



Urban Agenda Platform

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Water as Leverage (WaL) for resilient cities Asia

Region	Asia and the Pacific
Award Scheme	Dubai International Award
Start Year	2017
Sustainable Development Goals	Goal 11 - Make cities and human settlements inclusive, safe, resilient and sustainable

Summary

WaL brings together relevant stakeholders to collaboratively develop urban climate adaptation strategies, programmes, actions (projects) and financial arrangements.

Background and Objective

Water as Leverage (WaL) wants to tackle the three main challenges of climate action: The gap between the urgently needed pro-active climate action and the reactive approaches in cities currently increases their vulnerability. Water as Leverage underscores the need for a comprehensive integrated approach, avoiding sectoral silos and vested interests and promoting innovation, transformation and real climate adaptation impact; The gap between the availability of funding (billions) for the implementation of projects and the lack of funding for the process of research, development and the enabling environment that can see complex projects through (the millions needed to spend the (investment) billions right). WaL emphasizes the need to invest in people (and institutions) and projects at the same time; The need to increase opportunities for blended finance, public-private partnerships and market opportunities. WaL is an inclusive approach aimed at increasing opportunities for market value and fulfilling public needs. Because of the region's urgent and tremendous urban, climate and water challenges, WaL started in Asia. However, WaL's approach is not limited in scale or scope to any geography. WaL started with in-depth research on over 30 geographical hotspots, primarily in coastal and riverine cities at the forefront of climate impact. In the end, three cities were selected from a longlist of 30 cities in South and South-East Asia. The initial 30 cities had been selected based on research that was conducted by the Netherlands Environmental Assessment Agency PBL for their publication "the geography of future water challenges". This extensive research looked at climate and water challenges faced by regions and cities around the world. In the end, South(-East) Asia was selected as a region due to its many challenges, the 30 cities with Three cities were selected to pilot the WaL approach: Chennai in India, Khulna in Bangladesh and Semarang in Indonesia. All three cities are different in scale, location and geography, climate challenges, governance, capacity and culture. These cities were selected for the many challenges they pose both in terms of urban scale and water. Not only do they stand out because of the great diversity of water-related issues they face, but they are also interested in starting a design-oriented collaborative process. Hence, the city coalitions that have been supported through the WaL process serve as exemplary pilot projects to bring sustainable solutions and transformative capacity to the agenda for similar cases within Asia and beyond. Chennai Chennai is the second-largest port city in India and is located on the country's southeastern coast. In addition to being an important trade center, the city is also known for its healthcare, automotive, software export and chemical industries. Today, industrial corridors are being built to better connect these production zones with road transport to India's interior. In this way, Chennai has attracted many workers and has become the fourth most-populated metropolitan area of India. According to forecasts, these demographic figures will increase by another 30% by 2030. Although water and culture are historically strongly intertwined – as can be seen in the many temple ponds and water tanks that function as retention basins – rapid urbanization and overexploitation of these scattered wetlands and other marshes have had a negative impact on the expansion of impenetrable soil and the failure of the drainage system. The channels of Chennai are increasingly filled with waste. In addition to clogging up the drainage systems, this waste also makes the water unsuitable for consumption, irrigation or bathing. Industrial pollution and sewage water discharged into the rivers also increases the risk of spreading diseases. Today, the city only consists of 15% wetlands, whereas 30 years ago wetlands still accounted for 80% of the urban area. In addition, about 40% of the coast of Chennai is currently threatened by erosion caused by sea level rise, changing sea currents and hard sea defenses such as dikes and dams. Khulna Khulna is part of the largest delta in the world: the Ganges-Brahmaputra Delta. The largest part of this delta consists of a labyrinth of canals, swamps, lakes and flood plains and is mainly composed of alluvial soils, making it a very fertile region. Khulna is also the gateway to the Sundarbans: the world's largest mangrove forest and the home of the royal Bengal tiger. Despite its strategic position Khulna had a limited population growth the past decade. This might change in the future since, due to climate change, a lot of households that inhabit the flood-prone rural areas around Khulna are migrating to the city. The urban structure of the city is dominated by dozens of ponds. Originally these were used to supply drinking water, for washing and bathing and for aquaculture. Like Khulna's canals and rivers, many of these ponds are being drained and used for real estate development. In addition to direct water problems caused by poor water drainage, high water stress, seasonal flooding of rivers and sea level rise, only 64% of the population of Khulna has direct access to potable water. As a result, many depend on public tube pumps. The increase in salinity in the Khulna area represents a serious new challenge for the sustainable development of the city: harvest yields fall and food prices rise, threatening food security and water supply, and climate migration is becoming a growing issue. Semarang Semarang is a port city on the northern coast of the Indonesian island of Java.



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Because of its central position, it is of strategic importance for domestic trade and transit. But Semarang has a strongly fluctuating coastline, created by natural sedimentation processes and man-made land reclamation from the sea. The coast was formerly protected by long stretches of mangrove forest. Urbanization and aquafarming are the main causes of the mangrove's decline, which in turn led to coastal erosion, tidal flooding and salinization. Today, programmes have already been started to restore these mangrove forests, but these initiatives cannot stop the larger subsidence problem. Semarang is a sinking city. Every year the soil drops with an average of about 6 to 7 cm and a maximum of 14 to 19 cm in the most-affected areas. By way of comparison: the sea level rise as a result of climate change is only 2 mm per year. The main cause of this subsidence is believed to be the pumping of drinking water from the deep aquifers. In the future, parts of the city will therefore be below sea level, which increases the vulnerability to tidal floods from the sea and flash floods from the hilly hinterland during cyclonic weather. Semarang will therefore be transformed into a polder system. The master plan for coastal defense that is currently under construction consists of a large dike structure that will serve as an important highway connection to East and West Java.

Actions and Implementation

Water as Leverage is initiated and led by Henk Ovink, Special Envoy for International Water Affairs and implemented and managed by The Netherlands Enterprise & Development Agency (RVO) and a team of strategic partners. Call for Action On World Earth Day (22 April 2018) Water as Leverage launched its first call, from which 6 teams were selected, two per city. Local workshops - 1st round, Sept - Oct 2018 The first round of local design workshops in Chennai, Khulna and Semarang, got off to a flying start, with the multidisciplinary teams in all 3 locations working together and informing the different stakeholders as to the innovative and transformative character of the Water as Leverage programme. Local workshops - 2nd round, Nov-Dec 2018 During the second round of local workshops in November and December 2018, the conceptual designs were presented, discussed, verified and explained in each city location. Regional workshop - 1st round, Dec 2018 The Singapore Regional Workshop marked the end of the first phase of the programme with the presentation of conceptual designs for each city to MDBs/IFIs. Key connections were established, lessons learned, and knowledge was shared in a collaborative spirit, enabling further progress to be made in these non-standard, large scale, transformative projects. Local workshops, 3rd round March 2019 With the goal of channeling their knowledge and focusing on implementation, the third round of local workshops took place in March. They were well attended, and all parties were committed to seeing the process through. This alignment was crucial to the next phase, in Singapore, whereby the feasibility and implementation steps would be defined. Regional workshop - 2nd round April 2019 In April, all parties came together in Singapore to wrap up the first phases with the teams presenting their climate adaptation project proposals, and to define the next steps. There is now a roadmap defined for each of the three cities, including aspects such as enabling environment, to help ensure that the programme's comprehensive approach stays in place. Next steps have been identified as to who does what, how it is organized, and when the results can be delivered, for further replication and scaling-up. Water as Leverage teams present projects – July 2019 As partners, Water as Leverage supported the successful teams and the individual cities in gaining a better understanding of risks and opportunities, interdependencies and coalitions. Building partnerships in these cities, around those opportunities, helped catalyze the evolution of innovative ideas into implementable projects. The next step, as the teams and cities approach the feasibility and implementation phase, is to further develop the individual projects and enabling environment before the next Regional Workshop in 2020. Global Adaptation Summit and week 2020 – 22nd October 2020 At the Climate Adaptation Summit in October 2020, we have the opportunity to present our results and lessons learned to the world. And we can use that momentum for agreements on next steps, possible scaling and replication. Pre-project preparation: support track WaL is implemented and managed by The Netherlands Enterprise & Development Agency (RVO) and a team of strategic partners (UN Habitat, WWF, Pegasys, Partners for Resilience and 100 Resilient Cities). The cities and the teams are supported by these partners throughout the programme and with local and regional workshops, feedback calls, and other means of support. During the multiple local workshops in respective cities, the most relevant stakeholders from private, public, financial, academic and local community levels were brought in. Additionally, the teams are obtaining strategic and tactical advice from the WaL Advisory Board. This continuous interaction in the cities is supported by the bilateral relationships of the Netherlands government with the governments of India, Bangladesh and Indonesia. WaL was brought under the umbrella of existing MOU's between the countries to ensure government-to-government collaboration and support. Pre-project preparation: financial track To engage all relevant financial partners in the WaL programme from the start, a parallel process of engagement with these partners was organized by RVO to increase climate action. These partners include but are not limited to: the Dutch Development Bank FMO, the Asian Infrastructure Investment Bank, the World Bank, the Asian Development Bank, the Islamic Development Bank, the Green Climate Fund and its accredited agencies: NABARD India and PT SMI Indonesia; the German Development Bank KfW and the French Development Bank AfD. In two regional workshop rounds in Singapore, city representatives, the six teams and the financial partners were brought together in pressure cooker sessions. In the last Regional Workshop in April 2019, the draft final proposals and projects in the three cities were presented. Draft financial arrangements were developed per presented proposal / projects in the three cities. These arrangements will be followed up by the WaL implementing partners, teams and cities. Final financial arrangements and next steps will be presented during the next Regional Workshop in 2020.

Outcomes and Impacts

The impact of the WaL programme is the contribution to the SDGs, more specifically SDG6, 8, 11, 13 and 17. The long-term outcome of the programme has been formulated as: Water as Leverage for impactful and catalytic change in urban regions worldwide. The outcomes of the programme are: Enabling



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environment for climate resilient project development Match between long-term comprehensive planning and short-term innovative transformation Design-driven solutions to strengthen cities' resilience to water-related challenges Follow-up project proposed by AIIB and FMO Adherence to High Level Panel on Water (HLPW) Principles of Valuing Water to ensure sustainable, efficient and inclusive allocation and management of water resources. Use of pre-project preparation phase as innovative financing method The programme is still ongoing and the project proposals are still developing. The summary of all proposals is available on: <https://waterasleverage.org/news/view/57980078/water-as-leverage-teams-present-climate-adaption-projects> Please find a selection here: Chennai City of 1,000 tanks. City of 1000 Tanks intends to develop a Water Balance Model across the city by collecting rainwater, treating wastewater and runoff pollution with decentralized Nature-Based Solutions (NBS), and by recharging both to the underground aquifer. This will prevent droughts by increasing groundwater reserves while simultaneously mitigating risks associated with high-frequency floods and sewage pollution. This project intends to fix supply-side issues by creating water retention and supply capabilities of 200-250 MLD (Million Litres per Day) in the phase first two phases of the project (out of the current 1,580 MLD urban demand). Rise Chennai. RISE CHENNAI seeks to build on existing knowledge to develop a design-driven process that is geared towards improving the resilience of the water system, the city, and all of its citizens. Building on a chain of proposals for implementable projects, RISE CHENNAI created a program of measures and interventions that should initiate true, transformative change throughout the city. Prototyped on two locations, these proposals address the city's challenges in dealing with water, and use improvements to the water system as a vehicle to improve social welfare, safeguard the environment – and most of all – reclaim the city's future as part of a more resilient and self-reliant urban landscape. Khulna Natural drainage solutions for Khulna City. Nearly one third of the city of Khulna is currently flood prone. This may increase to half of the city by 2050 if climate change leads to more erratic rainfall and sea level rise. Flooding leads to prolonged water logging in parts of the city due to a broken drainage system and clogging of drains by solid waste. The proposed project seeks to address this by improving solid waste collection and handling, and by improving the drainage system itself. Storing an optimal volume of storm water runoff within the city and improving the quality of this water by separating sewerage, will allow the gradual introduction of reuse of storm water. This is required in view of the salinity of nearby rivers and limited potable groundwater resources. Khulna as a water inclusive enclave. Results of the system analysis show that different interventions (on different scales) are needed to bring a more robust resilience in the south west tidal floodplain, which can basically be divided in a fresh water zone (upstream of Khulna), a transition zone (Khulna and surroundings) and the coastal zone (Sundarbans and polders). The approach for Khulna to become a water-inclusive city in the Delta aims to contribute to these goals by developing projects on a regional and local scale. The regional strategy focuses on the area between Gorai river offtake and the Sundarbans and how potential projects within this area can actually increase the impact of individual projects ($1+1=3$). A lock-in for Khulna, which involves periodically increasing the height of river embankments against flood protection, is not a sustainable solution for the future. Therefore, the focus is on restoring the water balance in the area and reducing salinity intrusion making use of nature based solutions. Although this takes time, it is restoring the balance of the southwest tidal floodplain. Semarang Cascading Semarang: feeding the industry. In the west part of Semarang, the main industrial areas such as Wijaya Kusuma, Tambak Aji and Candi are facing the challenge of sinking ground and rising tides. At the same time, in the coastal plain commercial activity including industry is expanding quickly. Feeding the Industry programs therefore aims to provide these rapidly expanding economic hubs with multi-purpose infrastructure that supplies water and while also creating additional water-related benefits Two strategies are proposed, in selected test locations on the west area of Semarang. Such strategies are not site specific, and can also be adopted in the East side. Seawall + toll road. Toll road + Conveyance canal Cascading Semarang: rechanneling the city. Rechanneling the City' aims at the improvement of inner city urban water management, creating additional capacity for the storage and regulation of waterflow. This system promotes the local handling of stormwater instead of discharging water as fast as possible. The upgrade of the water infrastructure will improve the sanitary conditions and enhance existing public spaces as well as creating new ones, which will stimulate an urban repair process and provide ground for new commercial and residential development in the city center. Cascading Semarang: spongy mountain terraces. 'Spongy Mountain Terraces' are looking to create uphill interventions which aim at reducing the food risk of downstream areas as well as reducing the landslide risk in endangered areas. They stabilize the water supply throughout the year and increase the resilience of recent and new developments. On an urban scale they will increase sponginess of natural areas and release new land for further development. They will enhance natural spongy capacity of uphill zones and stimulate new urban typologies, which could facilitate new ways of living with water.

Sustainability and Scalability

Replication and scaling up at project- and programme level At project level, all WaL generated projects have the capacity to be scaled up, in the respective cities and regions. All are exemplary urban climate adaptation approaches. In identifying the financial arrangements and implementation pathways, the opportunities for replicability and scaling up will be accounted for. At programme level, WaL's evaluation runs parallel to its implementation to make sure fast learning is secured. The ambition of WaL is to bridge the different gaps that currently prevent faster and better climate action, with a clear focus on pre-project preparation. Water as Leverage for Resilient Cities Asia in Chennai, Khulna and Semarang is a first step towards a sustainable approach of innovative pre-project preparation for climate action. This first step is the foundation for a programmatic set up, in collaboration with international financial partners. Different models can emerge, ranging from an in-house (national; government, MDB/IFI) facility to a global programme. The role of both the Global Center on Adaptation and the Green Climate Fund and their partnership, in conjunction with the partnership with the Dutch government provides a clear opportunity for action.

Gender and Social Inclusivity



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A preliminary cost-benefit analysis including societal costs and benefits was conducted by the six teams for each project proposal. As well as a risk analysis (including mitigation) for each project. Local partnerships were developed by the teams by involving communities (with support from Partners for Resilience and local design workshops). Teams' outcomes (programmes and project proposals) had to have a link with local, regional and national long-term strategies/plans such as the Bangladesh Delta Plan 2100 in the case of Khulna. At government level, the overall programme is embedded in the bilateral water cooperation with the three countries. Moreover, Bangladesh, India and Indonesia are convening partners of the Global Centre on Adaptation which is one of Water as Leverage's partners. The further development of the project proposals towards the feasibility and implementation phase will be part of the Climate Action Agenda of the Global Centre. Also: WaL's Call for Action addressed projects embedded in a complex planning context. Each city has different vulnerabilities in relation to water-related risks and in their capacity to deal with these risks. There is often no holistic urban plan that addresses water issues in an effective way, and, in case an overall plan exists, it generally lacks a comprehensive approach to support the development of sustainable projects. Inadequate governance and planning strategies may lead to a cascading chain of disastrous consequences that eventually increases risks and vulnerability. The aim is to deliver not only transformative and bankable projects, but also to strengthen local capacity to help carry these projects forward and engage in a range of interventions on all levels: from better overall governance plans to excellent projects implemented in the complexity of the local planning scheme. WaL asks for comprehensive proposals that endorse strategies combining solutions for water and urban challenges. Multidisciplinary teams consisting of water, climate and urban experts that are experienced in developing strategies or projects that tackle water issues and climate and that, at the same time, enhance the urban environment they are part of, were invited. To make this question more concrete per city, Water as Leverage has already initiated prospective research on many levels; local and regional desktop research, on-site explorations through field trips and conversations with potential stakeholders has nourished both overarching knowledge concerning the region and in-depth insights on the ground. Based on this prospective research, a series of concrete design questions or challenges touching upon city-specific issues were identified. Finally, WaL asks for processes that develop local expertise into concrete solutions with global resonance. The selected teams will be invited to actively participate in local workshops organized in their elected city. Through an approach combining research and design, the teams are expected to develop work processes in close collaboration with local stakeholders and governments, the goal of which is to lead to inclusive and implementable solutions. To make sure that we also end up with bankable projects, international financial institutions like the Asian Infrastructure Investment Bank (AIIB) and the Dutch development bank (FMO) are involved from the beginning and they will have an observing role throughout the whole process. Eventually, together with all the Water as Leverage partners, they will assess per city the research and design work in terms of financial feasibility. Furthermore, WaL aims to maintain a continuous and ever growing exchange between thematic knowledge across regions and concrete area specific projects.

Initiative Contribution

• Goal 6 - Ensure availability and sustainable management of water and sanitation for all • Goal 11 - Make cities and human settlements inclusive, safe, resilient and sustainable • Goal 13 - Take urgent action to combat climate change and its impacts (main goal of project) • Goal 17 - Strengthen the means of implementation and revitalize the global partnership for sustainable development (main goal of project)

Innovative Initiative

The approach of Water as Leverage in itself is collaborative, as described above. The idea is to build 'Coalitions of the winning' from the first workshop through implementation and use – not only at project level, but also at the level of the enabling environment (capacity building, technical assistance, awareness raising etc). This so-called 'enabling environment' is needed to bring the projects to the next stages without whose support and ownership, they will never thrive.

Resources devoted to delivery

€3 Million = \$3,315,300 public funding from the NL government and in-kind contributions from the teams (private)

Conclusion

Contact us on our twitter account (@waterasleverage) and website: www.waterasleverage.org and LinkedIn: www.linkedin.com/company/waterasleverage