

First International Conference organized within the framework of
PolyUrbanWaters Research and Project Network (BMBF 2019-2025)

POLYURBAN WATERS

**Polycentric management of urban
waters in fast-growing cities and
peri-urban areas in Southeast Asia**

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Urban Water Resources in the World and in Southeast Asia

Planning Water Sensitive Cities

**24-25th
March 2021**

**Online /
Berlin / Kratie /
Sleman / Vientiane**

Why we exist

An Australian Government Initiative



CRC for
Water Sensitive Cities

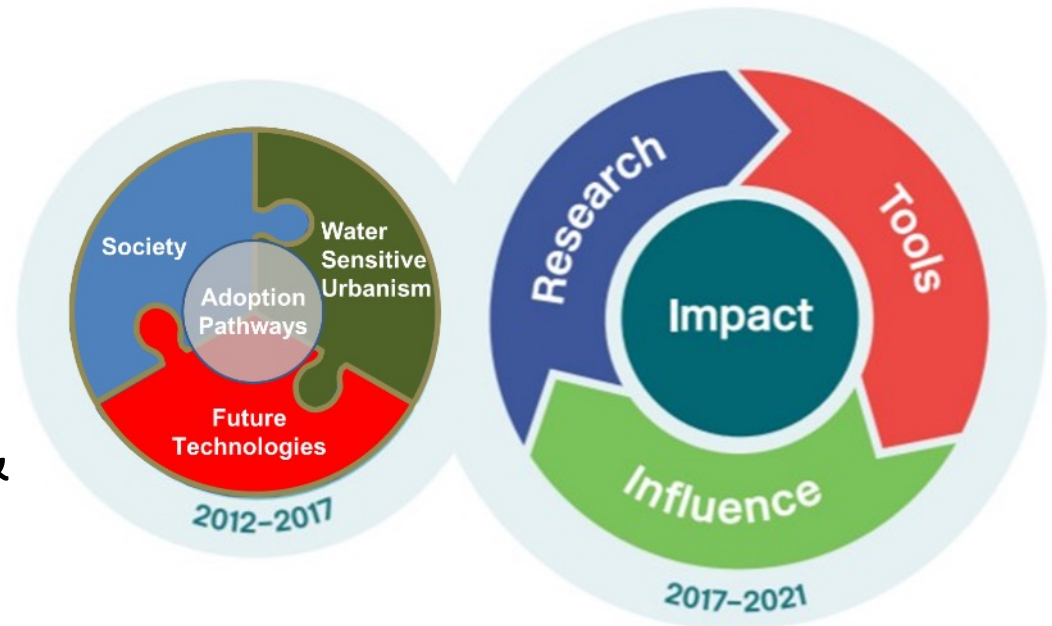
(2012 -2021)

The background image shows a city skyline with several tall buildings, including a prominent blue skyscraper. In the foreground, there is a lush green park with many trees and a calm lake reflecting the sky and buildings. A semi-transparent white box with rounded corners is overlaid on the image, containing the text.

The **CRC exists** to help change the way we build our cities by valuing the contribution water makes to economic growth and development, our quality of life and to the ecosystems of which cities are a part.

Focus on:-

- An inter-disciplinary approach to developing strategies & solutions
- Sustainability, resilient & liveability in cities and towns
- Active engagement with industry and community



Research | Synthesise | Influence



Vision for a Water Sensitive City



Cities as Water Supply

Catchments: meaning access to water through a diversity of sources at a diversity of supply scales;



Cities Providing Ecosystem

Services: meaning the built environment functions to supplement and support the function of the natural environment; and

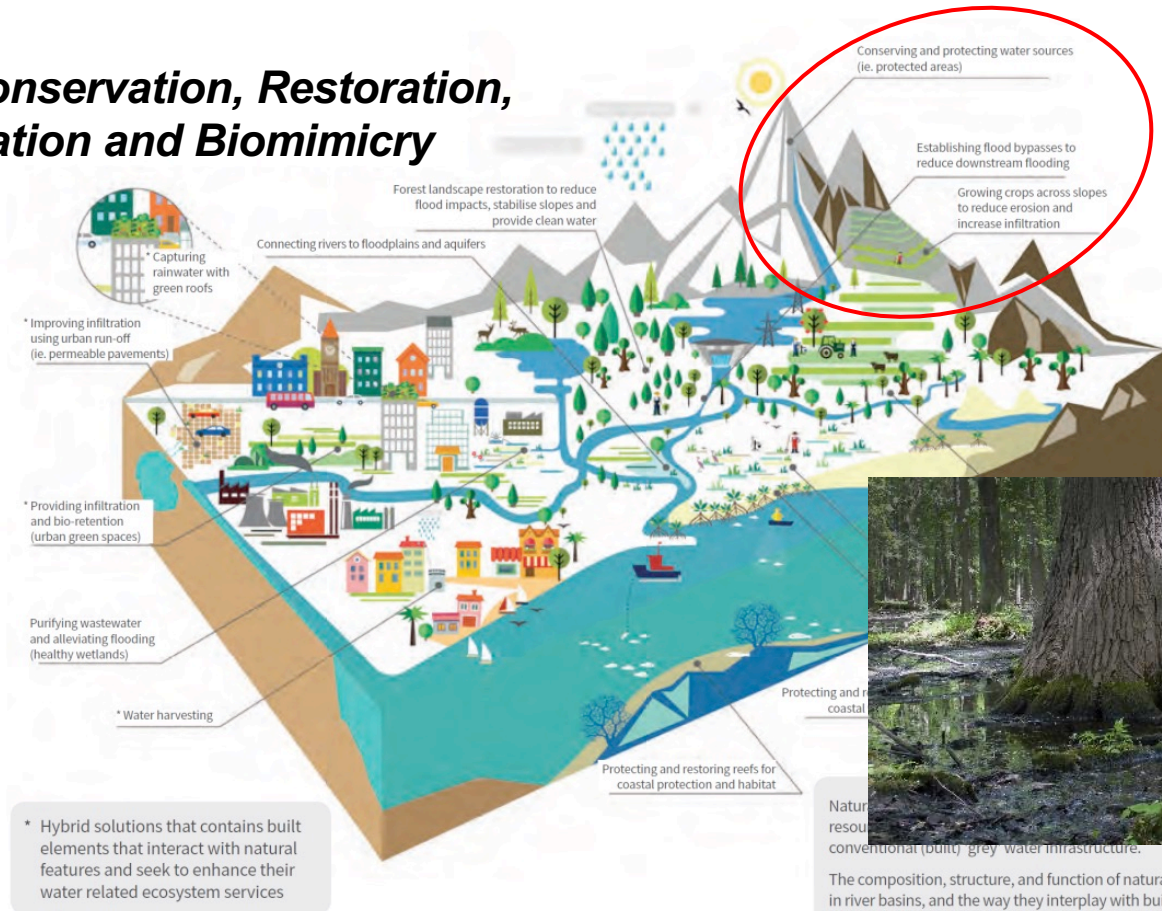


Cities Comprising Water Sensitive

Communities: meaning socio-political capital for sustainability exists and citizens' decision-making and behaviour are water sensitive.

Nature-based Solutions for Water

Nature Conservation, Restoration, Rehabilitation and Biomimicry



Conservation & Restoration



Natural infrastructure assets are those that enhance the resilience of conventional (built) 'grey' water infrastructure.

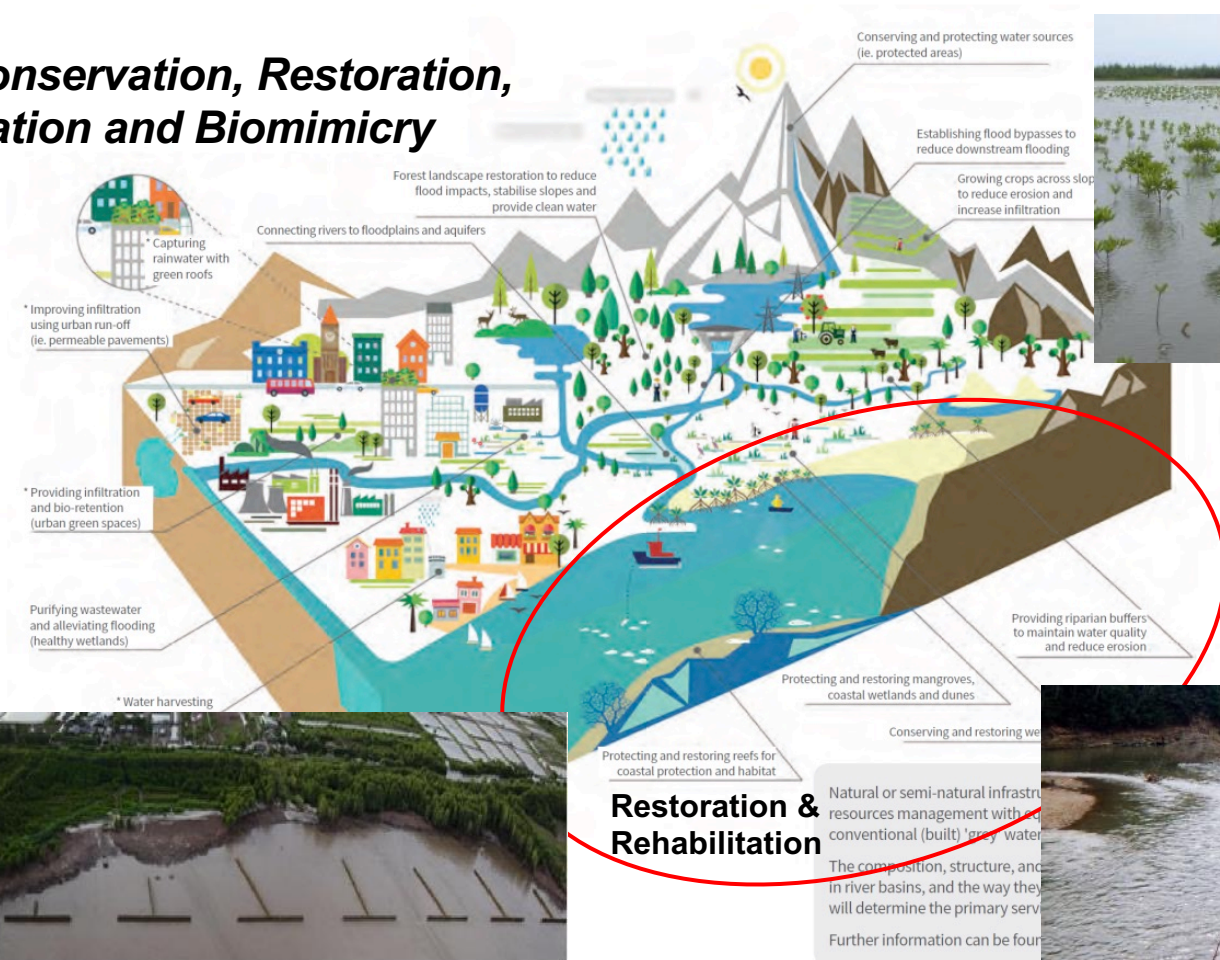
The composition, structure, and function of natural infrastructure assets in river basins, and the way they interplay with built 'grey' infrastructure will determine the primary services and co-benefits produced.

Further information can be found in UNEP-DHI/IUCN/TNC (2014).

Ecosystem Services

Source: Infographic 'Natural Infrastructure for Water Management', © IUCN Water 2015.

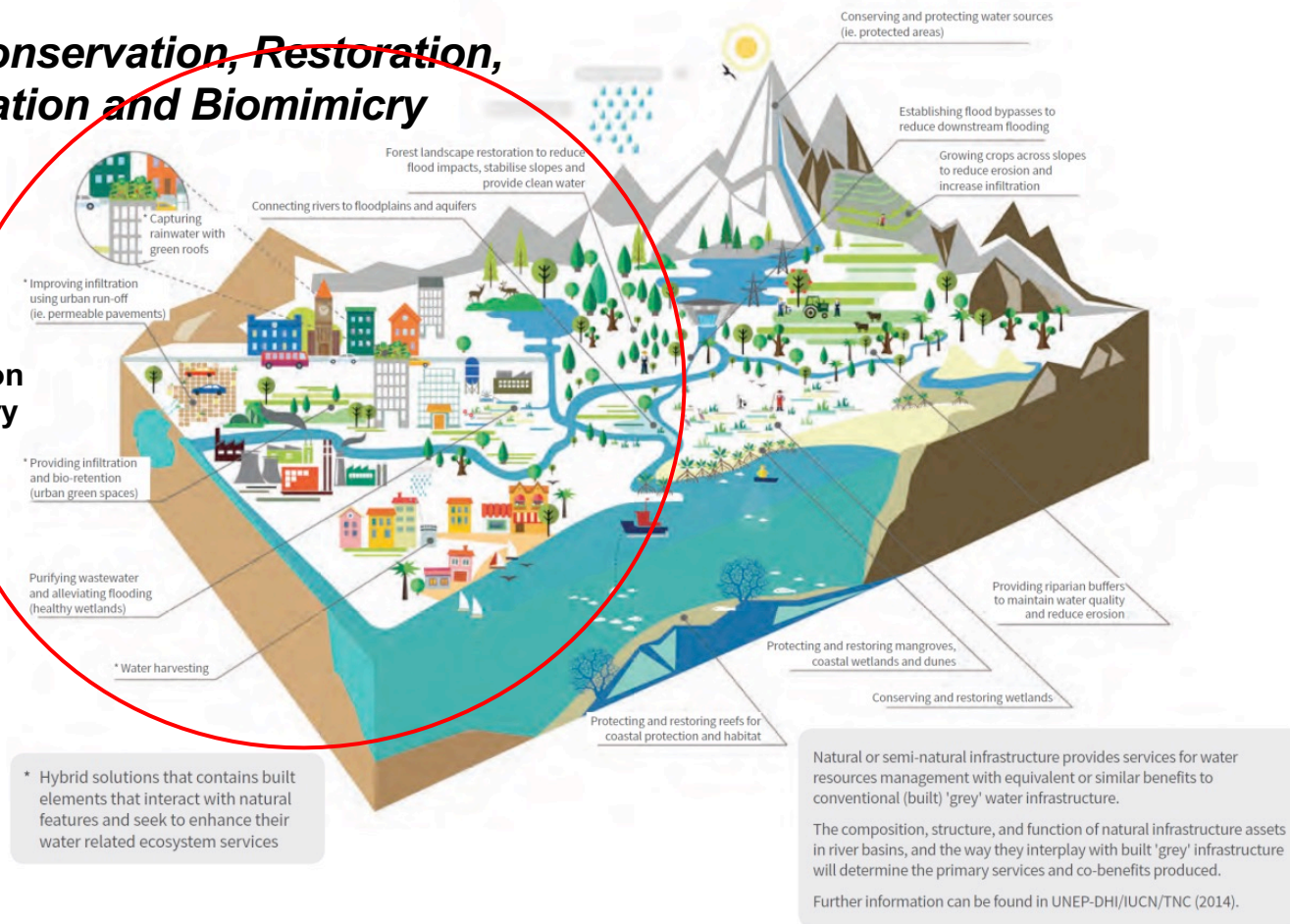
Nature Conservation, Restoration, Rehabilitation and Biomimicry



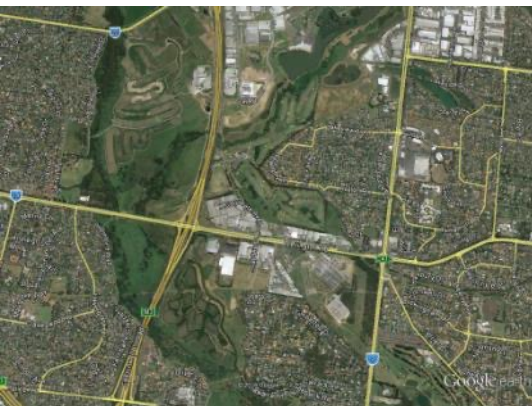
Source: Infographic 'Natural Infrastructure for Water Management', © IUCN Water 2015.

Nature Conservation, Restoration, Rehabilitation and Biomimicry

Rehabilitation & Biomimicry



Source: Infographic 'Natural Infrastructure for Water Management', © IUCN Water 2015.



Cities Providing Ecosystem Services: meaning the built environment functions to supplement and support the function of the natural environment;

- ❑ water quality improvement
- ❑ management of stormwater, greywater/blackwater as resources
- ❑ buffering aquatic ecosystems from the effects of catchment urbanisation and climate change
- ❑ flood mitigation – Infiltration; Detention; Harvesting & safe passage of flood water
- ❑ influencing urban micro-climates
- ❑ enhancing urban ecology and biodiversity



Strengthening the delivery of WASH in urban informal settlements

Addressing multiple exposure pathways in urban environments



CRC for
Water Sensitive Cities



Singapore Environment
Department of Water,
Sewerage and Drainage

Business
Cooperative Research
Centres Programme



ThinkTank

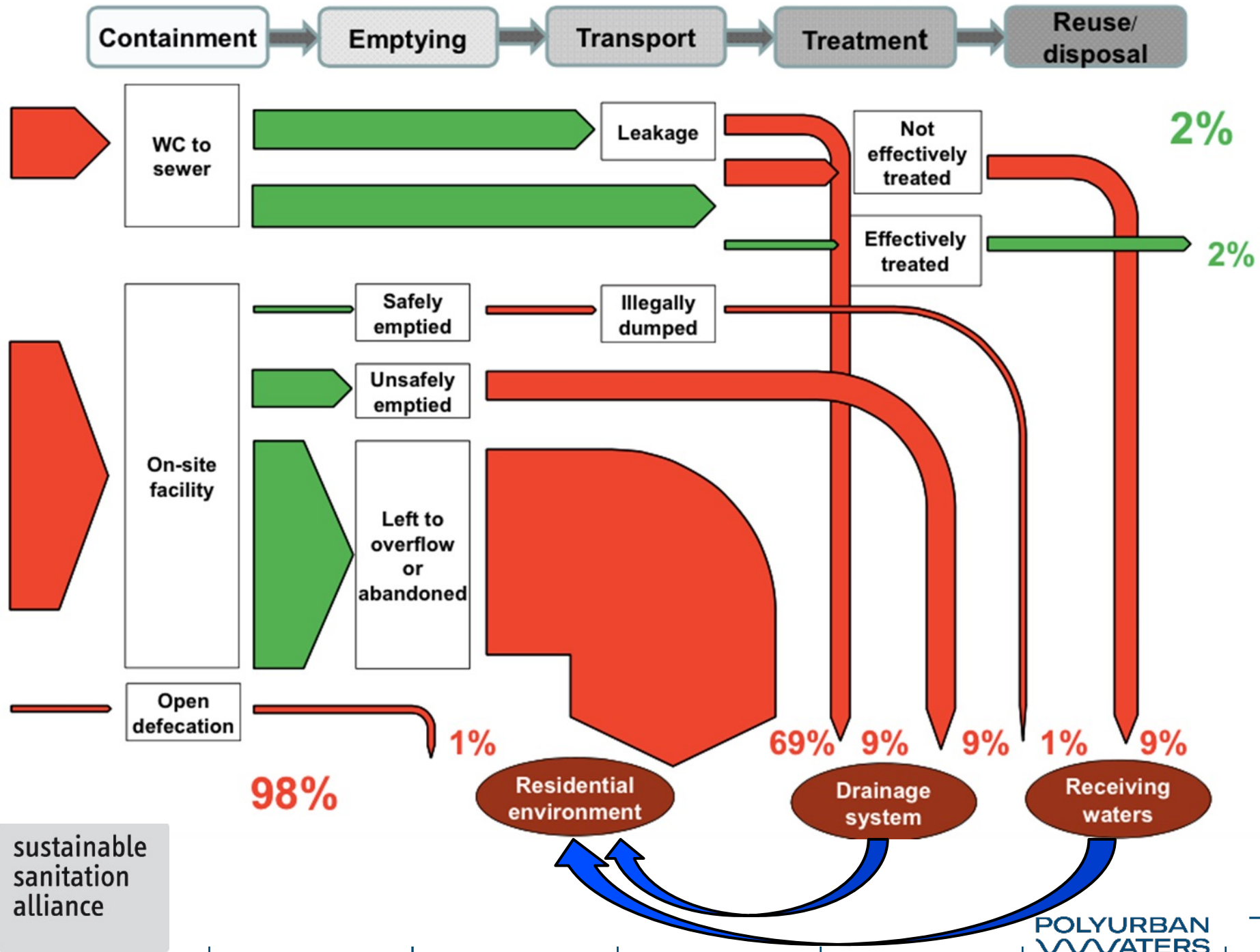


Strengthening Delivery Of WaSH To Urban Informal Settlements

Health issues in informal settlements

- Diarrhoea and pneumonia are the two main worldwide killers of children under 5 years
- Gastrointestinal infections highly prevalent in informal settlements
 - Inadequate water supply, sanitation and drainage in crowded environments lead to faecal contamination of soil and water
 - Secondary effects: intestinal inflammation, stunted growth, poor cognition





Impact



Flooding | Sanitation | Water Quality | Water Sources | Productive Landscapes

Protection
from flooding
hazards

Improving
Public health

Improving
environmental
quality

Storm water
harvesting &
wastewater
recycling

Alternative water
supplies & effective use
of floodplains



RISE Demonstration Site BATUA, MAKASSAR

https://players.brightcove.net/791607097001/default_default/index.html?videoId=6097260046001



November 2017

FLOODING + LACK OF CLEAN WATER + CONTAMINATION

- Fragile housing stock
- Flood-prone area adjacent to Tallo River.
- No mains access to clean water
- Faecal contamination from internal (bottomless septic tanks) and external.



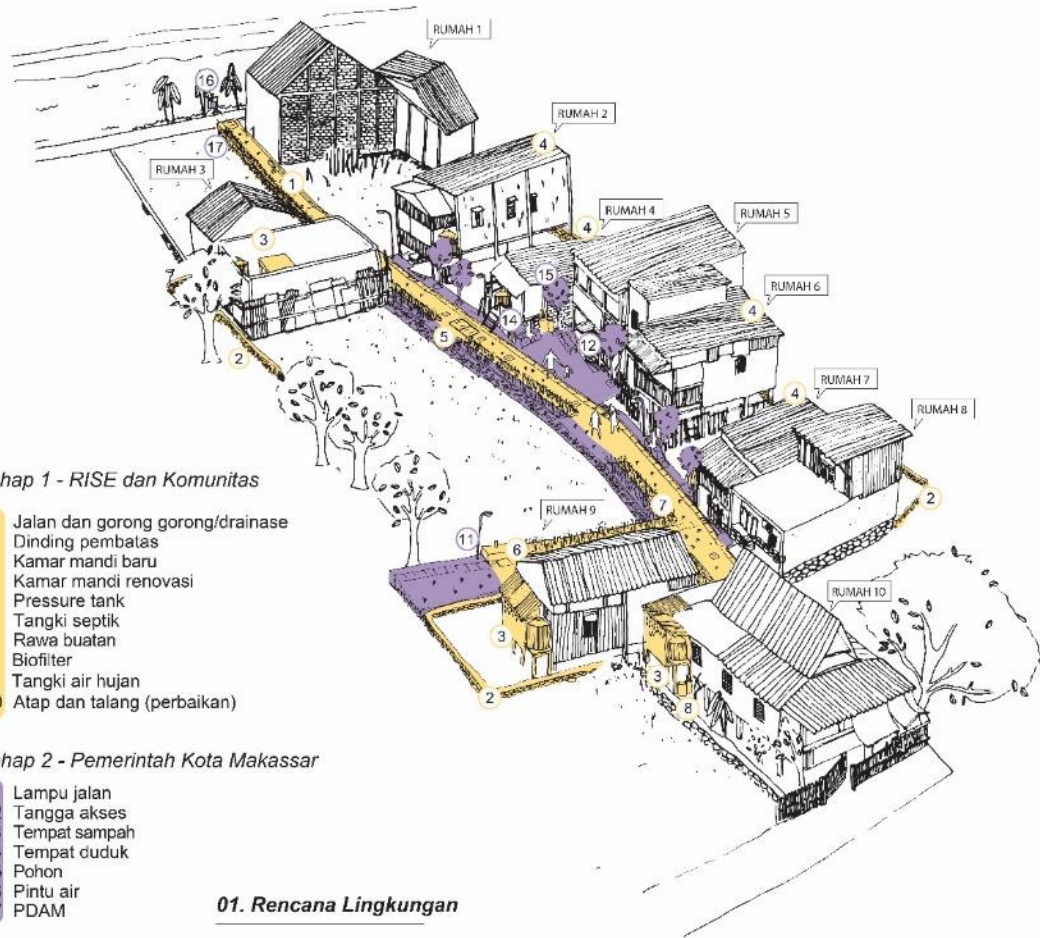


rise

 PROGRAM REVITALISASI
PERMUKIMAN KUMUH
DAN LINGKUNGANNYA

Lokasi Percontohan 'Site Zero'

Kelurahan Batua, Kecamatan Manggala, Kota Makassar



Tahap 1 - RISE dan Komunitas

- 1 Jalan dan gorong gorong/drainase
- 2 Dinding pembatas
- 3 Kamar mandi baru
- 4 Kamar mandi renovasi
- 5 Pressure tank
- 6 Tangki septik
- 7 Rawa buatan
- 8 Biofilter
- 9 Tangki air hujan
- 10 Atap dan talang (perbaikan)

Tahap 2 - Pemerintah Kota Makassar

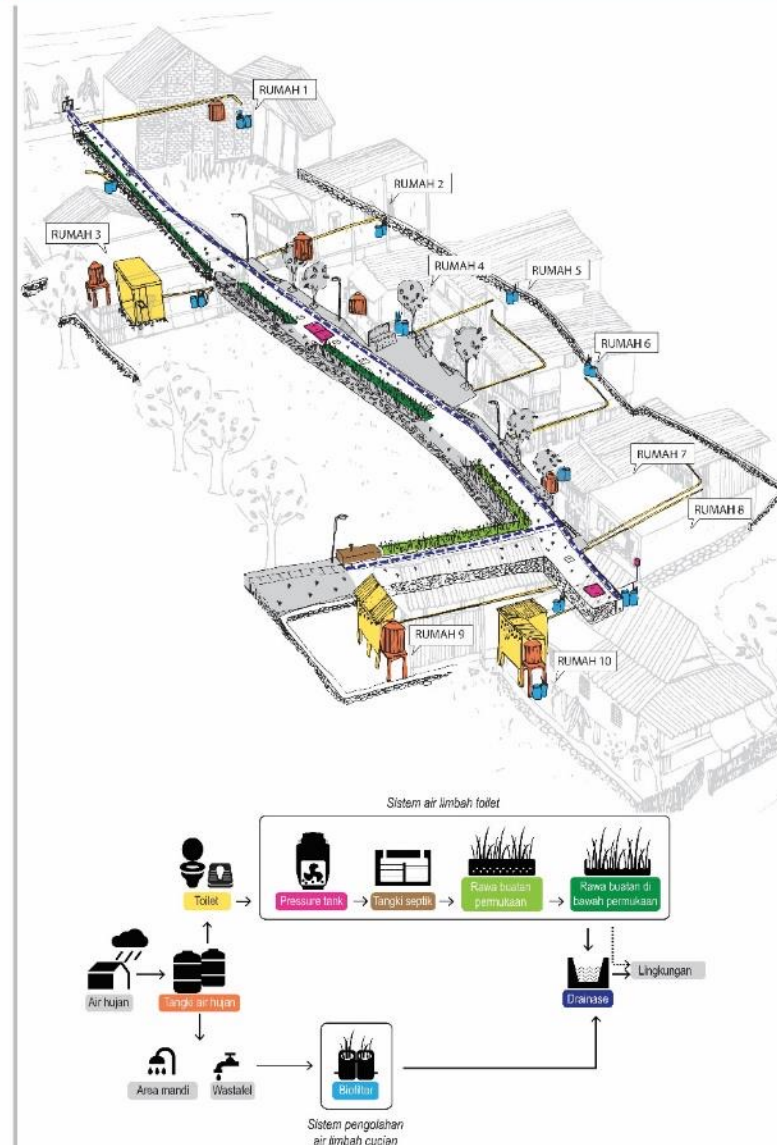
- 11 Lampu jalan
- 12 Tangga akses
- 13 Tempat sampah
- 14 Tempat duduk
- 15 Pohon
- 16 Pintu air
- 17 PDAM

01. Rencana Lingkungan

Disetujui oleh:

Tanggal:

Tahap 1 - Bagaimana Sistem bekerja?



02. Sistem Pengolahan Air Limbah



community construction of demonstration project in Makassar

contractor construction

of demonstration project in
Makassar





September 2017



October 2019



November 2017



October 2019



September 2017



November 2019



Rainwater tanks

Biofilters for
greywater

Wastewater
treatment

Safe
Access



Pressure sewer

Stormwater
drainage

Wetpods (toilet, handbasin)

Wastewater treatment



https://players.brightcove.net/791607097001/default_default/index.html?videoId=6097260046001