Rain and storm water solutions – a sustainable, blue-green future

LIVEABLE CITIES PHILIPPINES

Adrian Marsden

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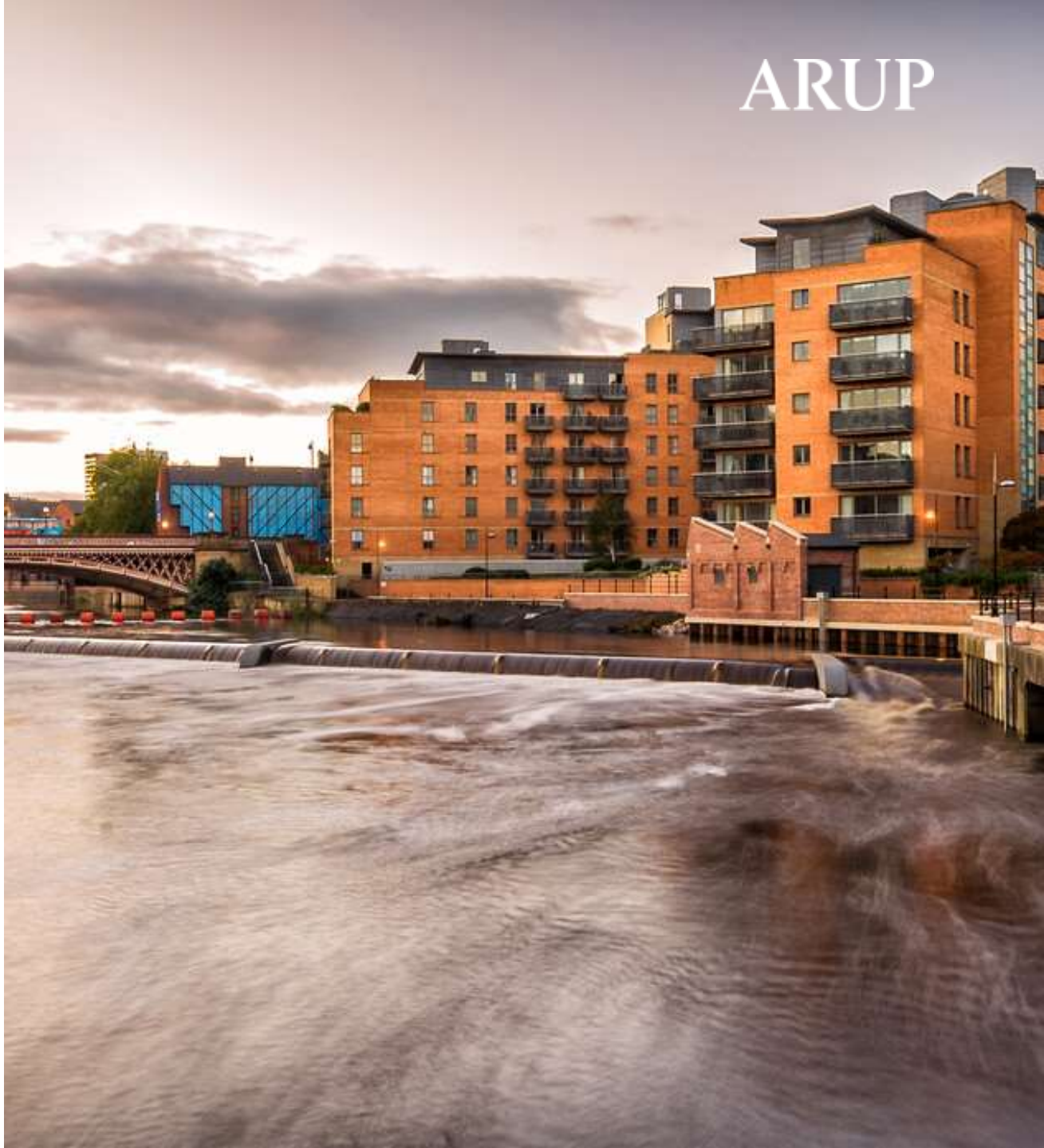


Arup in the Philippines

ARUP

From seismic engineering and infrastructure delivery, we draw upon global resources and expertise to solve problems requiring any specialist skills in the Philippines.

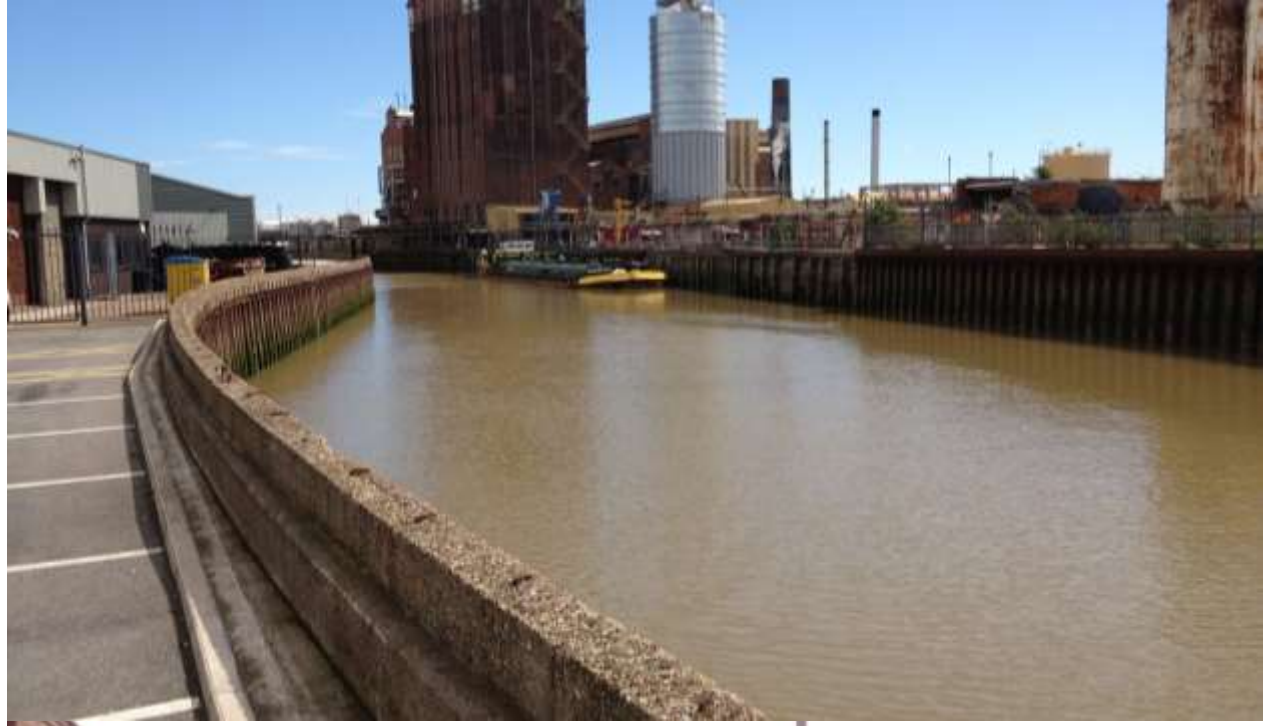
Three decades in the Philippines

Problem or Opportunity?

- If rain and storm water not managed there will flooding and negative impacts
- We have to and need to ‘Live with Water’
- Designing with water opens up opportunities

Opportunities are different

- ‘Existing spaces’ need a different approach to ‘New spaces’
- Urban spaces need a different approach to rural spaces
- All solutions need integrated thinking



Approaches

- The opportunities here are not about designing flood management systems.
- They are about;
  - Managing uncertainty
  - Placemaking
  - Driving towards sustainable and net zero targets

Solutions

Fulbright University Campus – Vietnam

Visible water management around the campus

Reduced water useage, storage and detention and green space.

Solutions

Benthemplein - Rotterdam

Water Square acting as amenity and flood storage area.

Designed to maximise storage volumes within a planned urban environment.

Solutions

Jurong Lake District, Singapore

A Development Level plan for integrated infrastructure

High efficiency domestic fittings

Rainwater harvesting and greywater reuse

‘Managed rainwater’ to create recreation and enhanced microclimates for cooler walkable spaces

Solutions

Shanghai Urban Drainage Masterplan

Masterplan for 640 km^2

Developed in 11 months

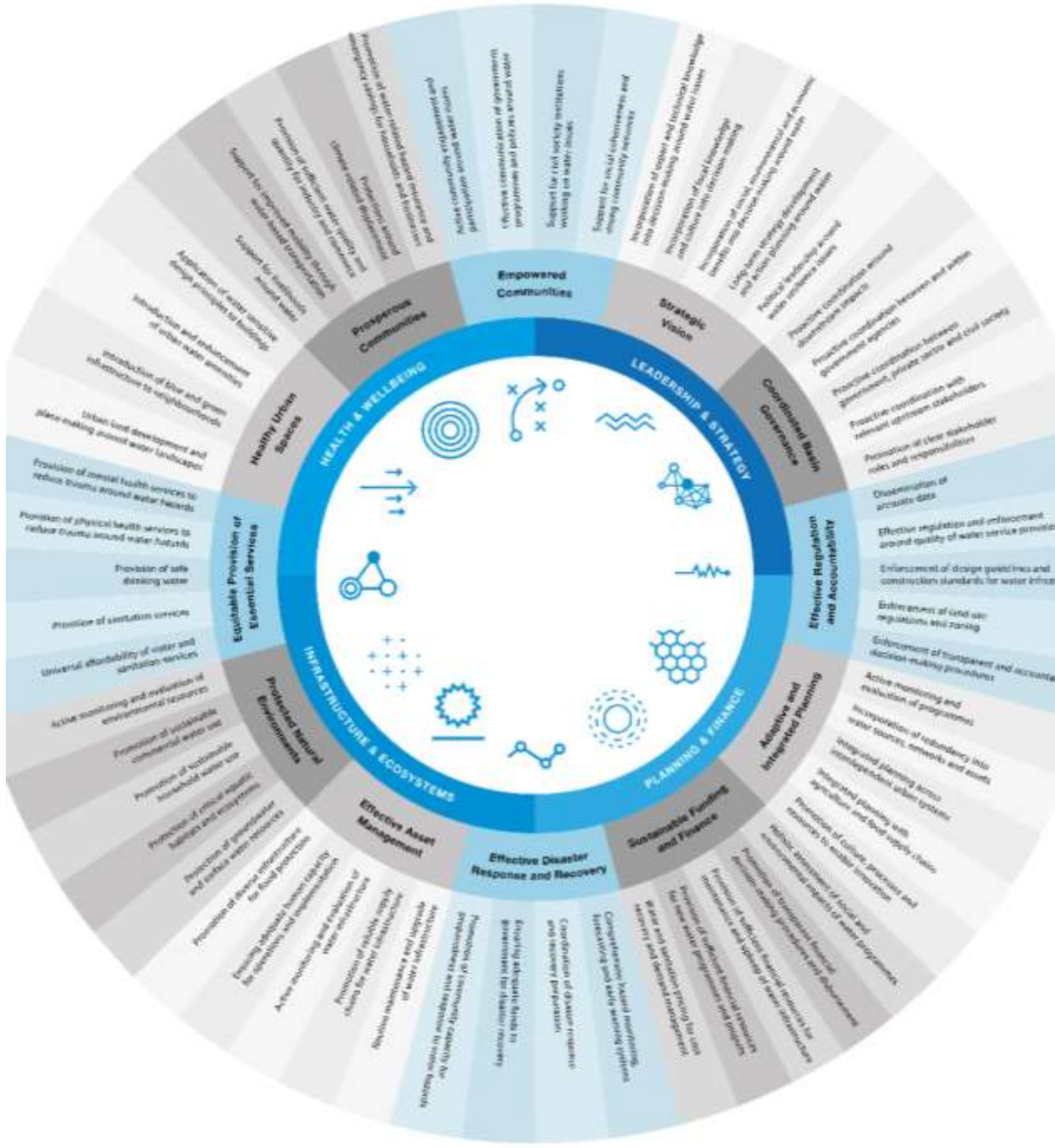
Extensive use of machine learning to quickly assess catchment

Processes

City Water Resilience Approach

Suite of tools to help cities grow capacity to survive and thrive in the face of water related shocks and stresses.

The approach details five steps to guide cities through initial stakeholder engagement and baseline assessment, through action planning, implementation and monitoring of new initiatives that build water resilience.



Where does that take us?

Living with Water

- Understand the catchment
- Understand the responsibilities
- Identify and manage shocks and stresses
- Maximise the use of nature based solutions
- Think in an integrated way
- Aim for a sustainable, net zero, future

Find out more

- Information on many of the projects and approaches is on Arup.com and hyperlinked here and to the images.

- Contact us as

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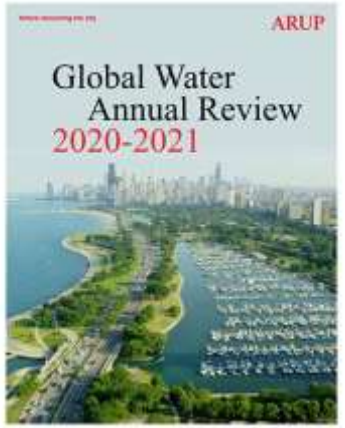

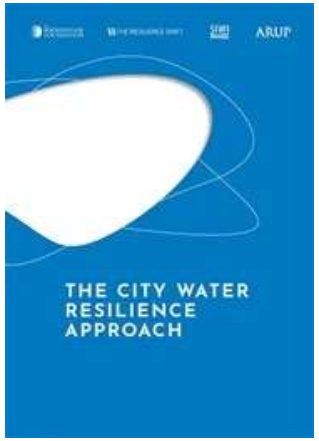

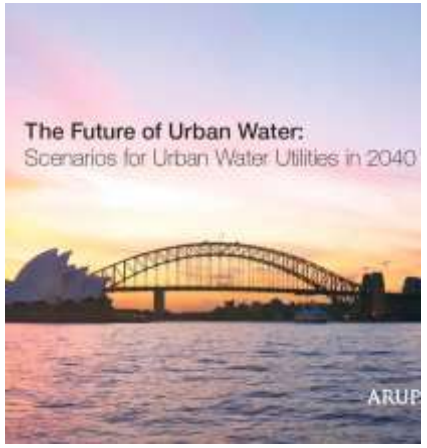

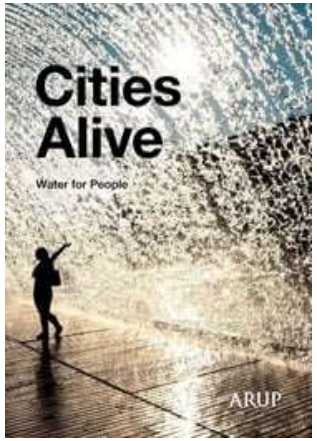

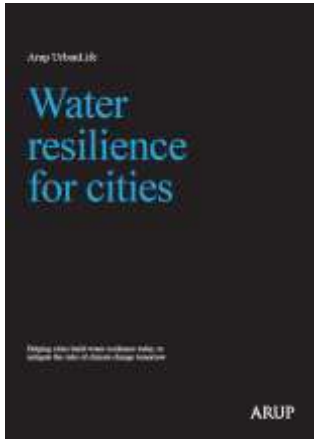

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