

# Valenzuela, Philippines

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## Background

Valenzuela City is one of the 16 highly urbanized cities of Metropolitan Manila. Nearly one-third of the city is swampy and devoted to fishponds with elevations ranging from one to five meters above sea level. In addition to this topographic characteristic, the city lies within the typhoon belt making it susceptible to flooding. Aggravating the problem of flooding are siltation, indiscriminate dumping of solid waste into rivers, creeks and canals and the inability of the existing drainage system to cope with increasing water discharges and surface runoff largely due to climate change.

To mitigate the negative socio-economic impact of frequent flooding, the local government of Valenzuela City applied for CDIA technical assistance in December

2013 for the project preparatory study (PPS) of the Integrated Flood Risk Management Project aimed at addressing the recurring flood risks faced by the city through a holistic and coordinated approach involving both physical and non-physical interventions in flood-prone areas.

Following the approval of the city application, CDIA deployed a PPS team in September 2014 with the primary task of carrying out the study as well as identifying potential sources of funding for prioritized infrastructure projects. Preliminary assessments of the social, economic and environmental impacts of the proposed interventions and the local government's capacity in dealing with various aspects of flood risk management also formed part of the study.

After six months of project preparation in close coordination with key city officials, the PPS team submitted its final report to CDIA in April 2015. The PPS recommended two overarching forms of intervention: structural and non-structural. The structural interventions consisted of:

- i) internal flood protection measures aimed at improving the city's internal drainage system; and
- ii) external flood protection measures aimed at preventing external flood waters from entering into the city.

Non-structural measures such as flood hazard mapping and training were designed to enhance the capacity of the city on flood disaster risk reduction and management.

**In 2013, the City of Valenzuela applied for CDIA support to address recurrent flooding via a holistic and integrated approach involving physical and non-physical interventions.**



#### **PROJECT OVERVIEW**

PPS period	September 2014 – April 2015
Focus sectors	Flood control and drainage management
CDIA supported activities	(i) PPS of flood control and drainage management projects (ii) Identification of possible sources of financing (iii) Assessment of socio- economic impacts
L2F Status	Funded by the National and Local Government

## Implementation Progress as of April 2019

Following the completion of the CDIA intervention in 2015, the city and the national government started to implement the PPS-recommended projects using annual budget appropriations. To date, five out of the eight external flood protection projects and almost all of the non-structural interventions have been completed. Total investments linked to the PPS are estimated at \$100 million.

**External Flood Protection.** To protect the city from external flooding sources, the PPS recommended eight project packages for implementation by the national government through the Department of Public Works and Highways (DPWH). To date, the upgrading and retrofitting of existing 14 km flood wall along Meycauayan River and the construction of operation and maintenance (O&M) cum access roads along the northern and western boundaries of the city have been completed. Two out of the five pumping facilities (Coloong and Wawang Pulo) have been upgraded with aggregate pumping capacity increased from 5 to 21 cubic meters per second. Retrofitting of the other three smaller pumping stations are ongoing while dredging of selected reaches of Tullahan and Meycauayan Rivers has yet to be started. Funding for these projects amounting to about \$50 million were sourced from the DPWH's annual priority flood control program budget.

**Internal Drainage Improvement.** To improve drainage within the city,

the PPS suggested nine project interventions. Aimed at reducing flood inundation, these interventions entail the provision of an enlarged 3.8 km drainage channel and box culverts that would transport flood waters from the city center to a new pumping facility in Viente Reales. Out of the nine project packages, two have been completed, namely: the construction of 8-km road on the city's western boundary and upgrading of Maysan drainage channel. Drainage improvement for the Maynilad Sewerage Treatment System project is ongoing while six project packages have yet to be implemented.

The completed 8-km boundary road between Valenzuela City and the neighboring town of Obando currently serves as a redundant flood barrier wall to prevent entry overland flood waters from Manila Bay into the city. Total funding allocation to internal drainage improvements amounted to \$25 million sourced from DPWH's annual priority flood control program budget. Moreover, in line with the integrated flood risk management strategy being promoted by the PPS, the city government has prepared a drainage master plan that seeks to invest some \$20 million in road and drainage improvement projects covering the entire city over a five year period (2017-2022).

### **Non-structural interventions.**

As part of the holistic approach to flood risk management, the PPS

recommended a set of non-structural measures aimed at enhancing the capacity of the city on flood disaster risk reduction and management (DRRM). To date, most of the PPS-proposed measures are in place, namely: i) Disaster Preparedness Building located at the Allied Local Emergency Response Team (ALERT) Center; ii) barangay flood risk maps; iii) disaster preparedness equipment and supplies such as rescue boats, medical kits, life vests, food packs, etc., deployed in the ALERT center and in all barangay multi-purpose (3S) centers; iv) flood warning systems in major rivers; and v) training program for city and barangay personnel involved in DRRM. By end of 2018, the city government has invested about \$5 million on non-structural interventions. The city allocates around \$1 million annually on DRRM activities managed by the City DRRM Office.

Moreover, the PPS noted the need to relocate some 450 informal settler families (ISFs) along the riverbanks targeted for structural interventions. The city government took the lead in addressing this issue by accommodating these ISFs in Disiplina Village, currently the biggest in-city relocation project in the country. Initiated by the city government in 2011 in collaboration with the national government and the private sector, this project has relocated some 4,800 ISFs from danger zones into a disaster-resilient village complete with basic amenities such as daycare center, high school and elementary school, health center, sports facilities, transport terminal and public market.



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## Intervention Results

As a result of the successful implementation of flood risk mitigation projects by the city and the national government, some positive changes anticipated in the PPS have been noted during the tracer study such as: i) reduced vulnerability to flood risks; ii) improved capacity to prepare and respond to flood-related disasters; and iii) enhanced capacity of the city to plan and implement an integrated approach to flood risk management.

**Reduced vulnerability of city residents to flood risks.** The completion of PPS-recommended physical infrastructure projects such as retrofitting of river floodwalls, upgrading of pumping facilities and construction of 8-km flood barrier

in the city's western boundary have significantly reduced the vulnerability of some 300,000 city residents (of which almost half are women and about one-fifth belong to the poverty sector) to risks brought about by flooding. With the design criteria adjusted for climate change predictions, these infrastructures have also enhanced the resilience of the city and its residents to the adverse impacts brought about by climate change. Ultimately, the reduced exposure of residents to flooding will minimize health risks due to water-borne diseases and reduce economic losses associated with flood events.

**Enhanced capacity on flood disaster risk reduction and management.** Cognizant of the

continuing flood risks faced by its residents, the city government has established the organizational structure and developed the operations protocol for flood-related DRRM. With the adoption of the non-structural measures suggested by the PPS such as training of city and barangay officials on DRRM, flood risk mapping and provision of DRRM supplies and equipment, the Chief of the City DRRM Office noted that the capacity of the city to mitigate flood risks has been significantly enhanced. Apart from having a clear policy framework, key to DRRM capacity enhancement is the high priority accorded by the city to DRRM in its annual budget and investment plans. This enabled the city to implement a holistic approach towards addressing flood risks including provision of decent housing to some 4,800 ISFs living in danger zones.

**Improved capacity to plan and implement an integrated approach to flood risk management.** Officials from the City Planning and Development Office (CPDO) revealed that the PPS has facilitated the integration of flood risk management in city development plans. In April 2019, the CPDO prepared the medium-term drainage master plan for Valenzuela City using the knowledge gained from the CDIA intervention in 2009 and taking into full consideration the flood risk mitigation strategy espoused by the PPS.



Valenzuela's Alert Center that hosts its centralized emergency and disaster response.



## KEYS TO INTERVENTION RESULTS:

- Stakeholder participation in strategy development
- Integration of PPS with planned and ongoing initiatives
- Continuity of political support



## Conclusion and Lessons Learned

Findings from this tracer study show that there has been significant progress made by Valenzuela City in implementing the recommendations made by the PPS supported by CDIA back in 2014. Moreover, with the completion of key infrastructure project identified in PPS, there are strong indications the envisaged project outcome, i.e., enhanced capacity of the city to mitigate flood risks through an integrated and holistic approach to flood risk management, will be achieved. Key informants cited the following important factors that contributed to the positive results that have been generated by the CDIA engagement in Valenzuela.

### **Stakeholder participation in developing the strategy**

### **towards addressing flood risks.**

In formulating an integrated flood management strategy, the PPS team worked closely with city government officials and held extensive consultations with relevant stakeholders including those from the affected communities. This approach helped in building a long-term commitment from the city stakeholders towards the realization of the physical and non-physical interventions proposed by the PPS in the flood-prone areas.

### **Building on existing flood risk management plans and linking the PPS to ongoing initiatives.**

Prior to the CDIA intervention, several plans have been formulated to address the flooding problems

in Valenzuela City and nearby municipalities. Rather than carrying out a study in isolation, the PPS team carefully reviewed these plans and worked towards integration and complementation of PPS projects to the planned and ongoing initiatives by the national government, private sector and donor agencies.

### **Continuity of political support.**

Finally, the continuity of support from the political leaders of the city is a major factor contributing towards attainment of results envisaged by the PPS. Such support is clearly demonstrated by the high priority given by the city leadership in the allocation of resources to integrated flood risk management.