Manila, Philippines

About the IWA Action Agenda for Basin-Connected Cities

The IWA Action Agenda for Basin-Connected Cities builds on the Principles for Water Wise Cities, with a focus on how cities can be active water stewards in their wider water basins. This includes the Drivers for Action such as extreme events, declining water quality, and water availability; followed by the Pathways to Action through assessment, planning and implementation; and the Foundations for Action from developing a vision to building capacity to improving governance. To learn more visit - http://www.iwa-network.org/press/the-action-agenda-for-basin-connected-cities/

About the Basin Stories

The basin stories are documenting some of the best practices and approaches that demonstrate how stakeholders especially those in urban areas (e.g. city government, water and wastewater utilities, industries) are taking part or contributing to sustainable management of water resources. Greater basin-level collaboration from catchment to consumer is essential for sustainable water management in the face of growing demand on water resources and global change. The stories aim to inspire urban stakeholders to be aware and respond to what is happening in their watershed.

The UNESCO Alliance of Megacities for Water and Climate (MAWAC)'s Project - The Rehabilitation of Pasig River

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Summary

Manila, the capital of the Philippines, is the political, economic and commercial centre of the country. This megalopolis of 16.3 million inhabitants, crossed by the Pasig River, has the highest population density in the world.

The Pasig river is at the heart of a rehabilitation project initiated by the national authorities. Since the Spanish colonial period, the river has been an important transport axis and has been subjected to exponential pressure due to demographic growth and unregulated uses. These factors have led local authorities to consider the river as "dead", unable to support life and biodiversity.

In order to rehabilitate and restore the river, an action plan has been put in place by the Metropolitan Manila Development Authority (MMDnA), the Pasig River Rehabilitation Commission (PRRC) and the Syndicat Interdépartemental pour l'assainissement de l'agglomération parisienne (SIAAP).

The initiative involves the population in the project, but also is developing pilot wastewater treatment infrastructure. The technical component was reinforced by the implementation of new regulations on discharge into the river. A solid waste treatment component was added in the second phase with the support of the metropolitan agency of household waste (SYCTOM) and financing from the AFD, the French Development Agency.

Figure 1: Pollution in Pasig river, Manila (Photo by metropolitan agency of household waste, SYCTOM)

Geographic information

Country: Philippines
City: Manila
population: 16.3 Million
Basin area: Pasig-Marikina River Basin - 4,678 km^2

Problem: A river considered "dead" due to untreated wastewater discharge and direct solid waste discharge. This has consequently led to the river being polluted, a source of waterborne diseases, and incapable of sustaining aquatic life.

Solution:

- Legal regulation to prevent the discharge of liquid and solid waste in the river.
- Collection and treatment of solid and liquid waste.
- Implementation of a pilot project for treatment.
- Redevelopment of the riverfront.
- Public participation.

The Problem

Industrialization of the city combined with urbanisation, population growth and inadequate water treatment and regulation has led to significant pollution of the Pasig River. Untreated wastewater is directly discharged into the river resulting in destruction of fisheries, which were a local source of income. This led to a drop in the standard of living for families who relied on natural resources of the area. In addition, the direct discharge of waste into the river has led to outbreaks of various diseases, particularly cholera, which has contributed to an increase in mortality, especially in children, who are the most vulnerable. The excessive pollution of the river also prevents any economic or recreational activity on its banks.

What are the Drivers for Action?

Several actors are involved in the Pasig River rehabilitation project, such as the Metropolitan Manila Development Authority (MMDA), the Pasig River Rehabilitation Commission (PRRC) and the Syndicat Interdépartemental pour l'assainissement de l'agglomération parisienne (SIAAP).

This project (2019-2022) is part of the Megacities Alliance for Water and Climate (MAWAC). MAWaC is an international collaboration forum initiated at the United Nations Framework Convention on Climate Change 21st Conference of Parties (UNFCCC COP21) and is part of Global Alliance for Water and Climate. MAWaC facilitates dialogue on water between cities with more than 10 million inhabitants, through which these megacities will learn from each other's experiences, exchange best practices, partner with appropriate technical, academic and financial institutions, as well as design and implement their individual responses to the challenges of climate change. Specifically, the Alliance focuses on improving the dialogue on adapting to or mitigating the effects of climate change related to water in megacities

Within the Pasig River rehabilitation project, the MMDA is in charge of providing financial and technical support to the other partners. It participates in the steering committee with the other members of the project. It also takes part in the action plan of the Megacities Alliance to mitigate climate change, taking in consideration the SDGs.

The PRRC ensures the support of other partners by mobilizing representatives of national and municipal institutions involved in the rehabilitation of the Pasig River. Similarly, the Pasig rehabilitation committee is generally an intermediary between the other partners and the country's institutions, while adopting a facilitating role for the partners by mobilizing agents and inhabitants. As for SIAAP, it participates in the steering committee and provides technical and institutional assistance. It also raises awareness among the population and approves technical and financial reports. Finally, it is also responsible for financing the implementation of activities.

Extreme Events **Declining water quality** **Water availability**

☐Public health hazards	☐ High operating costs	☐ Water supply disruption
☐ Damage to infrastructure	☐ Loss of credibility and trust	☐ Constraints to growth
☐ Economic activities and supply chain disruption	☒ Environmental, cultural and health impacts	☒ Declining quality of life

Solution

The solutions envisaged are diverse and include better access to the river for all, development of new infrastructure, raising awareness of the population to the risks associated with wastewater and strengthening the legal framework.

A crucial step is to reduce the pollution emitted into the water to ensure its protection. The project includes a pilot wastewater plant on one of the tributaries (San Juan) of the Pasig River.

The project is divided into three phases:

- A feasibility study
- Creation of a master plan and an action plan
- Conduction of a study by partners for the implementation of the pilot project.

One of the results of this river rehabilitation project is the reduction of various pollutants, including heavy metals (mercury, arsenic, etc) in a tributary of the Pasig River and an overall improvement in water quality.

Wastewater now passes through a filter system before being discharged into the river. The collection of solid waste has also been put in place and a decrease of its amount in the river has been noted. There is now also better public access to the river banks, which allows a return of fish farming activity as well as recreational activities for the population living along the Pasig River.

Finally, this project will lead to a circular economy thanks to the reuse of funds from the wastewater treatment into the local economy. This redevelopment project contributes towards the Sustainable Development Goals (SDGs), especially SDG6 on access to water and sanitation. Once the pilot project has shown conclusive results, it has the potential to be replicated on a larger scale along the river system.

Pathways for Action

For more information on the Pathways for Action visit the Action Agenda for Basin-Connected Cities

Assessment	Planning	Implementation
☐Investment in data & information systems	☐ Risk-based approach to planning	☐ Integration of natural infrastructure
☐ Linking traditional water management with science	☐ Water allocation mechanisms	☒ Economic and financing mechanisms
☐ Invest in values to motivate water decision-making	☒ Stakeholder participation in planning and management	☐ Building partnerships from catchment to tap
	☐ Aligning urban development with basin management	☐ Digital Technologies

Lessons learned

The next steps are the implementation of a solid waste treatment system thanks to the combined action of SYCTOM and AFD.

The objective of this project is to implement a multi-process platform including an electromechanical composting unit for organic waste via local collection; a small-scale equivalent of a reinforced waste collection centre allowing the management of recyclables; and the recovery of hazardous waste such as waste electrical and electronic equipment. In addition to improving drinking water, the objective is to provide water free of solid waste, hence the need for SYCTOM's intervention.

Resources

List of useful links providing additional information:
https://www.foi.gov.ph/requests?agency=PRRC

About SIAAP and SYCTOM

SIAAP- the greater Paris Sanitation Authority- was established in 1970. SIAAP is the public service utility that treats wastewater every day from 9 million inhabitants of Ile de France, including also storm water and industrial wastewater. SIAAP, with more than 1,700 personnel, treats 7d / 7, 24H / 24, almost 2.5 million m³ of water, transported by 440 km of main sewers and treated by its six waste water treatment plants. This has improved water quality in the Seine and the Marne Rivers.

SYCTOM - As a major public-sector player in waste management in the Île-de-France region, Syctom innovates on a daily basis to turn waste into a resource and optimize recovery processes. As a pillar of the circular economy and sustainable cities, Syctom is committed to working with its member local authorities and all stakeholders to accelerate the ecological transition.