

**THE PRESENTATION OF
THE STEERING CENTER OF URBAN FLOOD CONTROL PROGRAM**

**THE POLICY AND PLANS OF CITY PARTY COMMITTEE AND PEOPLE'S
COMMITTEE ON CALL FOR INVESTMENT IN URBAN FLOOD CONTROL
AND WASTEWATER TREATMENT SOLUTIONS IN HO CHI MINH CITY.**

I. Causes of floods and the status of flood control in the period 2008-2019.

The reasons that have caused flood include:

External factors of climate change, according to the Master Plan of drainage in Ho Chi Minh City by 2020, the drainage systems have been designed with volume of rainfall in 3 hour of 95.91mm; 85.36mm; 75.88mm for canals, grade 2, grade 3 pipe systems respectively; and tide level of +1.32m. The statistic data have shown that in the period from 1962 to 2001, there were total nine 3-hour storm events with the rainfall volume of over 100mm (it appears once per 4 years on average). From 2002-2010, there were 21 storm events (2.3 times per year on average). Particularly, from 2011-2017, there were 42 storm events (5.86 times per year on average). Among them, there were some storm events with rainfall volume of 100mm-204.3 mm. These data has indicated an increase in both frequencies and rainfall volume.

Ho Chi Minh City has been affected by tide intrusion from the South China Sea through Sai Gon river, Dong Nai river and Vam Co Dong river. With low ground elevations (nearly 63% of the land area is below +1.5m), and the tide intrusion from Sai Gon river towards Long Tau, Soai Rap rivers and from Vam Co river towards Vam Co Dong River, the city would be innudated in some areas with elevation lower than tide peak if none of protection measures are implemented. Over 40 years (1962-2001), the recorded peak of tide was only below +1.50m that reached alarming level 3 (at Phu An station). However, over the 9 years (2002-2010), the tide peak rose above +1.50m and over 6 years (2011-2018), the tide peak also increased to 1.71m. The frequency of high tide also has rosen many times recently.

Landslide and subsidence have appeared seriously; along with rapid urbanization rate, the city population has increased more than 5 times compared to before 1975, resulting in 5-fold increase of wastewater volume than before; meanwhile the sewer systems have been invested and renovated inappropriately. Therefore, it does not meet the drainage demand.

According to the Intergovernmental Panel on Climate Change (IPCC), Ho Chi Minh City is among the top 10 cities in the world most vulnerable to climate change (based on Prediction of Climate Change, Sea Level Rise Scenarios in

Vietnam, inundated areas of the City by the end of 21st century are 128km², 204km² và 473km² respectively which is corresponding to sea level rise of 65cm, 75cm and 100cm respectively); the flood control ability of 100% is impossible, even in the most developed countries; The city must continue to do research and implement a flood management strategy in sustainable, environmental-friendly and cost effective way.

Over the past time, the City has focused its resources on investment of flood prevention measures and waste water treatment projects. However, the results have not met the objectives.

+ **Master Plan of drainage system of Ho Chi Minh City (Master Plan 752):** Completed 03 ODA projects – HCM City Environment and Sanitation Project Phase 1, Nhieu Loc- Thi Nghe catchment, Water Environment Improvement Project Phase 1, Tau Hu- Ben Nghe- Doi- Te catchment, Urban Upgrading of Tan Hoa – Lo Gom catchment and other drainage projects funded by state budget. These projects contributed to build and renovate drainage systems with length of 4.716 km/6.000km, dredged canals with the length of 60,3km/4.369km and constructed 03 big wastewater treatment plants and some small wastewater treatment plants (about 300.000 m³/day). At the beginning of 2018, the City reduced flooding areas from 126 flooding points on main road to 25 flooding points (a decrease of 80,16% compared to 2008), specifically: after completing 03 ODA projects and other drainage projects, the City has solved flood-prone areas such as: Tan Dinh Ward, District 1; Cay Go roundabout, Cho Lon Bus Station, Binh Phu, District 6. Currently, some flooded areas by storm are concentrated mainly in District 2, 7, 9, 12, Tan Binh, Go Vap, Thu Duc, Nha Be.

+ **Master Plan of flooding prevention in Ho Chi Minh City (Master Plan 1547):** completed 01 sluice gate (Nhieu Loc – Thi Nghe sluice gate) and 26km of dike around right bank of Saigon river. The city has stopped flooded areas by tide in low- lying areas of ward 17,19 and 22 of Binh Thanh District, Hoc Mon District and District 12. The city currently implement the Project of Ho Chi Minh City flood control by flood-tide taking account of climate change (phase 1) which is proposed to be finished in 2019 to control the flooding for an area of 550km², with the population of 6.5 million.

+ **Wastewater Treatment Plants (WWTPs):** In the future, the wastewater treatment plants will be built with advanced technologies and less construction lands.(Binh Hung Hoa WWTP of 30.000 m³/day capacity, completed in 2004 with aerated lagoon and maturation ponds technology, construction area of 35,4 hectares; Binh Hung WWTP of 141.000 m³/day capacity, completed in 2009 with conventional activated sludge technology, construction area of 14 hectares; Tham

Luong- Ben Cat WWTP of 131,000 m³/day capacity, completed in 2017 with sequencing batch reactor (SBR) technology, construction area of 2,5 hectares).

With those results, The City needs huge resources to further invest in flood prevention projects and wastewater treatment projects to achieve proposed objectives.

II. The policy and plans of City Party Committee and People's Committee on Flood Control Program and Call for investment in urban flood control measures and wastewater treatment in Ho Chi Minh City.

1. Flood Control Program in the period of 2016-2020

Ho Chi Minh City Party Committee issued Action Plan No. 17-CTtHĐ/TU dated 31 November 2016; Ho Chi Minh City People's Committee issued Decision No. 6261/ QĐ-UBND dated 30 November 2016 on Implementation Plan of the Resolution of the 10th City Party Congress on flood control in 2016-2020 period with **following key objectives**: completely control the flooding situation in City Centre and part of 5 peripheral areas (North, West, South, and part of North East, South East) for an area of 550km² with 6.5 million people; improve water environment and increase the capacity of water reservoirs, beautify urban landscape, thus enhance living standards of the residents, and protect the city's environment. **The targets**: to control floods caused by rainfall in 13 out of 17 routes, to control floods in all 23 routes which were previously solved temporarily with urgent measures and 179 alleys; to control floods caused by the tide in 9 main roads; and to complete the construction of 7 water waste treatment plants.

In order to achieve proposed objectives and targets, the City identifies to focus on 2 main solution groups: non-structure measures and structure measures on the basis of Master Plan 752 and Master Plan 1547 with a careful review and assessment of the compatibility with climate change and sea level rise.

2. Call for Investment of Flood control Projects and wastewater treatment projects in Ho Chi Minh City

Based on proposed projects and estimated capital need in 2016-2020 period, the City calls on Ministries, Investors, Financial Institutions, scientists, national and international experts to do research, propose investment solutions for projects under the City Flood Control Program in the form of public-private partnership with the main types of contracts as follows:

❖ **BTL-BLT contracts**: These types of contracts include the design and construction, operation (service lease), and transfer. Investment and operation cost (service lease) will be paid by revenue sources from wastewater treatment tariffs. Currently, HCMC PC appoints SCFC and relevant agencies to prepare,

appraise and implement city wastewater treatment tariffs, expecting to complete in 2019. Appropriate projects under these contracts are 07 projects of wastewater collection and treatment plants and the projects of Innovative technology for Binh Hung WWTP.

❖ **BT contracts:** Using the available City's land fund for investment or on-site project's land sites and putting up for public auction to collect revenue for project implementation. Suitable investment projects under this form of contract are 06 projects of renovation and dredging canals, 03 projects on construction of dikes and sluice gates.

In order for effective and compatible investment with practices and not out-dated in the future, satisfied the city's affordability, in harmony with citizens and investors' interest, implementation plan will be divided into 2 phases:

2.1 Projects on call for investment and implement investor selection plan in the period of 2019-2020:

2.1.1 Projects of sewage collection pipeline, wastewater treatment plants

These projects must meet the requirements in terms of technology, in which prioritize innovative and advanced technology, less construction land as well as to ensure WWTP expansion needs in the future. These projects are: West Saigon catchment, Binh Tan catchment, and Tan Hoa- Lo Gom catchment with the total capacity of 630.000 m³/ day; North Saigon 1 catchment with a capacity of 170.000 m³/ day; North Saigon 2 catchment with a capacity of 130.000 m³/ day; Cau Dua canal basin with a capacity of 100.000 m³/ day.

2.1.2 Projects on canal renovation and dredging:

These projects must meet the requirements of conformity with Drainage system Master Plan in the future; synchronously implement in main canal, especially in the city center. These projects are: Construction Of Embankment And Technical Infrastructure On Both Sides Of Tham Luong - Ben Cat – Nuoc Len Canal: Construction Of Rainwater Drainage And Tidal Prevention Systems For The Basin From Tham Luong Bridge To Cho Dem River. These 02 projects will be synchronously implemented with the project of Improvement of Drainage and wastewater system in Tham Luong- Ben Cat- Nuoc Len catchment (using loan funded by ADB). Tham Luong – Ben Cat canal is one of 4 city's main drainage axes and 3 of these 4 axes have been built and renovated in recent years (Nhieu Loc-Thi Nghe canal, Tau Hu- Ben Nghe- Doi –Te canal, Tan Hoa- Lo Gom canal)

2.2 Projects on call for investment and implement investor selection plan in the period of 2021-2022:

In the period of 2021-2022, the City continues to invest in projects on construction of sewage collection pipeline and wastewater treatment plants; projects

on Canal renovation and Dredging; Projects on construction of Dikes and sluice gates in outer city in District 8, Thu Duc, Hoc Mon, Cu chi, Binh Chanh.

III. Conclusion

Ho Chi Minh City Party Committee and People's Committee acknowledge that the Flood Control Program - one of the seven breakthrough programs of the city to improve its residents' life quality. I hope that after conference today, relevant Ministries, Investors, Financial Institutions, Scientists, national and international experts will support and join hands with the City in highest will to address flooding situation and waste water treatment issues in Ho Chi Minh City, contributing to reach goals of 10th City's Party Congress Revolution to build a city of good quality, civilized, modern and meaningful.