

# CASE STUDY

Rotterdam (NL) – Surat (IN)

IURC – Asia & Australasia



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Source: <https://www.pexels.com/photo/clock-tower-surat-13389827/>

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**Thematic Network(s): Ecological Transition – Green Deal**

**Thematic Cluster(s): Green Infrastructure**

**Cross-cutting challenge(s): Energy Transition – Climate Change**

**Topic keywords: water plaza, flood management, open spaces**

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# Water Plazas

*Rotterdam is working with Surat to construct and efficiently operate a water plaza in a dense city neighborhood, in order to manage water resources, reduce the climate change impacts, facilitate social interactions and encourage athletic activities.*

## EXECUTIVE SUMMARY

As a low-lying delta city Rotterdam is vulnerable to the effects of climate change, especially intensive rainfall and sea level rise. Rotterdam started an adaptation program as early as 2008 as part of a city/port wide sustainability program. This has resulted in the Rotterdam adaptation strategy in 2013. The core of the adaptation strategy is to make better use of the available space in the city, public as well as private, to encounter the challenges of climate change.

One of the innovative projects that resulted from the adaptation program was the concept of the water plaza, a **multifunctional use of public space**. **Temporal storage of rainwater** in a well-designed plaza is the core advantage. A water plaza can serve multiple functions for **water management and recreation**, while having an aesthetic value. Rotterdam learned from the first pilot projects, about the technics of the design as well as about planning and cooperation with stakeholders. Up to date there are 7 water plazas of several dimensions and characteristics in place in Rotterdam.



The water plaza is an ideal topic because it builds on the experience and needs of both cities. Surat faces similar challenges like Rotterdam. Although Surat has created 200 small and big parks these are not enough for 6 million people.

Rotterdam and Surat have been working together for the design and operation of a pilot water plaza for several years as part of the IUC, IURC, and other initiatives. A number of

exchange visits, meetings, events and workshops have taken place. Key milestones are the design of the water plaza in Singapore and the development of a Detailed Project Report (DPR) in close cooperation with Aangan Architects, review of operational aspects, as well as research for the identification of funding for additional 7 water plaza. The cooperation is also touching on broader water management strategy issues as well business interactions.



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# MAIN CHALLENGE AND SOLUTION

In order to mitigate the impacts of urbanization and climate change, it is imperative to conserve water, recharge the ground water table, and take measures to reduce the city temperature. It is also important to develop common areas for performing cultural activities (i.e., immersion of deity idols in the case of India). Communities, need access to green areas and sports facilities, while encouraging economic activities at the neighborhood level. These are generally common challenges across European and Indian cities.

The concept of water plaza – Khel-Kund (water reservoirs constructed to collect and harvest rainwater), derives its inspirations from the traditional water management systems 'Kunds'. Besides their main purpose, these modern water plazas are used as water bodies for various religious and socio-cultural activities such as immersions of deity idols. During the dry season, the water plaza will provide for a social and sports space for all age groups. The first pilot water plaza in the Singapore area of Surat (size: 5,547 m<sup>2</sup>) has been designed for Surat (by Aangan Architects) with the contribution of IUC, IURC and the City of Rotterdam, which has extensive experience in this field.



The pilot has been included in the Surat Municipal Corporation budget and is under tendering. Seven more water plazas are in the planning phase. The main goals are to:

- Minimize urban flooding and the pollution of water bodies.
- Build resilience to climate change impacts and variable rain patterns, protecting ground water depletion.
- Promote reuse of rainwater through blue infrastructures, serving as a public space for citizens and community





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**“The cooperation and exchange visits gave Rotterdam several new insights. We learned that the context of a water management solution like a water plaza opens up ideas to new functions of such a water plaza. We think the hands-on mentality of both Rotterdam and Surat helps us both to understand each other and feel comfortable with this cooperation.”**

**(Mr Corjan Gebraad, Strategic Advisor, Urban Management Division Rotterdam, Water Department**



# RESULTS AND IMPACT

By the end of the IURC project it is expected that the 1st pilot water plaza will be under construction. During completion, an effective operations manual should be developed in line with input from the City of Rotterdam.

As for the construction of the 7 additional water plazas a list of potential funding sources will be shared with Surat Municipal Corporation for further review. Overall, the IURC project is expected to lead to:

1. Strong long-term network and cooperation between the two cities that goes beyond the IURC project.
2. Innovative/replicable approach for resilient urban planning by introducing water plazas to India.
3. Efficient water management, ground water replenishment, flood prevention, & climate change mitigation/adaptation.
4. Better quality of life through building of public spaces which positively impact physical and mental health.



## KEY FIGURES

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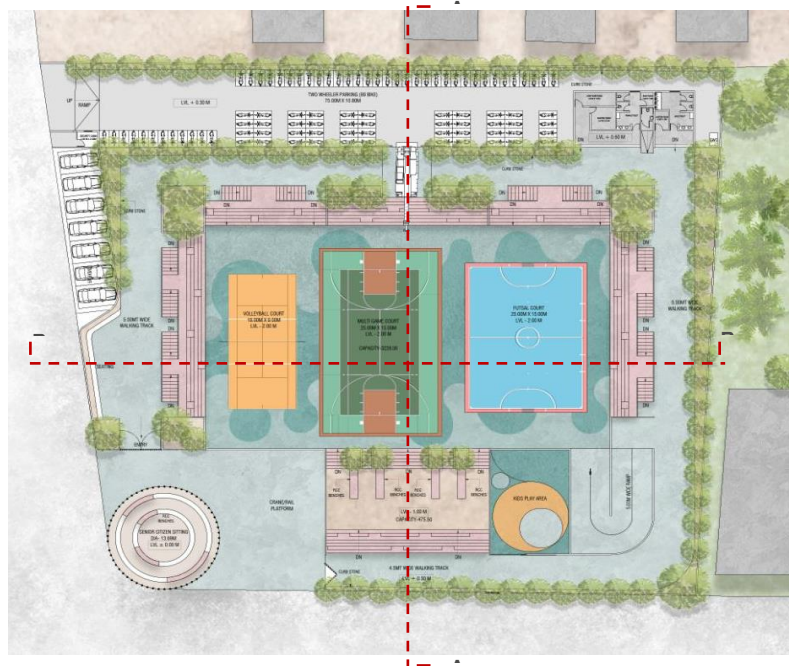
Water Plaza designed in Singapore area

5.547 m<sup>2</sup>

Of new public space

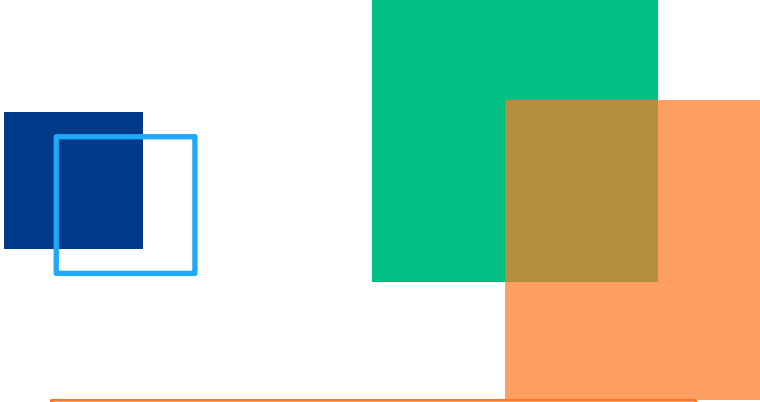
7

New Water Plaza sites identified

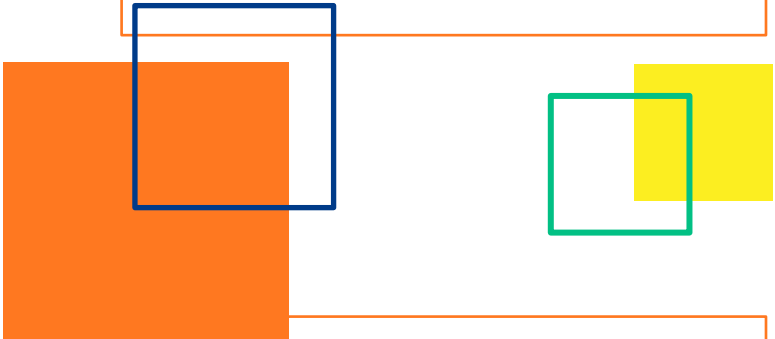


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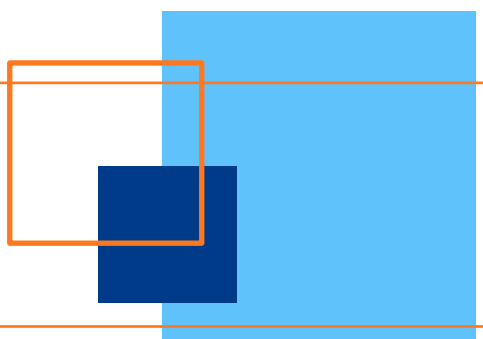
# LESSONS LEARNED



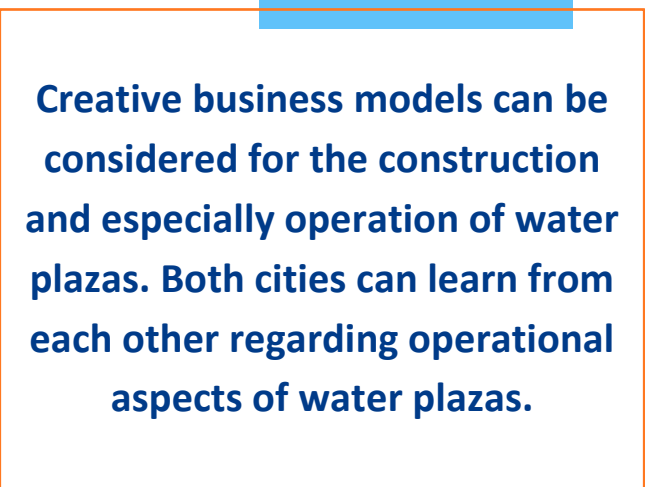
**Water plazas serve many environmental, climate, social and economic objectives.**




**An innovative climate resilience initiative, such as a water plaza, faces practical barriers like obsolete tender processes.**



**The construction of pilot projects for innovative climate resilience initiatives and the availability of initial financing are critical for the further development of such beneficial projects.**



**Creative business models can be considered for the construction and especially operation of water plazas. Both cities can learn from each other regarding operational aspects of water plazas.**



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# THE IURC PROGRAMME

The International Urban and Regional Cooperation (IURC) programme enables cities in different global regions to link up and share solutions to common problems. It is part of a long-term strategy by the European Union to foster sustainable urban development in cooperation with the public and private sectors, as well as representatives of research and innovation, community groups and citizens. Through engaging in IURC, cities will have the chance to share and exchange knowledge with their international counterparts, building a greener, more prosperous future.

The IURC programme is an opportunity for local governments to learn from each other, set ambitious targets, forge lasting partnerships, test new solutions, and boost their city's international profile. Its activities will support the achievement of policy objectives as well as major international agreements on urban development and climate change, such as the EU Urban Agenda, the UN Sustainable Development Goals, and the Paris Agreement.

**Author:**

**Acknowledgments:**

**Links to related outputs:**