinh Long to capture some of the associated land value increase from private development. By providing comprehensive improvement to infrastructures in the urban center, where the majority of poor people live and increasing the connectivity of these areas to other parts of the city, especially centers of employment, the project is

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26 ‘Infrastructure’ includes: flooding mitigation works such as sluice gates and embankments, canal and drainage system improvements, roads and bridges, Waste Water Treatment Plant (WWTP) and sewer networks.

27 This indicator measures the area (ha) protected by the polder structural system from 1 in 100 year river flood, based on hydraulic modeling.
expected to improve the living conditions of the poor and vulnerable populations and increase their accessibility to jobs and public services. Citizens and community organizations will be engaged throughout the project preparation and implementation process in order to raise their awareness about flood risks and enhance their ownership of the project. Providing technical assistance to improve urban planning, transport management and the operation and maintenance of infrastructure will enable the city to become more interconnected, livable and resilient to disasters.

22. The Project will be implemented with due consideration to COVID-19 and will seek to minimize the risk of disease transmission through stakeholder consultation and engagement. While the outbreak is still prevalent, stakeholder consultations and engagements will avoid large public gatherings and make use of online channels. To mitigate the risk of future disease transmission, the project is designed to strengthen municipal wastewater services and make infrastructure more resilient to potential future outbreaks.

Project Components

23. The project is organized around four components described below.

Component 1: Flood risk management and environmental sanitation (Total Cost: US$96.1 million; IDA Credit: US$ 76.1 million, DRIVE Grant: US$ 20.0 million)

24. The objective of this component is to reduce flood related risks and improve environmental sanitation in the urban core of Vinh Long city through investments in drainage, flood protection structures, sewage networks and wastewater treatment. In addition to improving the environmental sanitation conditions in the city, the upgrading of wastewater collection and treatment in Vinh Long will contribute to improving surface water quality. Design of this component was based on existing national building codes and standards and investment proposals were selected based on assessment of the flood risks, including flood hazard and the vulnerability of the affected community. Investments will consist of a balance between gray and green infrastructure (or nature-based solutions).

25. Sub-component 1.1: Flood risk mitigation and urban drainage. This sub-component will finance flood risk mitigation structures such as embankments and tidal sluice gates, rehabilitation and improvement of the canal and drainage system in the city core areas, as well as investments in green infrastructure to retain and infiltrate rainwater. A polder approach will be used for flood risk mitigation, which can be expressed as a structural system consisting of: i) a closed “ring embankment with tidal sluice gates” to protect areas on the edge of rivers from high water levels (i.e., river and tide floods); and, ii) a drainage system including regulated sluice gates, open canals, sewers, storm rainwater retention, and pumps to facilitate run off of rain water.

26. In line with city planning28, three small polders will be established along the small branches of the Co Chien river, in order to prioritize flood protection for the existing dense urban areas (1,788 ha across seven urban wards). The design of the polders will ensure that the navigation needs and the water flow

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in the main branches of the Co Chien river are preserved. The area to the south, which is predominantly agricultural land, is reserved for urbanization over the next 20 years, as per the city’s Master Plan. This area would be protected in the future as it becomes urbanized, either through an expansion of the polder structure, or through elevation of the ground level for new development, combined with the creation of additional retention capacity in low lying areas. A hydraulic modeling study was completed to assess the city’s flood risk with updated data, analyze the cost benefit of various investment options, and demonstrate how green solutions such as retention areas could play a more important role as part of the overall flood risk mitigation strategy. The stabilization of the polder embankment will consider green bio-engineering methods. Where possible, the creation of amenities comprising green spaces with native and shade providing tree species and promenades with tracks and boardwalks along the embankment will be provided for both cyclists and pedestrians in order to turn the waterfront into an attractive recreational area.

27. Urban drainage investments will finance 30 km of new and upgraded drainage pipeline, as well as dredging of 22 km of canals including bank improvements. These investments are critical for enhancing the capacity of rainfall capture, retention, conveyance and infiltration in order to reduce flood risks and sustain the significant private and public investments in the inner parts of the city. The designs of drainage infrastructure are in compliance with existing national building codes and standards and are based on up to date climate data. Climate change scenarios produced by MONRE (Ministry of Natural Resources and Environment) have been incorporated into hydraulic modeling work for resilient measures such as green infrastructure and non-structural approaches. Secondary flow paths for the conveyance of flood water in excess of the drainage system capacity will be considered. Low lying areas in the urban center, often occupied by relatively low-income inhabitants, are particular vulnerable and need extra care.

28. Given the semidiurnal tide regime in the project area (high tide and low tide occur twice per day), the polder system will be operated for drainage purposes during rainy season and during the dry season, the sluice gates will be operated flexibly, in combination with improved canals, in order to create a valuable, high volume urban reservoir for the city.

29. **Sub-component 1.2: Wastewater collection and treatment system.** This sub-component will finance the construction of a separated stormwater and wastewater collection system, including 58.3 km of primary and secondary sewers, over 105.7 km of tertiary sewers, 8 pumping stations, over 16,000 household connections and a sequencing batch reactor (SBR) wastewater treatment plant (WWTP). Wastewater collection and treatment will be prioritized for urban inner areas (covering 7 wards including ward 1, 2, 3, 4, 5, 8 and 9), with an estimated service population of approximately 140,000 people by 2035, covering a land area of about 2,060 ha. The treatment capacity of the WWTP in 2023 is estimated to be up to 15,000 m3/day-night. To improve monitoring and control, a Supervisory Control and Data Acquisition (SCADA) system will be installed at the WWTP.

30. The project will provide technical assistance to explore options to involve the private sector in the construction and operation of the WWTP through a DBO (Design Build Operate) contract, in order to improve the quality, sustainability and cost effectiveness of wastewater services. The use of renewable energy sources such as solar energy will be explored to meet a portion of the treatment plant’s energy demand.

31. Investments in the new wastewater treatment system are expected to result in improved and financially sustainable wastewater collection and treatment that will better protect human health by improving the resilience of the city to infectious disease outbreaks, including the current COVID-19
The physical investment identified under this sub-component will be complemented by an IEC campaign described in Component 4 of the Project.

**Component 2: Strategic corridors development (Total Cost: US$ 34.2 million; IDA Credit: US$ 34.2 million)**

32. The objective of this component is to increase connectivity and flood protection capacity in Vinh Long. This component will finance prioritized investments in roads identified in the City’s Master plans, and will specifically finance three urban roads. The first two roads run through the existing built-up area, creating important vertical and horizontal links in the urban road network, while the third road diverts inter-city traffic from the national roads and future expressway and serves as a development boundary to the south. Two of these three roads in the south also form part of the overall flood control scheme, serving as the boundary of the current and future polder system.

33. The proposed roads will improve traffic safety by providing alternative routes for the inter-city traffic to bypass the city center, provide better accessibility for residents to jobs, education, and other services, and allow for mixed land uses and densification in less flood prone areas. 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. Land use regulations and development control will be carefully considered along the road in the south that forms the city’s development boundary. This should enable the city to proactively guide urban growth to areas with lower flood risk and densify the urban core area while minimizing the risk of urban sprawl.

34. The project will also promote non-motorized transport options and consider the future creation of urban public transport networks in the design of main roads. The road width will be based on sound analysis of travel and traffic demand. Traffic safety issues will be thoroughly reviewed and addressed, especially at intersections with major roads and transit roads of national highways/bypasses, as well as pedestrian crossings. To address the potential impacts of climate change, road drainage structures will be designed based on hydrologic analyses that adopt climate change scenarios while the elevation of roads will take into account projected increases in seawater levels. The design will also incorporate international experience in nature-based solutions such as “green roads” comprising pervious pavement and water absorbing tree pits and landscape, as well as universal access criteria to provide a network of accessible pedestrian routes with appropriate tactile pavement and improved sidewalk space and pedestrian crossings, while taking into account appropriate parking spaces for motorcycles to reduce the obstruction to pedestrians.

**Component 3: Resettlement Area Development (Total Cost: US$ 29.8 million; IDA Credit: US$ 3.7 million; Counterpart Funds: US$ 26.1 million)**

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29 According to an article recently published by The Lancet, data suggest the possibility of extended duration of viral shedding in feces, for nearly 5 weeks after the patients’ respiratory samples tested negative for SARS-CoV-2 RNA

30 COVID-19 is caused by a unique group of viruses transmitted from animal to human. While similar to the flu, there are distinct differences, most notably a dry cough and shortness of breath. In more severe cases, it can cause pneumonia, severe acute respiratory syndrome (SARS), kidney failure, and even death”.

31 Draft Adjusted Construction Master Plan of Vinh Long City, and approved Adjusted Transport Development Master Plan up to 2020 with a vision to 2030 dated 2018
35. The project will try to minimize resettlement impacts through adopting fit-for-purpose standards and appropriate design, however, significant resettlement impacts are expected due to the proposed investments, particularly under the embankments in Component 1 and the roads in Component 2. An estimated 550 households may have to be relocated under the project. This component will ensure improved living conditions and security of tenure for those target communities who are subject to relocation and resettlement under the project.

36. An investment for technical and social infrastructure at the resettlement site in Ward 8 of Vinh Long City will be proposed with green and nature-based solutions incorporated, such as park connectors, water absorbing tree pits and landscapes, pervious pavements, stormwater detention ponds, raingardens, etc. This resettlement site covers an area of 12.5 hectares which is currently agricultural land and not occupied by any households, easing the compensation process. In addition, the resettlement site is assessed to be appropriate, as it is just 5 km from the city center and close to National Road 53. Services (water, drainage, electricity, access roads) are already present along the proposed resettlement area, which will facilitate the development of the site.

Component 4: Enhancing Climate Resilience and Leveraging Disruptive Technologies in Urban Management (Total Cost: US$16.4 million; IDA Credit: US$ 8.5 million; DRIVE Grant: US$ 0.7 million; Counterpart Funds: US$ 7.2 million)

37. This component aims to improve urban management in a climate and risk informed manner and to set the stage for the development of Vinh Long as a smart city through leveraging disruptive technologies. The proposed project will support implementation of Vinh Long’s smart city ICT framework currently being developed, through investments in data and ICT infrastructure including software, in conjunction with counterpart fund from the province. Combined, these activities should improve knowledge of the built and natural environments, which can better inform decision making in the future. For example, it will create a visual representation of flood risk overplayed with existing people and assets in order to guide future development in a risk informed manner, away from high flood and climate risk. By analyzing data related to lack of access to basic services, population income level and density, it will also enable decision makers to identify areas of high health risk in order to prepare for and respond to future health crises.

38. Key investments under Component 4 include: an integrated flood risk management information system; strengthened IEC and Operation and Maintenance (O&M) on wastewater management; a geospatial data sharing platform to improve data sharing across different departments; and an intelligent transportation system (ITS). Component 4 will also provide technical implementation support to the implementing agencies in Vinh Long.

(a) Developing an integrated flood risk management information system. This subcomponent will result in a dynamic model that will enable technical experts and decision makers to better predict flood events and to respond to flooding with an integrated set of actions. The following activities will be supported under this subcomponent: i) training, workshops and provision of technical assistance to enhance the capacity of staff in Vinh Long on flood risk management, including incorporating nature based solutions; ii) improving the availability of information on predicted river water levels and rainfall in Vinh Long; iii) development of a protocol for operating sluice gates when extreme conditions are predicted; iv) development of an early warning system to inform the population when extreme flood situations are forecasted, as well as conducting public awareness raising through existing mass media and organizations; and v) development of an O&M
framework and identification of suitable information systems for improving O&M of the flood control structures.

(b) *Strengthening IEC and O&M on wastewater management.* This subcomponent will result in a more informed public about the health risks associated with poor water and sanitation practices and to improve institutional management of the WWTP system. To maximize the public health benefits of the wastewater investments under Component 1, the project will conduct a community-based IEC campaign to encourage households to connect to the sewer system and to maintain their connections in good working order. The IEC campaign is expected to improve the awareness of Vinh Long citizens on the importance of hygiene practices such as hand washing with soap at key times and other behavioral practices, in order to reduce the transmission disease. The institutional development and strengthening activities under this sub-component will include a focus on contingency planning in order to ensure the continuity of wastewater services during the current COVID-19 pandemic and future potential pandemics. The project will also provide comprehensive capacity building and training for all stakeholders on managing the service contract of the WWTP and the network, including associated facilities, as well as institutional development and strengthening in the areas of: asset management; O&M arrangements including transparency and accountability mechanisms; connecting households to the network; improving septage management; and developing cost-reflective tariff mechanisms.

(c) *Developing a geospatial data sharing platform.* This subcomponent will support the development of a web-based geospatial data sharing platform to integrate multiple data sources from different departments in Vinh Long. The platform will draw on the outputs of the ongoing World Bank financed Vietnam Improved Land Governance and Database Project and will be used across line departments for spatial planning and development. Proper institutional mechanisms and procedural guidelines for data sharing and updates will need to be developed, as well as strengthening the capacity to manage and use the data platform to support various city planning and management functions. In addition, this activity will also pilot community-based initiatives using mobile applications to improve real-time monitoring of issues such as flooding and erosion to generate asset and exposure data that can be added to the database. A study will also be conducted to analyze land subsidence rates and patterns in Vinh Long, using satellite imagery to support future urban planning.

(d) *Improved transport management.* This subcomponent will support the ongoing efforts of the city to improve the effectiveness of transport management, integration of transport and flood management and application of smart transportation system. This activity will: i) integrate transport data with the city geospatial data sharing platform, to enable travel demand analysis as inputs to transport planning; ii) improve traffic safety through deploying ITS, including installing traffic signals at intersections along the project corridors; iii) in coordination with DOT’s ongoing proposal, install speed camera and vehicle weight control system within the city area; and iv) enhance DOT staff capacity in the application of ITS in traffic management and transport planning.

(e) *Project implementation support.* Technical and financial resources will be available to ensure the efficient implementation of the project that adheres to social and environmental standards while
ensuring the transparency in procurement and high-quality construction. TA will be provided for: (i) the preparation of technical designs for infrastructure investments; (ii) independent monitoring of Environmental and Social Framework (ESF) standards; (iii) construction supervision; (iv) independent financial audits; and (v) strengthening implementation capacity for project management, ESF standards, financial management (FM), procurement, and monitoring and evaluation. Project implementation will be undertaken with consideration to the COVID-19 pandemic. Particular measures will be taken to avoid virus transmission such as remote project management and supervision tools to limit in-person interactions when necessary.

G. Project Beneficiaries

39. The project will directly and indirectly benefit over 140,000 residents of Vinh Long City, including about 110,000 direct beneficiaries\textsuperscript{32}. Residents will benefit from improved urban infrastructure that will reduce the risk of flooding, expand access to improved sanitation and hence improve public health, as well as reduce travel times on new and improved roads. The project will also improve connectivity with industrial parks and tourist attractions in the project city. This will benefit the workers and business persons as well as visitors traveling to and from the city. Provincial and city People’s Committees also directly benefit from the technical assistance and capacity development activities for improved project management, geospatial data and information management, flood risk management, transport management, and O&M.

H. Project Cost

40. The total project cost is US$ 219.4 million, of which US$ 142.7 million will be financed by the WB Credit and US$ 20.7 million is expected to be co-financed by a grant from the Netherlands Enterprise Agency (RVO). The remaining US$ 56.0 million will be financed through counterpart funds from the Provincial People’s Committee (PPC) and City People’s Committee (CPC) to finance land acquisition and compensation, technical assistance activities, project management, and other costs. The project cost by components is shown in Table 1 below:

<table>
<thead>
<tr>
<th>No</th>
<th>ITEMS</th>
<th>Total</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>WB</td>
</tr>
<tr>
<td></td>
<td>DIRECT COSTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Component 1</td>
<td>96.1</td>
<td>76.1</td>
</tr>
<tr>
<td>II</td>
<td>Component 2</td>
<td>34.2</td>
<td>34.2</td>
</tr>
<tr>
<td>III</td>
<td>Component 3</td>
<td>29.8</td>
<td>3.7</td>
</tr>
</tbody>
</table>

\textsuperscript{32} Direct beneficiaries include population of 7 wards (ward 1, 2, 3, 4, 5, 8, 9) with an existing population of 109,520.
### Results Chain

The World Bank  
Vinh Long Urban Development and Climate Resilience Project (P171700)

<table>
<thead>
<tr>
<th>IV</th>
<th>Component 4</th>
<th>16.4</th>
<th>8.5</th>
<th>0.7</th>
<th>7.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>Total (I+II+III+IV)</td>
<td>176.5</td>
<td>122.5</td>
<td>20.7</td>
<td>33.3</td>
</tr>
</tbody>
</table>

**OTHER COSTS AND CONTINGENCY**

<table>
<thead>
<tr>
<th>VI</th>
<th>Contingency</th>
<th>25.1</th>
<th>20.2</th>
<th>0.0</th>
<th>4.94</th>
</tr>
</thead>
<tbody>
<tr>
<td>VII</td>
<td>Taxes, interest, fees</td>
<td>17.4</td>
<td>0.0</td>
<td>0.0</td>
<td>17.4</td>
</tr>
<tr>
<td>VIII</td>
<td>Front-end Fee</td>
<td>0.36</td>
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<td></td>
<td>0.36</td>
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<tr>
<td>IX</td>
<td>Total (V+VI+VII+VIII)</td>
<td>219.4</td>
<td>142.7</td>
<td>20.7</td>
<td>56.0</td>
</tr>
<tr>
<td>X</td>
<td>Proportion</td>
<td>100.0%</td>
<td>65.1%</td>
<td>9.4%</td>
<td>25.5%</td>
</tr>
</tbody>
</table>

Note: RVO’s fund is proposed as grant financing for 35% of the contract value for two civil works and one supervision consulting contracts, related to the construction of the WWTP and the wastewater collection network and the expansion of the drainage network.
Legal Operational Policies

<table>
<thead>
<tr>
<th>Policy</th>
<th>Triggered?</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects on International Waterways OP 7.50</td>
<td>Yes</td>
<td>1. Land acquisition and resettlement plots completed on time</td>
</tr>
<tr>
<td>Projects in Disputed Areas OP 7.60</td>
<td>No</td>
<td>2. Local authorities and communities maintain constructed assets for continued use</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Services are affordable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Flood information system and geospatial platforms are maintained to support decision making</td>
</tr>
</tbody>
</table>

Summary of Assessment of Environmental and Social Risks and Impacts
41. The project environmental risks and impacts would mainly be related to the implementation and operation of the investments under Components 1, 2 and 3 of the project. The bulk of anticipated impacts would be related to construction works and include common risks such as dust, noise, vibration, generation of solid wastes and wastewater, water quality reduction, localized flooding and related unhygienic conditions, disturbance to landscape, interruptions to public services and infrastructure, traffic and traffic safety issues, loss of some trees, vegetation cover and benthic species, health and safety risks to workers, etc. Most of these impacts are temporary, at a low to moderate level and reversible, however, there are some incremental disturbance and safety risks to the affected parties in urban and semi-urban areas when construction activities are carried out in parallel with those under the SUUP. In addition, there are also other specific risks and impacts related to the location and typology of investments such as safety risks related to UXO left from the war which ended in 1975, damages to existing weak structures due to dredging or piling, serious pollution from improper handling, storage and disposal of dredged materials, localized flooding, nuisance and visual impacts. The main risks and impacts during the operation would be permanent changes in land use and elevated local ground elevation at and/or along the new roads. The new roads may cause access disruptions and community fragmentation, altered drainage patterns and increased traffic safety risks. These could result from poor planning/design and inadequate stakeholder consultation and engagement during project preparation and implementation. Induced development such as new residential and commercial structures along new/improved urban roads would be expected, however, with low to moderate impact within an existing urban zone. Regarding wastewater system operations, there are pollution risks due to failures at the pumping stations and the treatment plant. Given the type and scale of the project related investment items, the level of GHG emissions is expected to be minimal. Changes in landscape, disrupted access to water fronts from the river/canal side, pollution and localized flooding, may also be issues related to canal and river embankment construction and operation.

42. The comprehensive improvement of infrastructure in the urban core area related to the canal embankments, drainage system, and wastewater treatment system, strategic corridor development, and resettlement and compensation, may require land acquisition and there may be a need for relocation of households, as well as a temporary restriction of access to infrastructure and livelihood opportunities. According to the ESIA’s results, potential social risks and adverse impacts include: (i) land acquisition from an estimated 1,800 PAHs, of whom 550 may have to be relocated or resettled within their existing land plot; (ii) the loss of agricultural land, affecting farmers’ livelihoods; (iii) loss of assets affixed to lands, commercial and other properties; (iv) possible additional land acquisition, under city financed domestic projects, and along the urban main roads for future development, may lead to a perception that these are associated with the World Bank financed project; (v) relocation of graves; (vi) the risk that city government units responsible for land acquisition and resettlement may not have the capacity to deliver the land and the resettlement site required for the project in a timely fashion, (vii) the risks and impacts on community health and safety due to construction works (wastewater, dust, noise) and operations (traffic accidents), and related risks from the influx of labor into low income project areas, characterized by poor and vulnerable residents, during construction (e.g. Gender-based violence, sexual exploitation and abuse, and the spread of sexually transmitted and communicable diseases); (viii) increase of conflict between users of wastewater discharge connections; and (ix) uneven access to project benefits among vulnerable groups such as poor households and female headed households.
I. Implementation

Institutional and Implementation Arrangements

**Project Implementation Arrangements**

43. **Project Management Unit and Project Steering Committee.** This project will have similar project implementation arrangements as under the SUUP. The ODA project management unit of Vinh Long province which is currently implementing the World Bank Vietnam SUUP subproject in Vinh Long city is proposed to be the implementation unit of this project. This Project Management Unit (PMU) has been trained by the World Bank under the SUUP on various aspects of project management including procurement, financial management, and safeguards. Additional technical expertise related to flood management, water and sanitation will be mobilized and staff with the required qualifications on procurement and accounting will be appointed by the PMU for this project. A Project Steering Committee chaired by the Chairperson of Vinh Long Province and comprised of relevant departments of the province and city, has been established to provide strategic direction for and supervision of the SUUP and is expected to serve for this project as well.

**Implementation Capacity**

44. During the early stages of implementation, the city will require significant support and monitoring, as well as strengthening of staffing in order to meet the Bank’s fiduciary and ESF requirements. Additional technical expertise related to flood management, water and sanitation will be mobilized and additional staff with the required qualifications in procurement, accounting and ESF shall be appointed by the PMU for this project. The Bank will provide extensive project implementation support to the city under Component 4 of the project and conduct training on fiduciary and ESF policies and procedures for implementing agencies and relevant PPC departments. The Bank will also regularly assess and monitor the adequacy of staffing and capacity of PMU and ensure that measures are taken by PMU to meet the requirement.

45. In order to implement the technical assistance program under Component 4, the World Bank will build on the ongoing TA on integrated master planning, nature-based solutions and universal access under SUUP, and mobilize additional specialized expertise on specific technical areas such as flood risk management and smart cities. Timely consultations and engagement with relevant central agencies such as MOC, MOT and the Ministry of Agriculture and Rural Development (MARD) will be conducted through workshops and trainings, in order to share progress and lessons from this project and to discuss how to mainstream these considerations into relevant policies and regulations.

46. In response to COVID-19 and the post-COVID-19 environment, the Bank will provide guidance and support the PMU and the city for alternative implementation and M&E arrangements. Emphasis will be on the use of appropriate technologies to that better enable distance working and collaboration. Technologies that allow the remote supervision, monitoring and evaluation of project activities will also be utilized, as necessary.
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