

Water for as Resilient Cities Leverage Asia

Water
as
Leverage

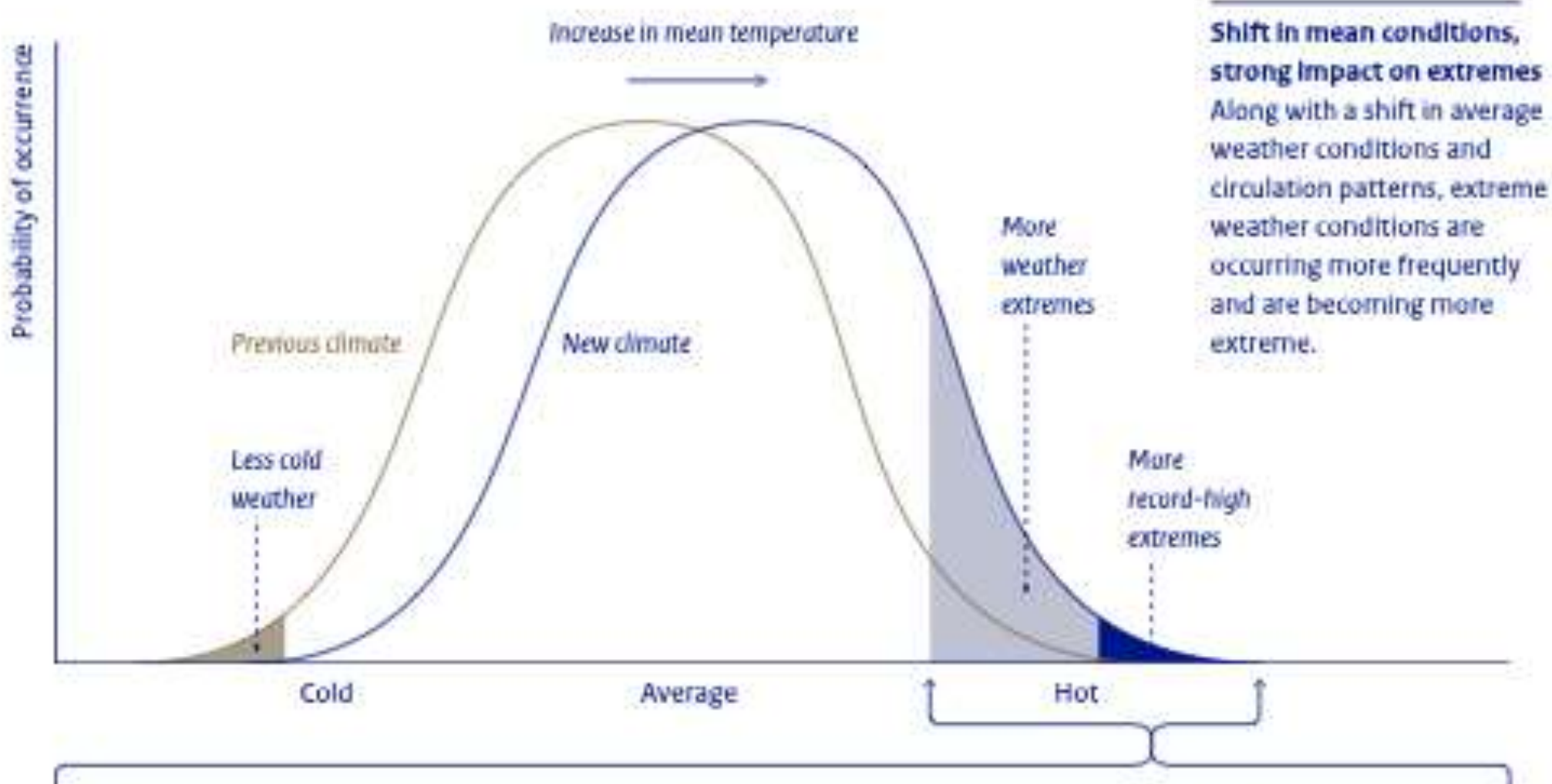


the *challenge* and the **opportunity**

CLIMATE CHANGE AND WEATHER EXTREMES

Climate change involves both slow and gradual changes, such as in temperature, precipitation patterns and sea level rise, as well as changes in weather extremes, such as drought, flooding and storm surges.

Society is primarily impacted by climate change through changes in the global and local water system. Changes in precipitation patterns, weather extremes, water-related disasters, sea level rise, and melting sea ice affect both security risks and development opportunities. The warming of rivers, lakes, seas and oceans negatively affects the quality of their ecosystems.



Shift in mean conditions, strong impact on extremes
 Along with a shift in average weather conditions and circulation patterns, extreme weather conditions are occurring more frequently and are becoming more extreme.

- Temperature extremes
- Storm surges
- Coastal flooding
- Precipitation extremes
- Drought
- River flooding



Change in temperature 2010–2050
 Global average temperature is projected to increase by around 2 °C by 2050, with large regional differences. The northern regions face relatively high temperature increases.

- °C
- 0.3 – 1
- 1.1 – 1.5
- 1.5 – 2
- > 2

Source: PBL



Change in net precipitation 2010–2050
 In general, the net result of changing temperature, precipitation patterns and evaporation is that most dry areas will become dryer and wet areas wetter.

- mm/day
- < -0.5
- 0.5 – -0.1
- 0.1 – 0.1
- 0.1 – 0.5
- > 0.5

Source: PBL



THE GEOGRAPHY OF DROUGHTS AND FLOODS

The Impact of too little water

Drought occurrences 1996–2015

Droughts occur on all continents, but predominantly in the southern hemisphere.

Number of occurrences

10

Source: CRED



People annually affected by drought 1996–2015

Droughts lead to water scarcity for people, severe agricultural production loss, local food shortages, and wildfires.

Number of people affected, annually

10 million

Source: CRED



The Impact of too much water

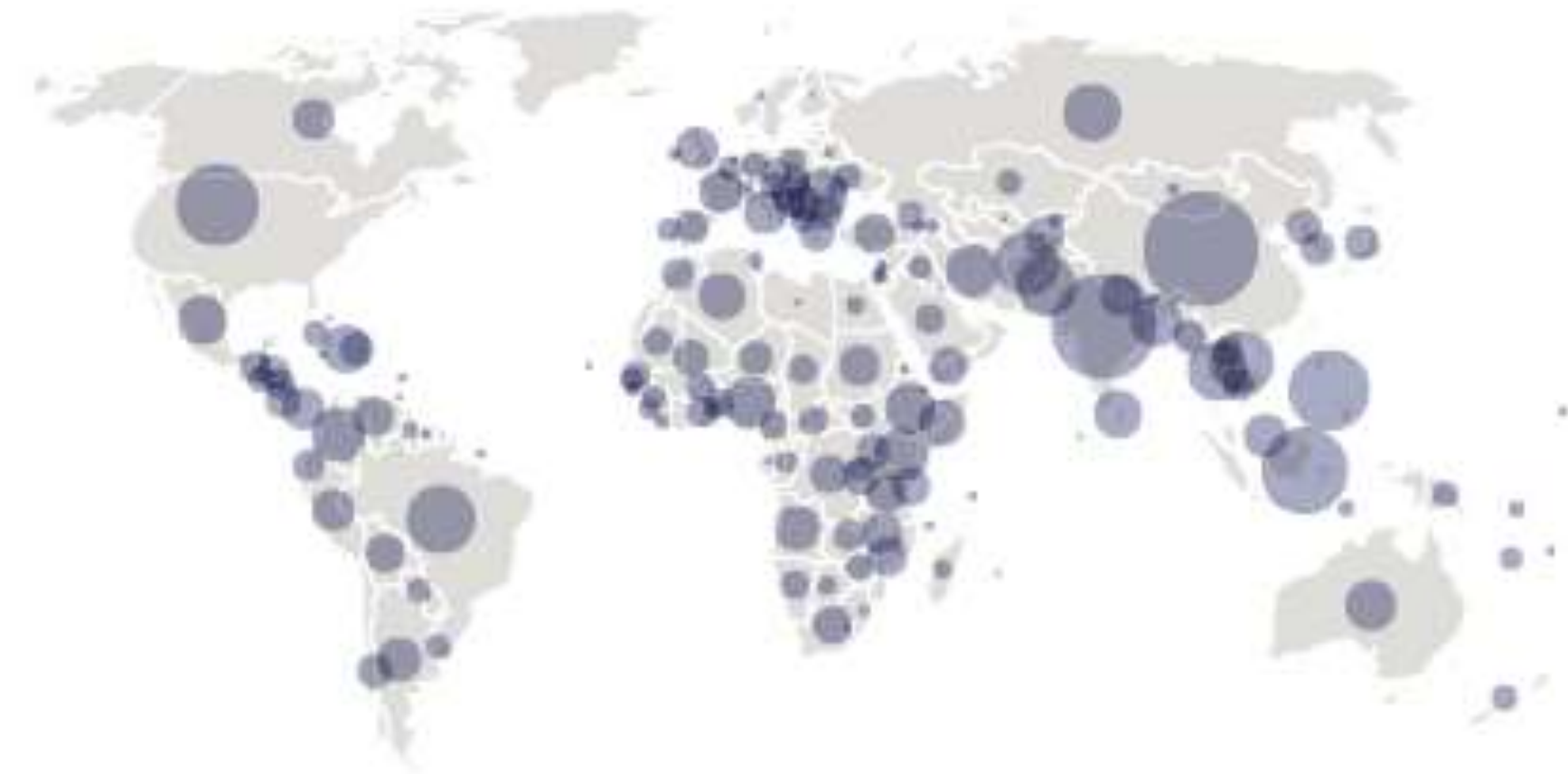
Flooding events 1996–2015

Flooding events lead to casualties, result in temporary displacement out of the area and high economic losses affecting both industries and households.

Number of occurrences

100

Source: CRED



People annually affected by flooding 1996–2015

Flooding occurs all over the world, but the majority of the people affected live in Southeast Asia.

Number of people affected, annually

35 million

Source: CRED



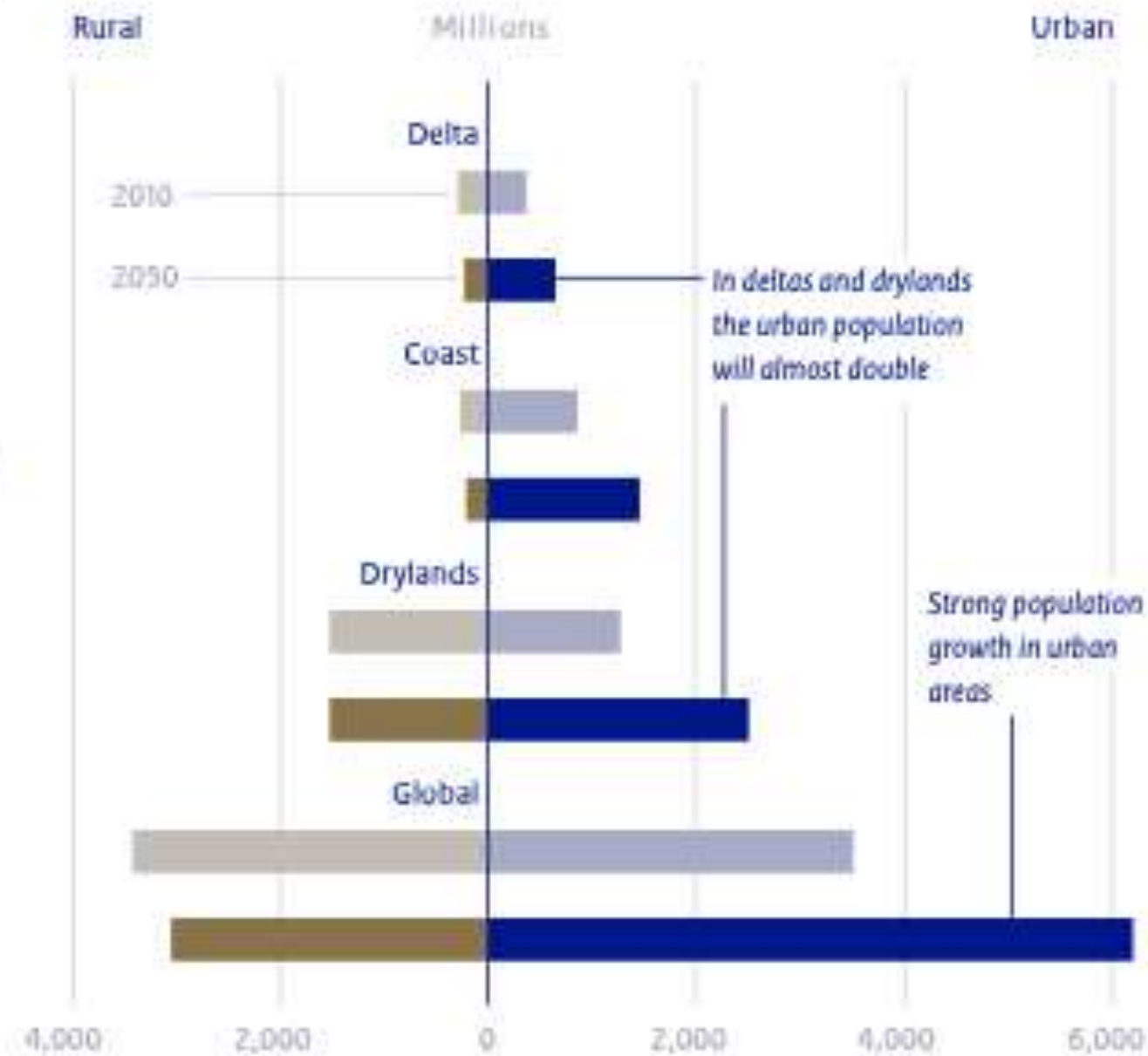
URBANISATION CHANGES GLOBAL VULNERABILITY

Because of continued global urbanisation, water-related risks will increasingly be concentrated in cities.

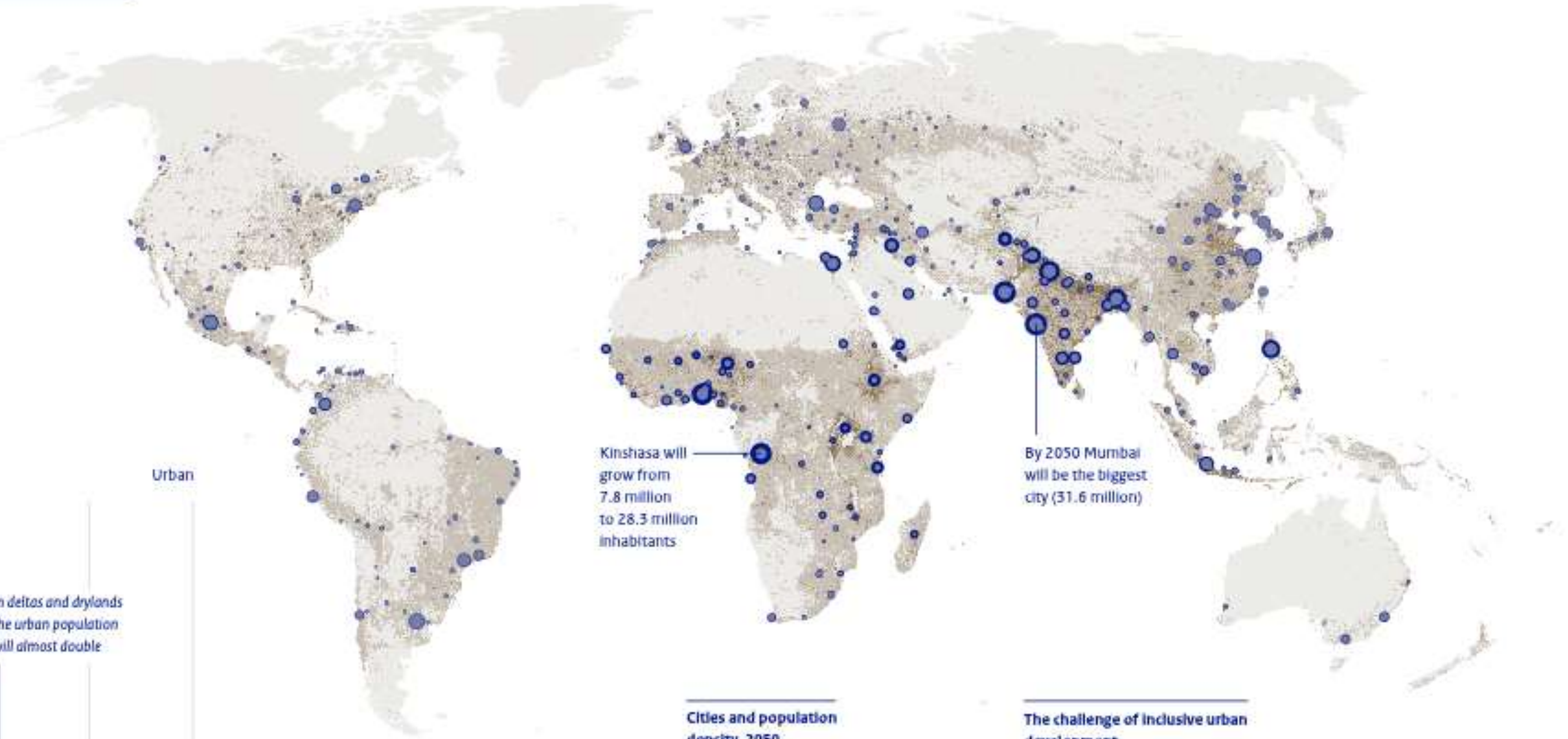
In the urbanising world, cities will increasingly become centres of population growth and economic development. By 2050, 70% of the world population is projected to live in an urban environment, and the 600 major cities in the world are expected to provide 60% of global GDP. The global urban area is expected to expand by more than 70%, not only in riparian and coastal areas and in deltas, but also in water-stressed regions, such as drylands. By 2050, 70% of the global population will be living on 0.5% of the global land area.

Change in urban and rural populations, per type of area, 2010–2050

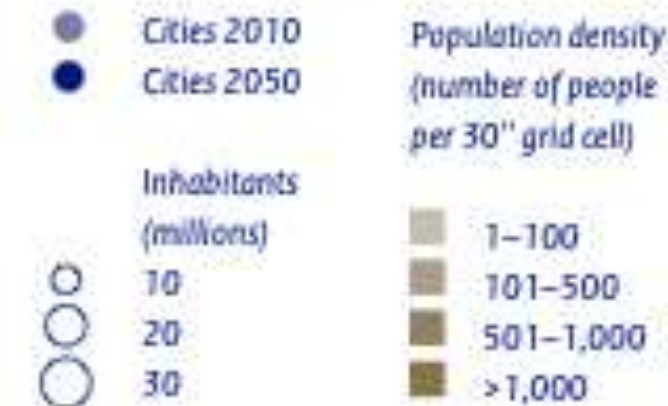
Fast urban growth, more than doubling city sizes, occurs especially in the developing countries of East and South Asia and Sub-Saharan Africa.



Cities Flood Risk Hotspots



Cities and population density, 2050



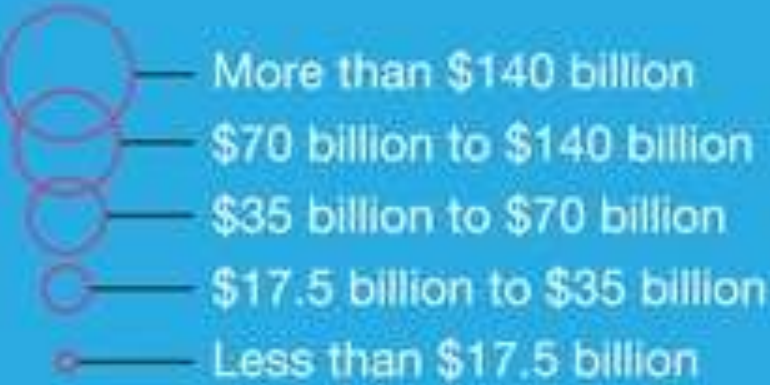
The challenge of inclusive urban development

Today, about one billion people are living in urban slums. The rapidly growing urban population strongly increases the pressure on local resources, local environmental conditions, food availability, labour opportunities, and public services. Reducing inequality, insecurity and poverty in cities may be some of the major challenges, on the path towards 2050.

global flood losses coastal cities will tenfold in 2050 US\$52 billion / year
all losses global flood damage will cost US\$1 trillion a year (OECD / WB)



LOSSES IN 2050 IF AN EXTREME WEATHER
EVENT OVERWHELMS SEA-LEVEL-RISE
DEFENSES OF URBAN AREAS*



POPULATION DENSITY, 2013



*ASSUMES CITIES CONTINUE TO BUILD
PROTECTIONS ON PACE WITH SEA-LEVEL
RISE TO MAINTAIN A CONSTANT RELATIVE RISK
OF FLOODING (IN 2005 U.S. DOLLARS)

SOURCE: STEPHANE HALLEGATTE, ET. AL.,
NATURE CLIMATE CHANGE, SEPTEMBER 2013

TOP 10 COASTAL URBAN AREAS



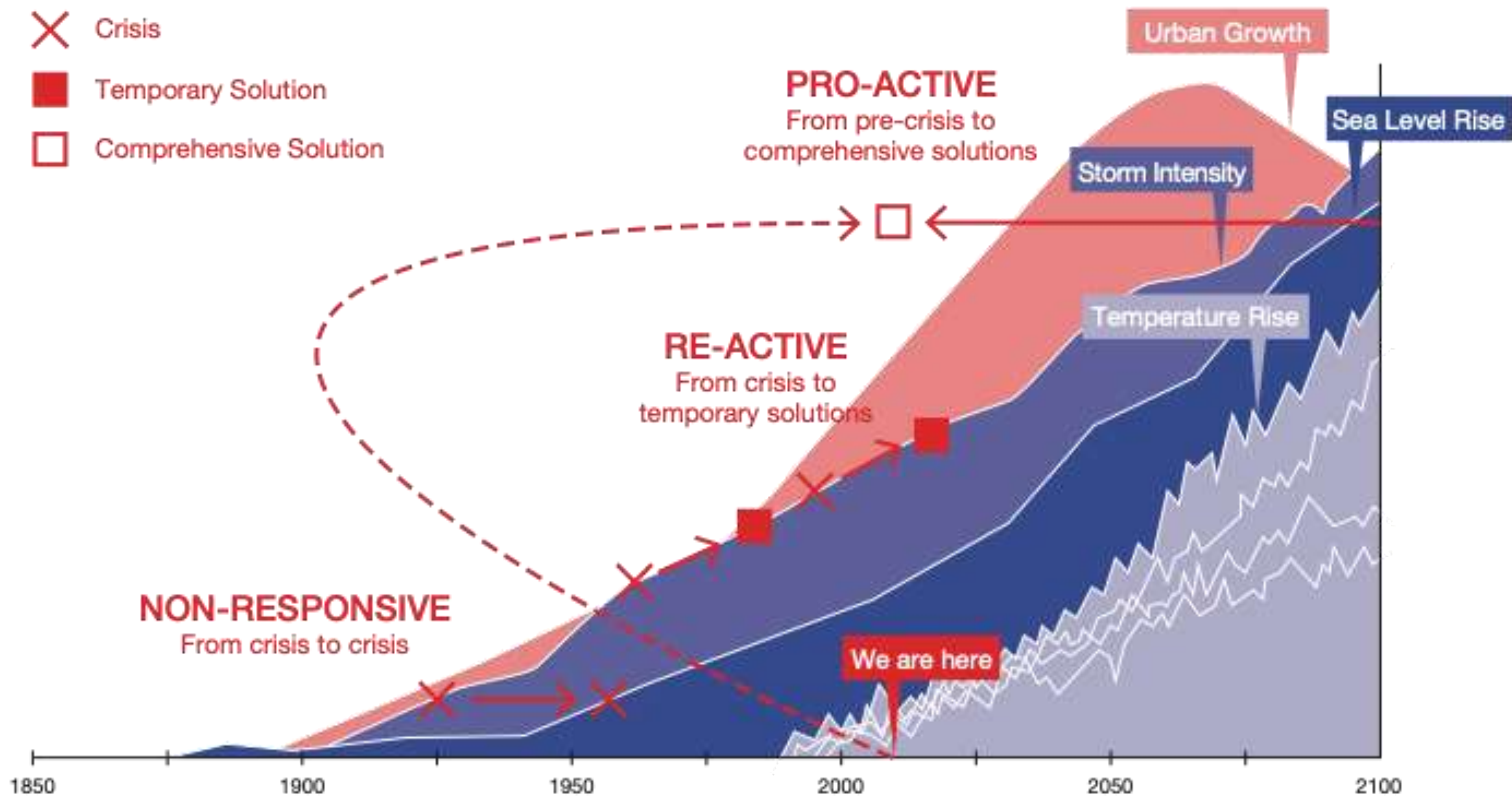
Rotterdam is #12 \$ 82 B



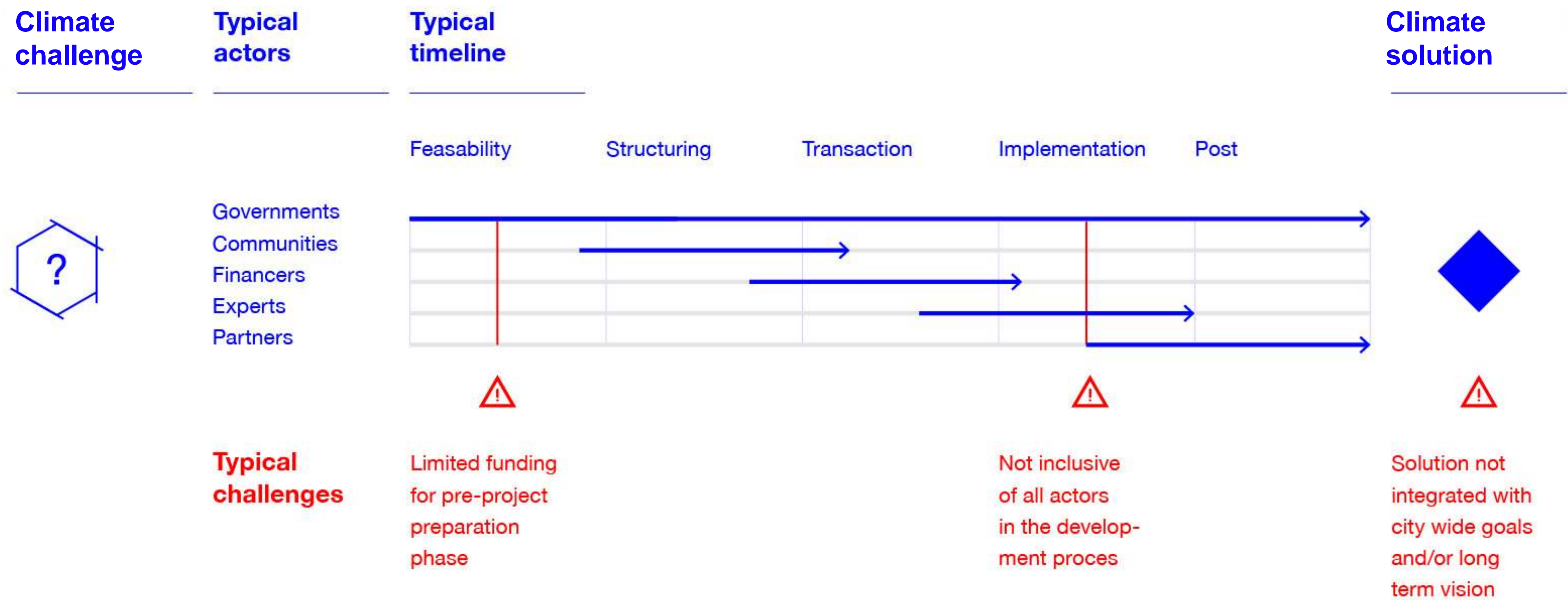
✕ Crisis

■ Temporary Solution

□ Comprehensive Solution



The traditional project development approach is inadequate to address complex climate and water related urban challenges



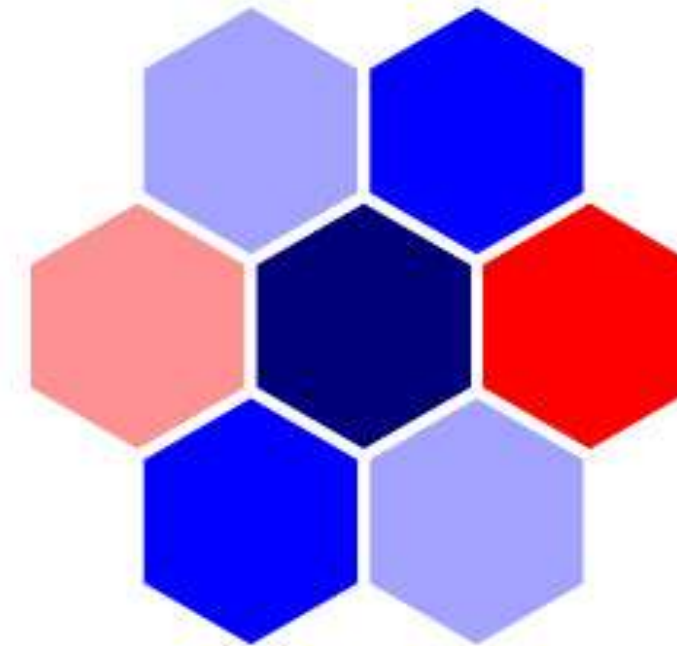
Because traditional solutions are failing, there is a need for new holistic approaches to re-engineer urban landscapes

Typical solutions



Energy, time and money is wasted on long project preparation processes or simply the wrong projects which only take narrow or short term perspectives in consideration.

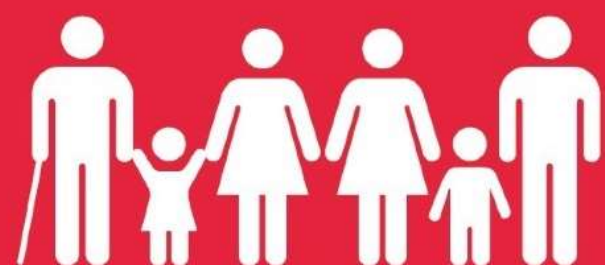
Required solutions



Starting from a design perspective, we need solutions that are:

- transformative
- comprehensive
- scalable and replicable
- mitigating future risk
- building resilience

1 NO POVERTY



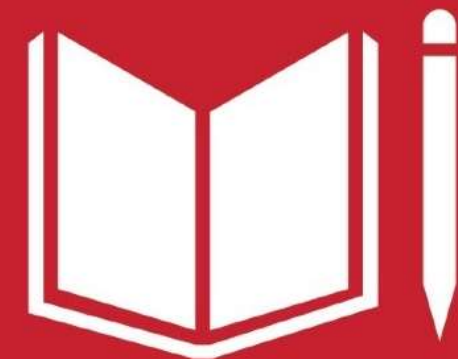
2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



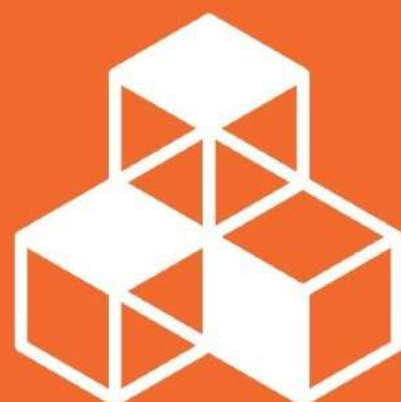
7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



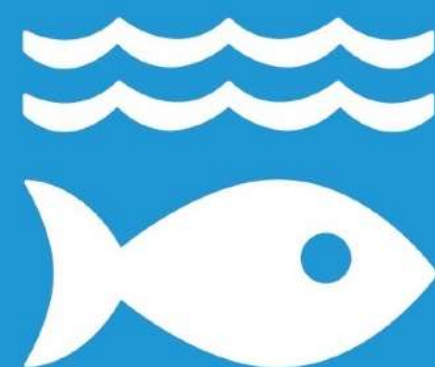
12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE, JUSTICE AND STRONG INSTITUTIONS

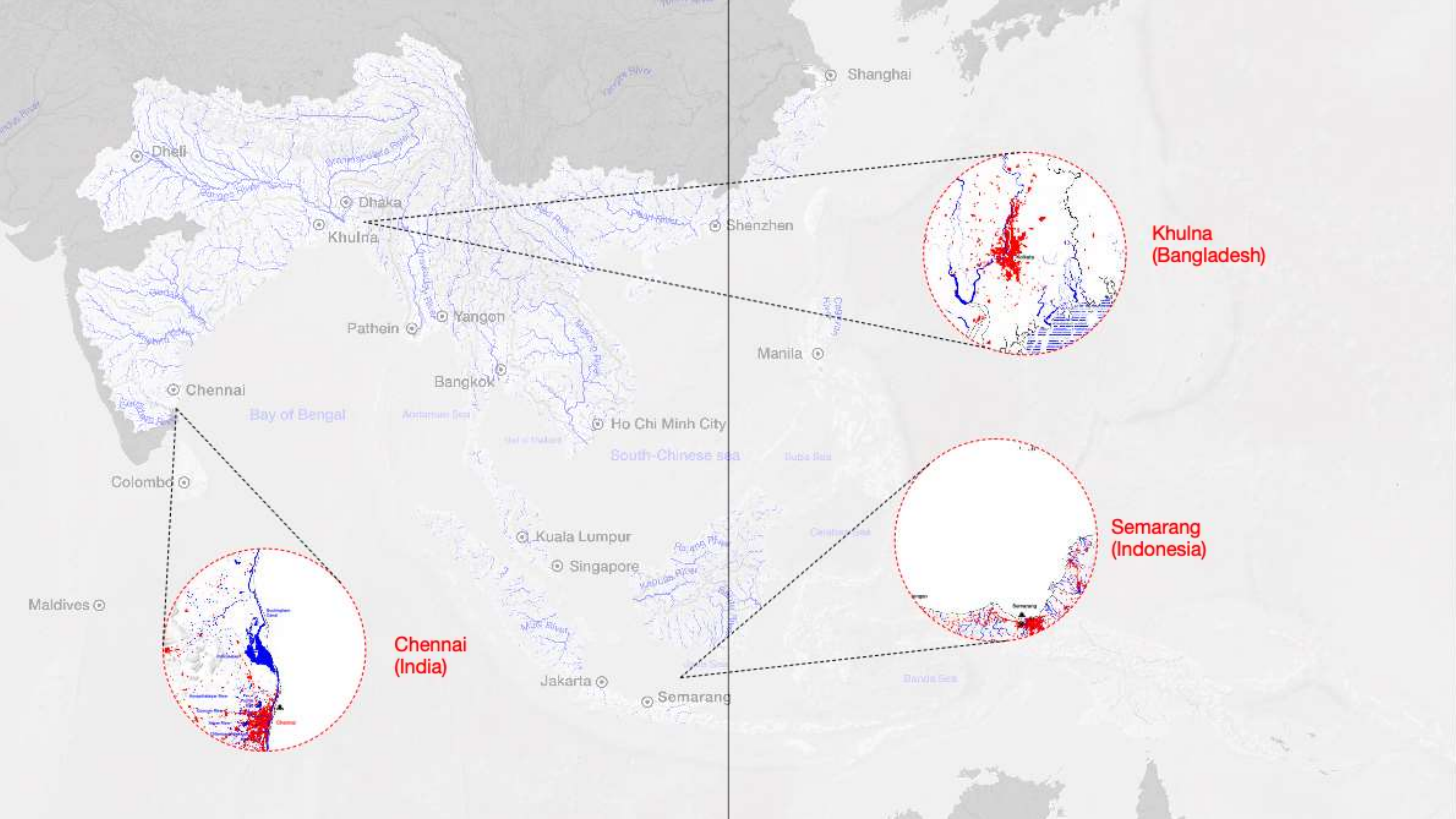


17 PARTNERSHIPS FOR THE GOALS



SUSTAINABLE
DEVELOPMENT
GOALS

water as leverage
for
resilient **cities Asia**



Water as Leverage project development method

- Funding for concept development
- All stakeholders are included
- Integration with city-wide goals
- Integration with long term vision
- Strong engagement of the financial sector to increase projects bankability



During a series of workshops, cities and design teams work on conceptual designs and infrastructural project proposals



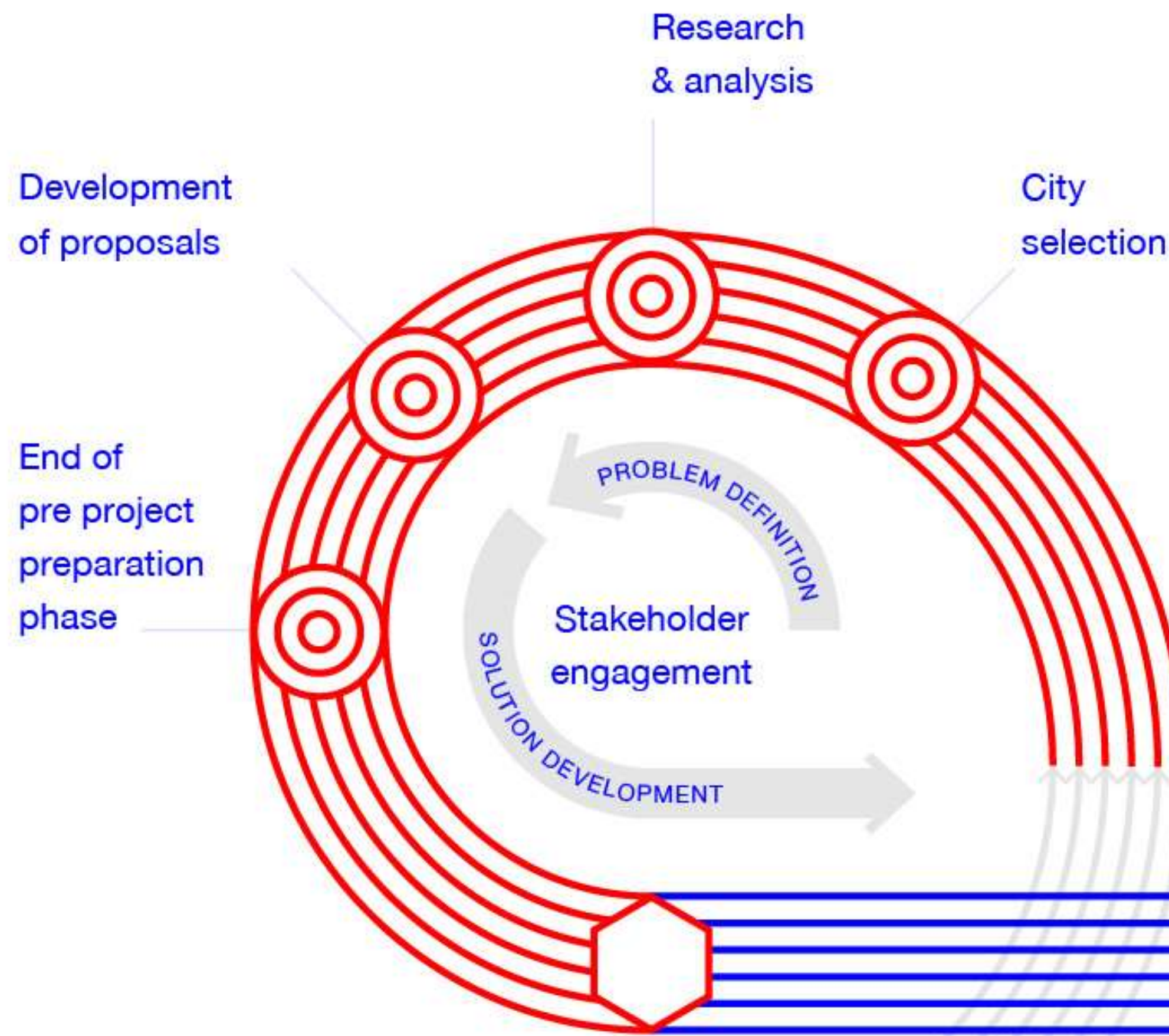
Result: bankable, innovative and comprehensive urban water proposals to address the urgent water and climate adaptation needs



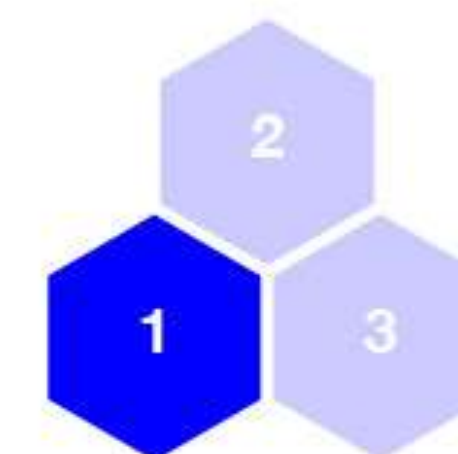
Water related challenge

Stakeholders

Governments
Communities
Financers
Experts
Partners



Water related solution



Innovative, inclusive, ambitious, fit-for-purpose designs that strive for catalytic change

Process & Milestones

Launch 'Call for Action' on Earth Day

Invite engineers, architects, designers, etc. from around the world to **form interdisciplinary teams** and participate in **developing bankable project proposals** around Water as Leverage for Chennai, Semarang & Khulna.

22 April
2018

July 2018

1st Design
Workshop

Sept
2018

2nd Design
Workshop

Dec
2018

DESIGN WORKSHOPS:
Teams will work in close
collaboration with local
stakeholders.

Team Selection

2 teams will be selected per city by the Water as Leverage Advisory Board. Predefined contract price: €200,000 per selected team (i.e., €400,000 for each city).

Conceptual Design Selection

Mid-Term Review: Digital report and presentation of **three to five conceptual designs of potential solutions** by each city's teams. Best ideas selected by Advisory Board.

PHASE I: RESEARCH & ANALYSIS

Process & Milestones

3rd Design
Workshop

March
2019

April
2019

Proposal Selection

Teams will submit digital report and presentations of proposals for **up to three place-based bankable proposals for urban water projects**, including feasibility component, preliminary cost benefit analysis, implementation strategies identifying partners, timing and funding potential. Advisory Board will select the best project proposals.

PHASE II: DESIGN DEVELOPMENT

End Goal

Develop **at least six bankable proposals** (1 per team/ 2 per city) for innovative and integral urban water projects, locally supported with a focus on physical infrastructure. FMO and AIIB will help support the development and open its capacity for implementation and co-financing.

PHASE III:
PROJECT
FEASIBILITY

Pre-feasibility project proposals will **complement ongoing activities** and build on the knowledge and expertise of the city.

2. from systems approach to identifying transformative projects

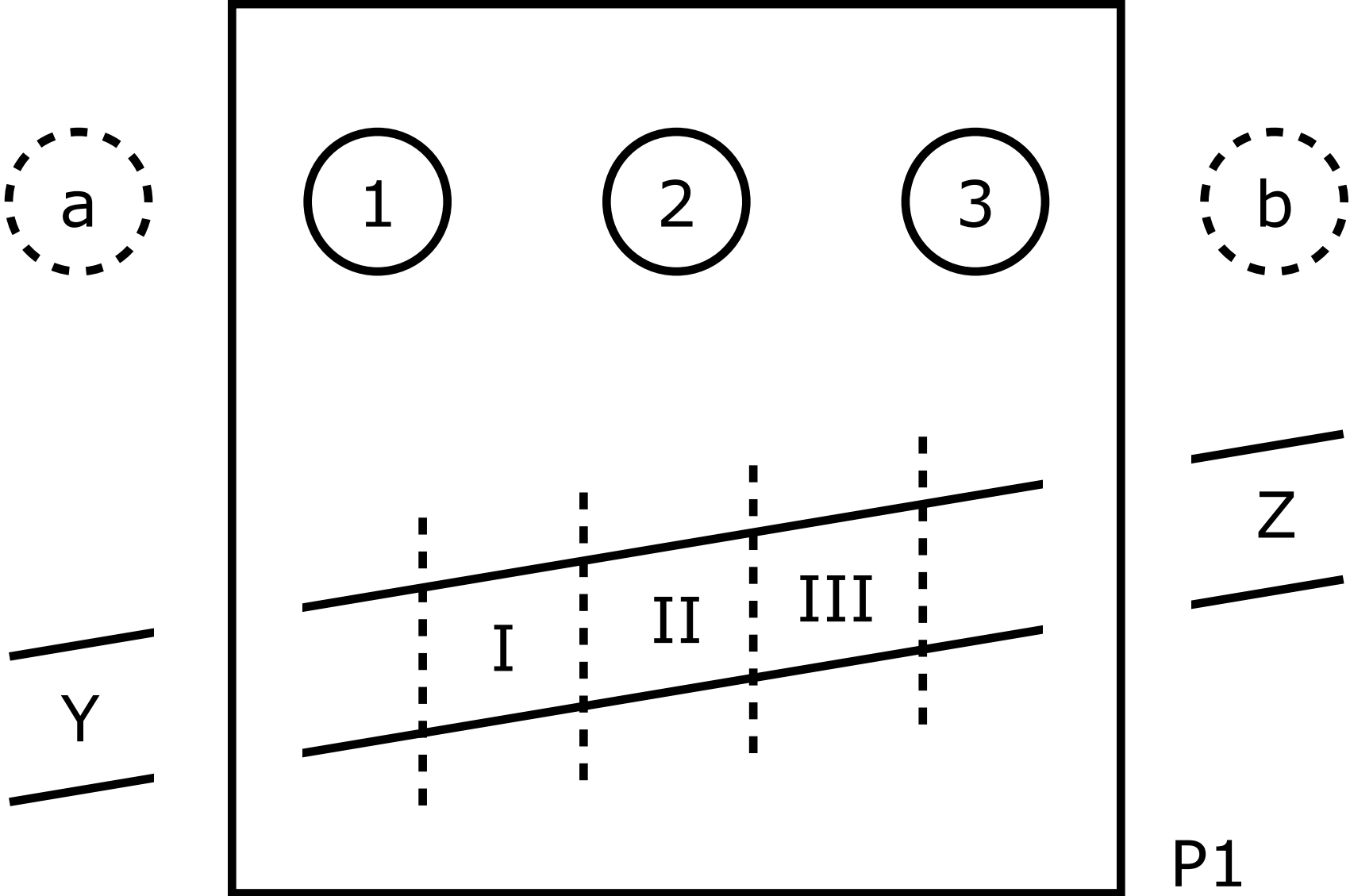
A1 - analysis (all systems, integrated)

P1 - program (comprehensive, integrated, inclusive, systemic, ...)

1, 2, 3 - projects
a, b - related projects

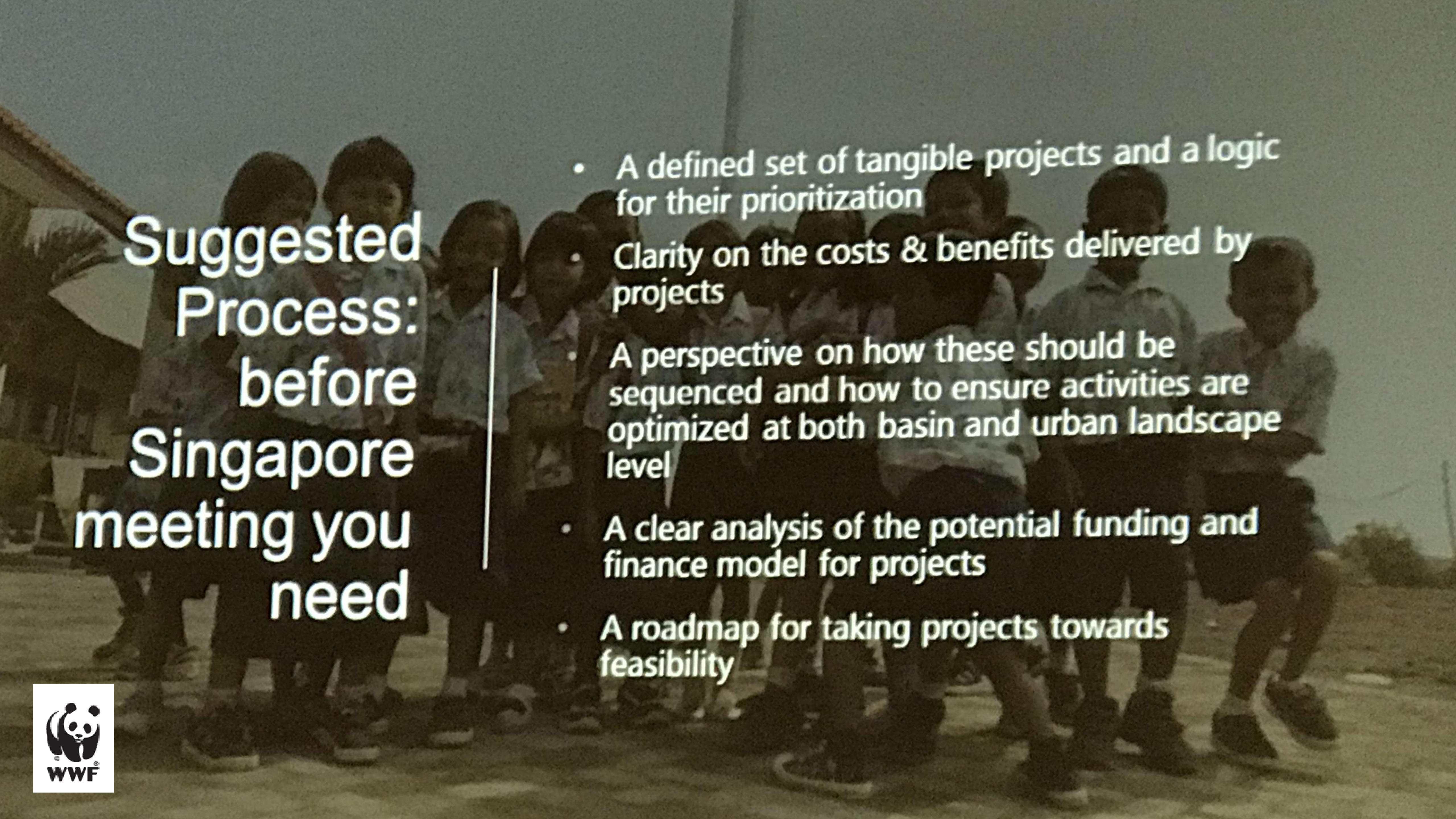
I, II, III - phases
Y, Z - related phases

- NOTE:
- projects and phases must conform to WAL criteria (ie >> transformative, inclusive, sustainable, bankable)
 - first projects (1, I) must be catalytic (the capacity to kick-start and enabling the next steps)
 - all in line with 2030 Agenda (SDGs, COP21)



A1

the **enabling environment** and the *projects*

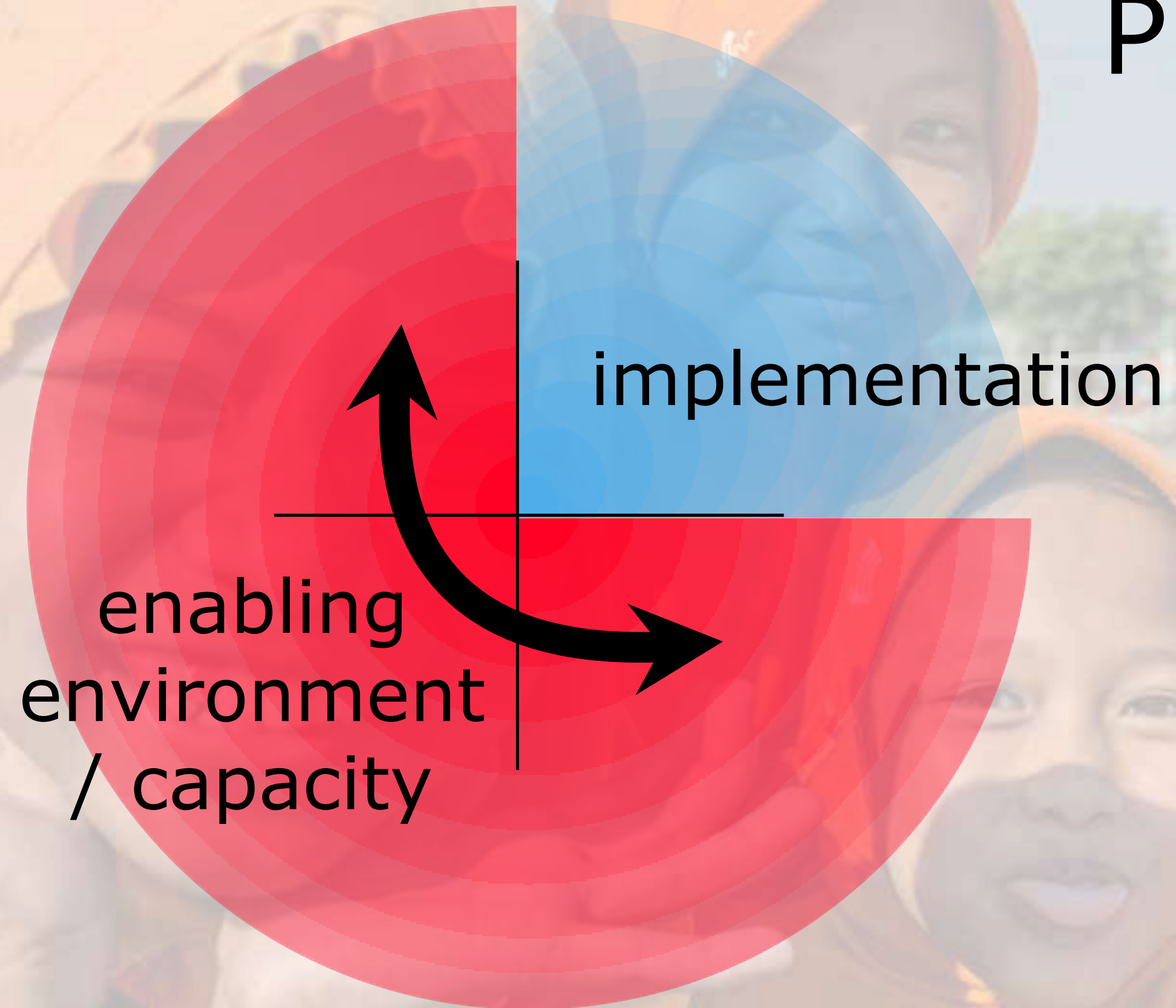
A group of children in school uniforms are standing outdoors, possibly in a schoolyard. The image is slightly blurred and has a warm, sepia-like tone. The children are of various ages and are looking towards the camera. The background shows some trees and a building.

Suggested Process: before Singapore meeting you need

- A defined set of tangible projects and a logic for their prioritization
- Clarity on the costs & benefits delivered by projects
- A perspective on how these should be sequenced and how to ensure activities are optimized at both basin and urban landscape level
- A clear analysis of the potential funding and finance model for projects
- A roadmap for taking projects towards feasibility

PROJECTS

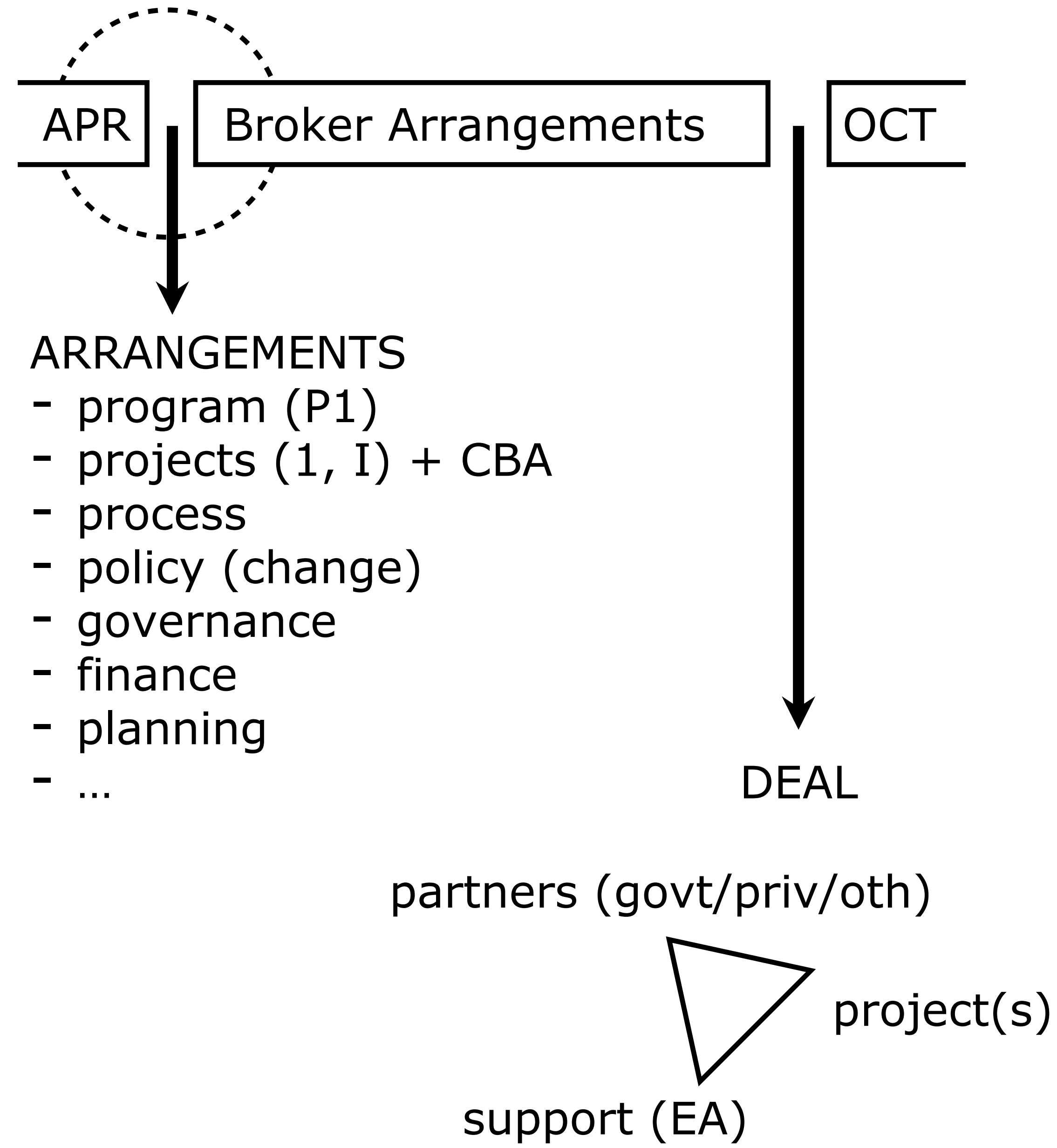
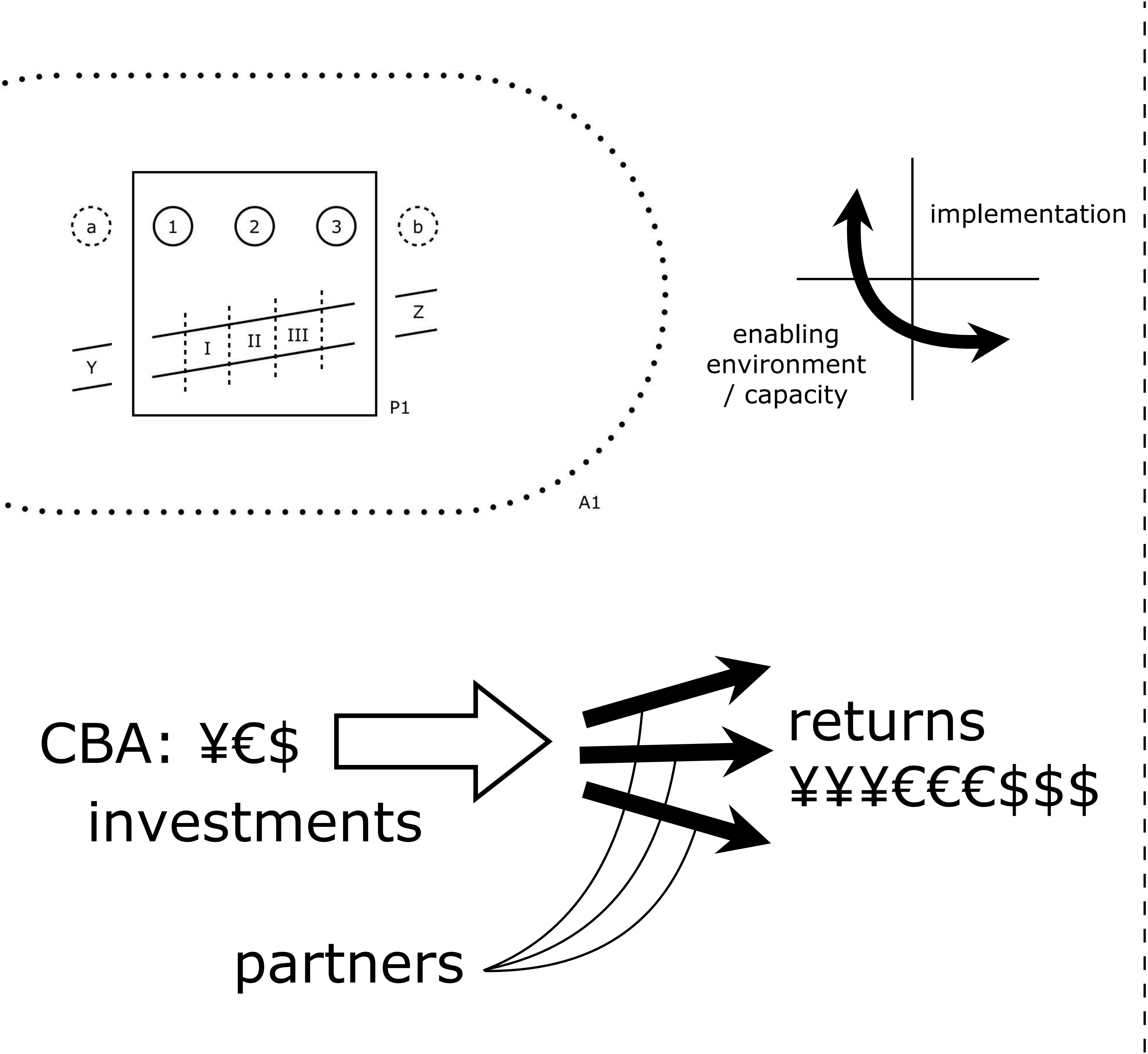
- > Collaboration
- > Consistency
- > Capacity building
- > Commitment
- > Cross-cutting



PEOPLE



3. At SG April, 2019



FMO:

“I would really like to congratulate [...] you in organising the event but mostly getting some key funders/financiers around the table at such early stage. Based on the attendance and response/engagement from these parties during the workshop, you should be proud of the efforts. Generally this is not an easy crew to bring to the table at such early stage and have them engage. Now you can move forward with also a better understanding of each funder/financiers processes to get some of the projects off the ground.”

GCF:

“Thank you very much for inviting GCF to the ‘Water as Leverage’ workshop in Singapore last week. I was very impressed by the quality of the proposals and the interest of all concerned to tackle climate change and other water-related challenges in the 3 cities. I am pleased to hear that potentially, a project might emerge in Mylapore next month, and, with some more development, project designs for all the cities will be finalized.

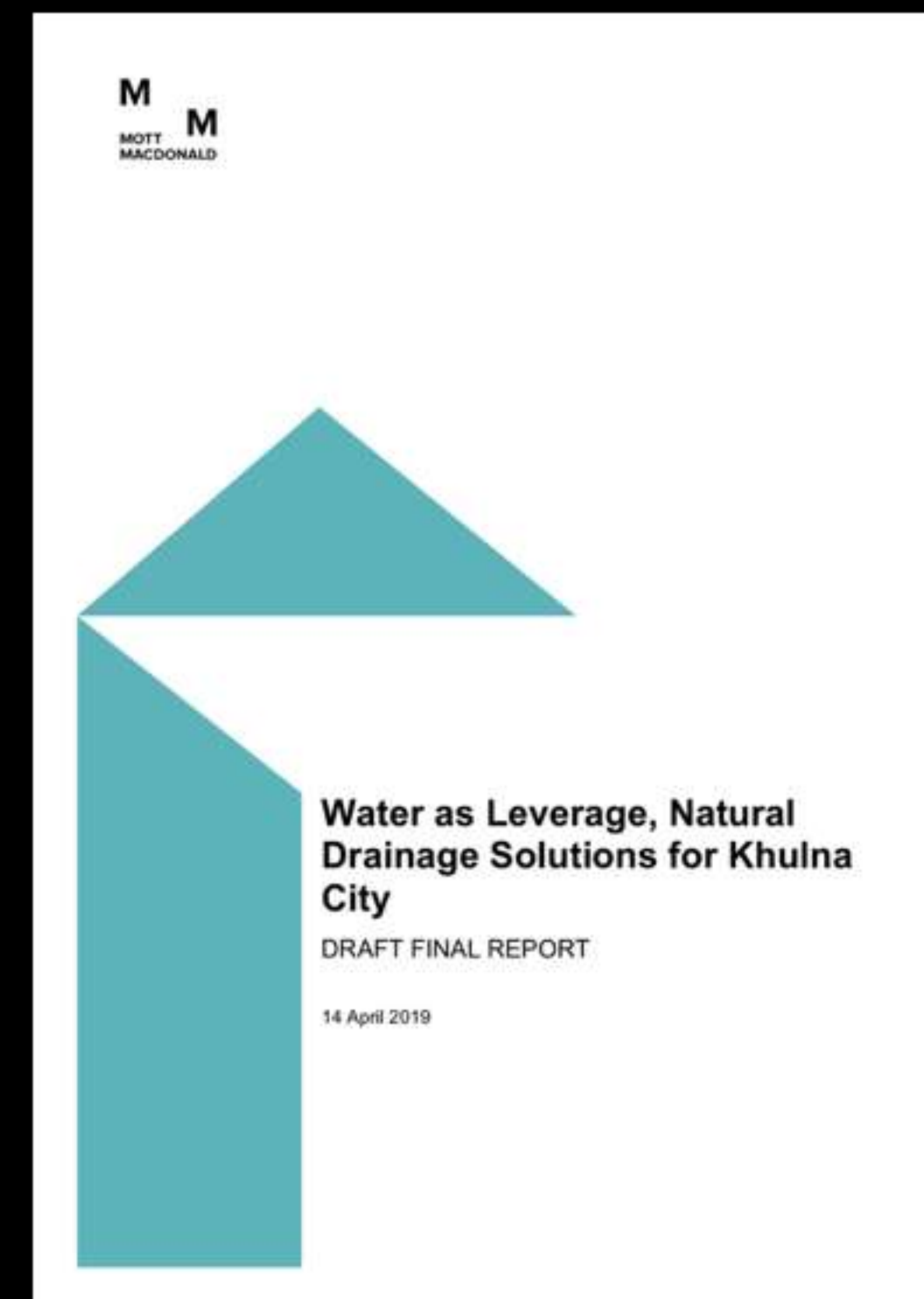
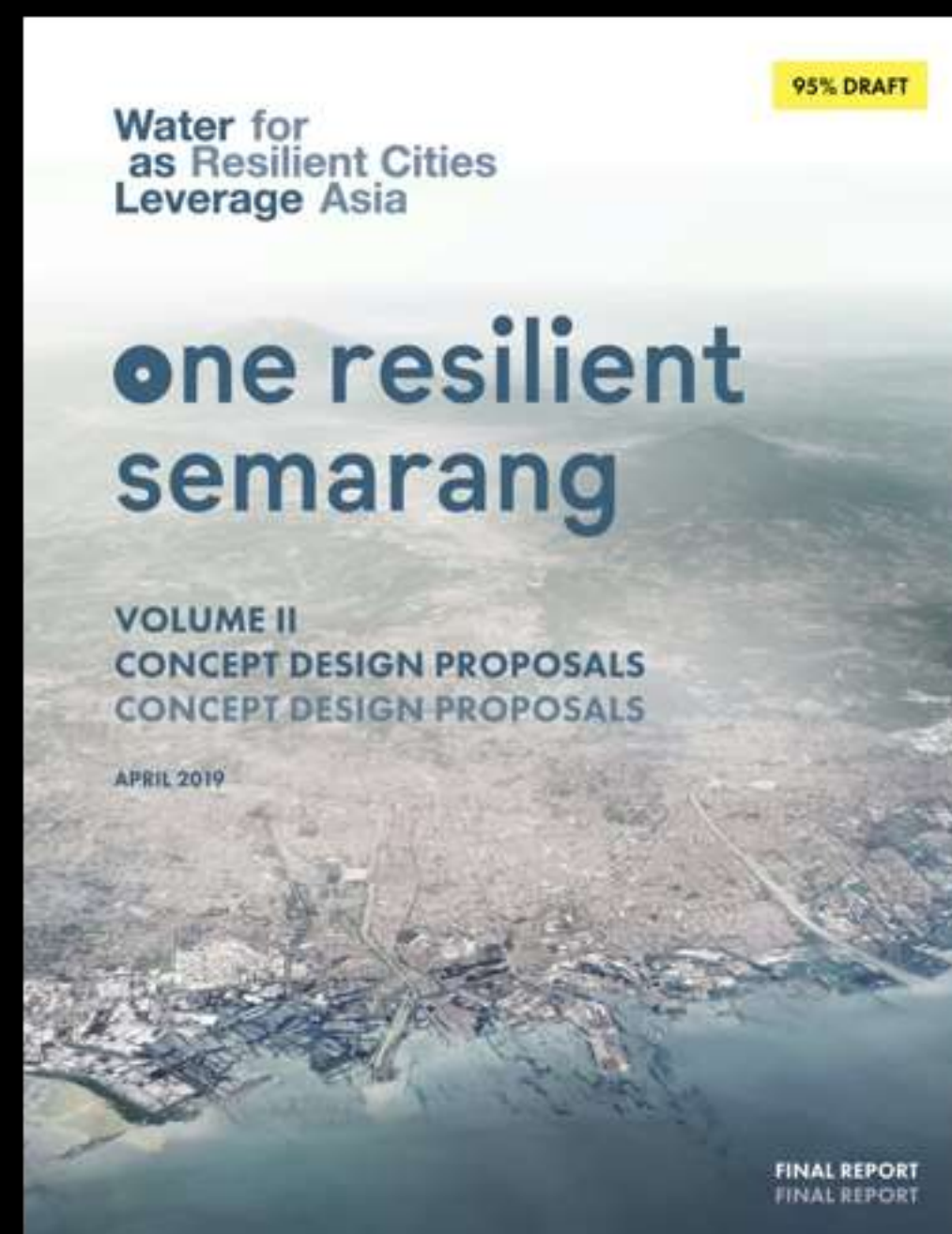
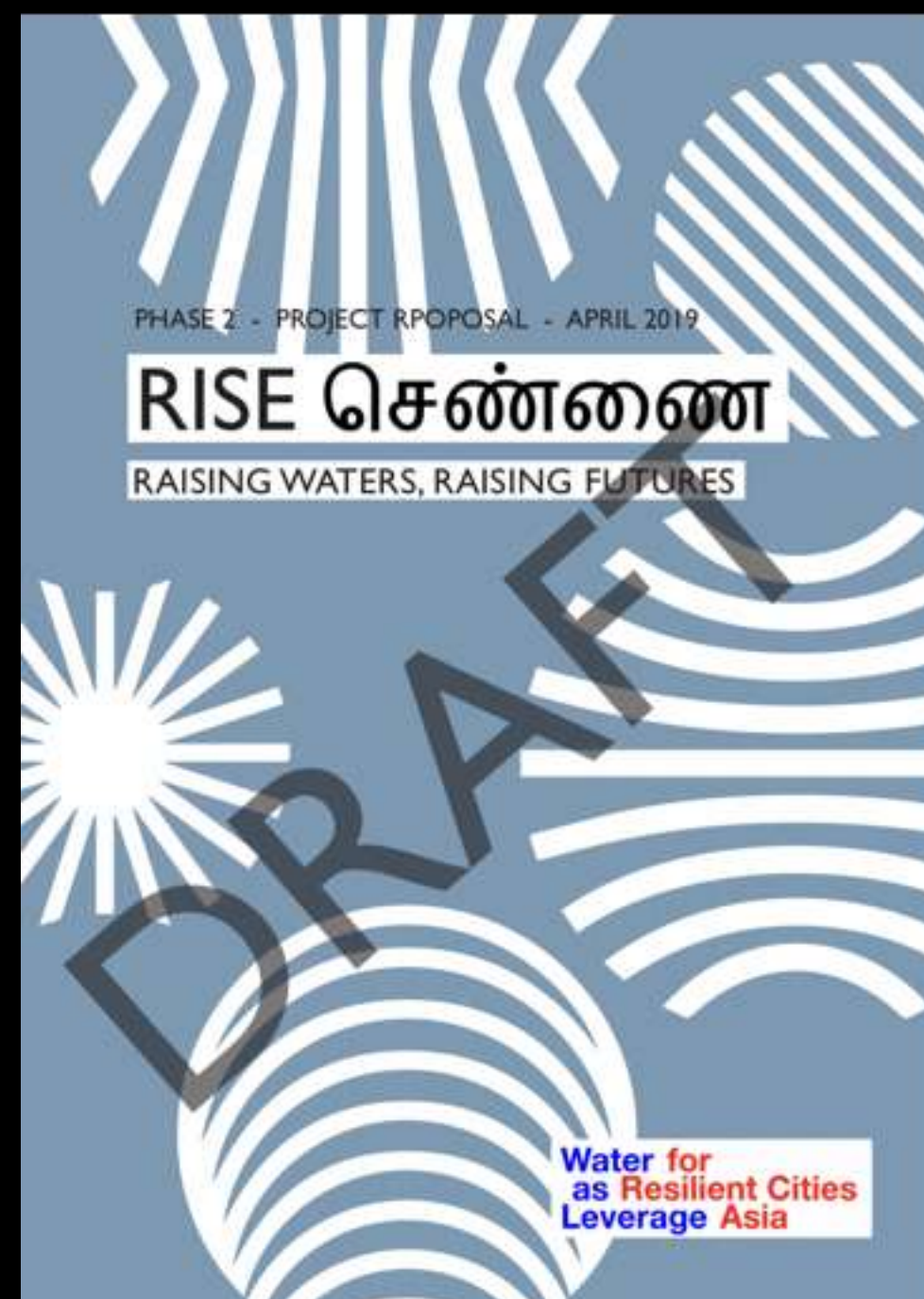
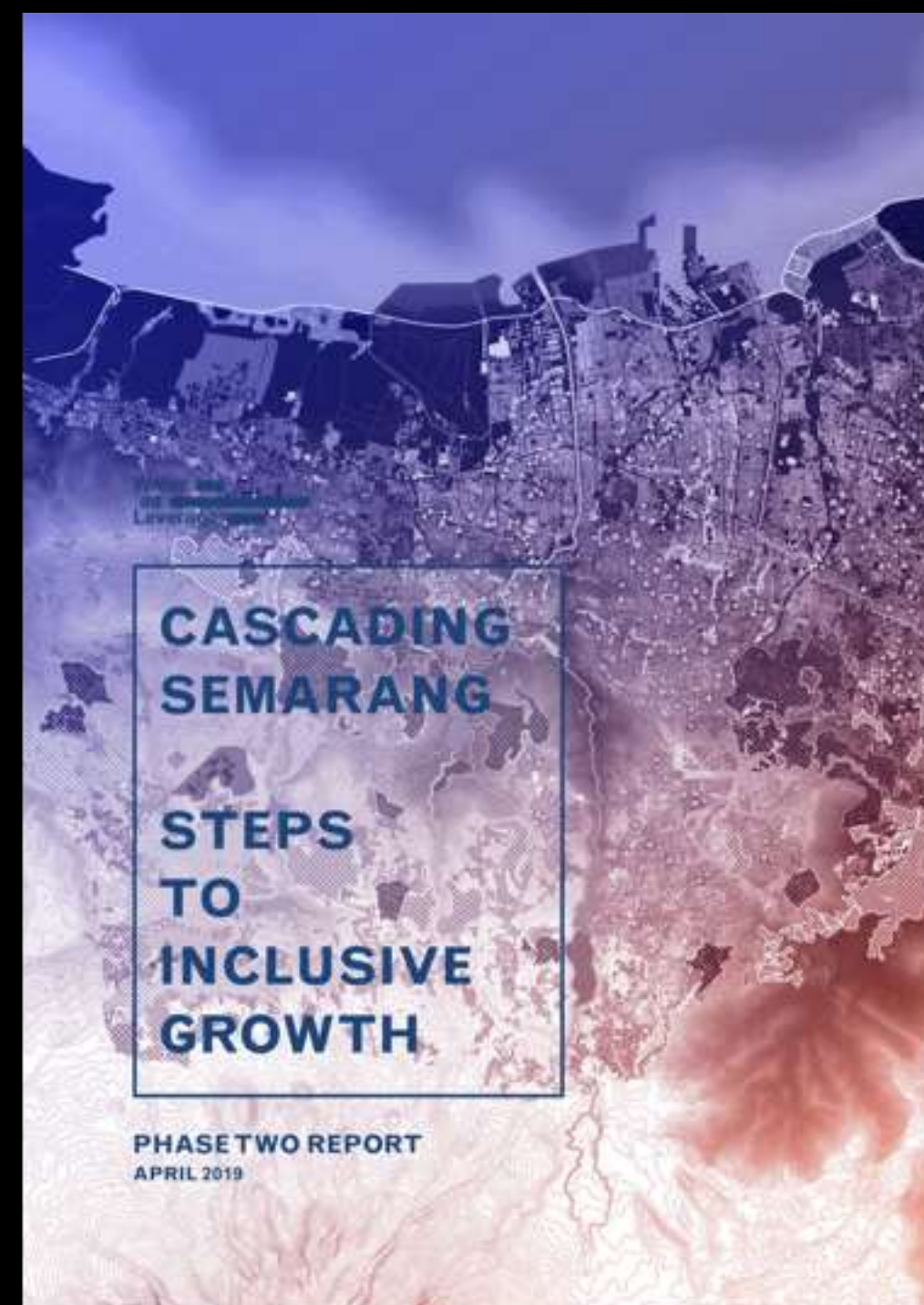
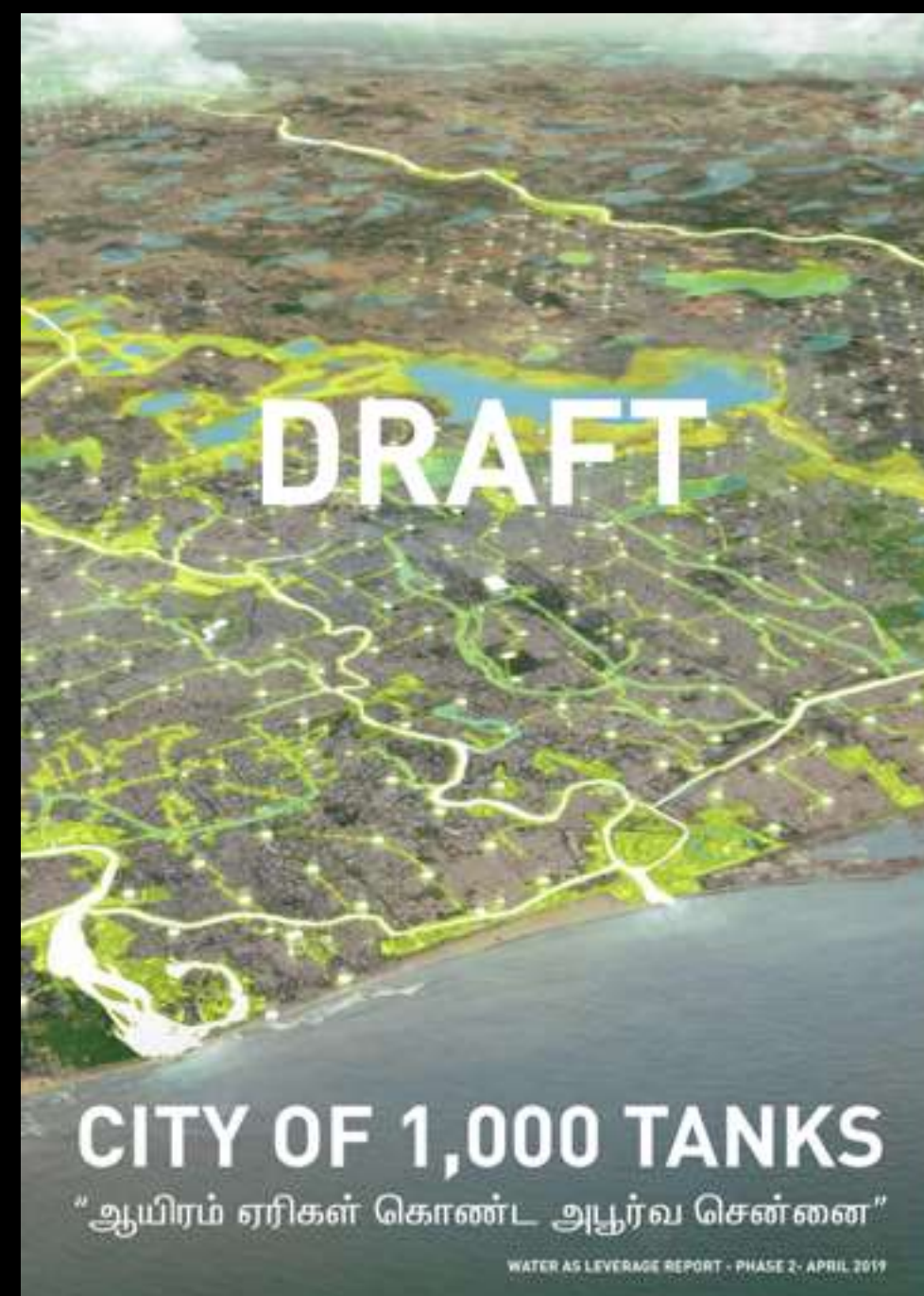
The format of the workshop – with teams pitching their projects to a groups of potential donors - was also interesting, and it also gave us (funds and donors) the opportunity to co-ordinate our plans together.”

AIIB:

“In addressing the development challenges of emerging Asia, AIIB subscribes to the principles of #sustainabledevelopment in the identification, preparation and implementation of projects.

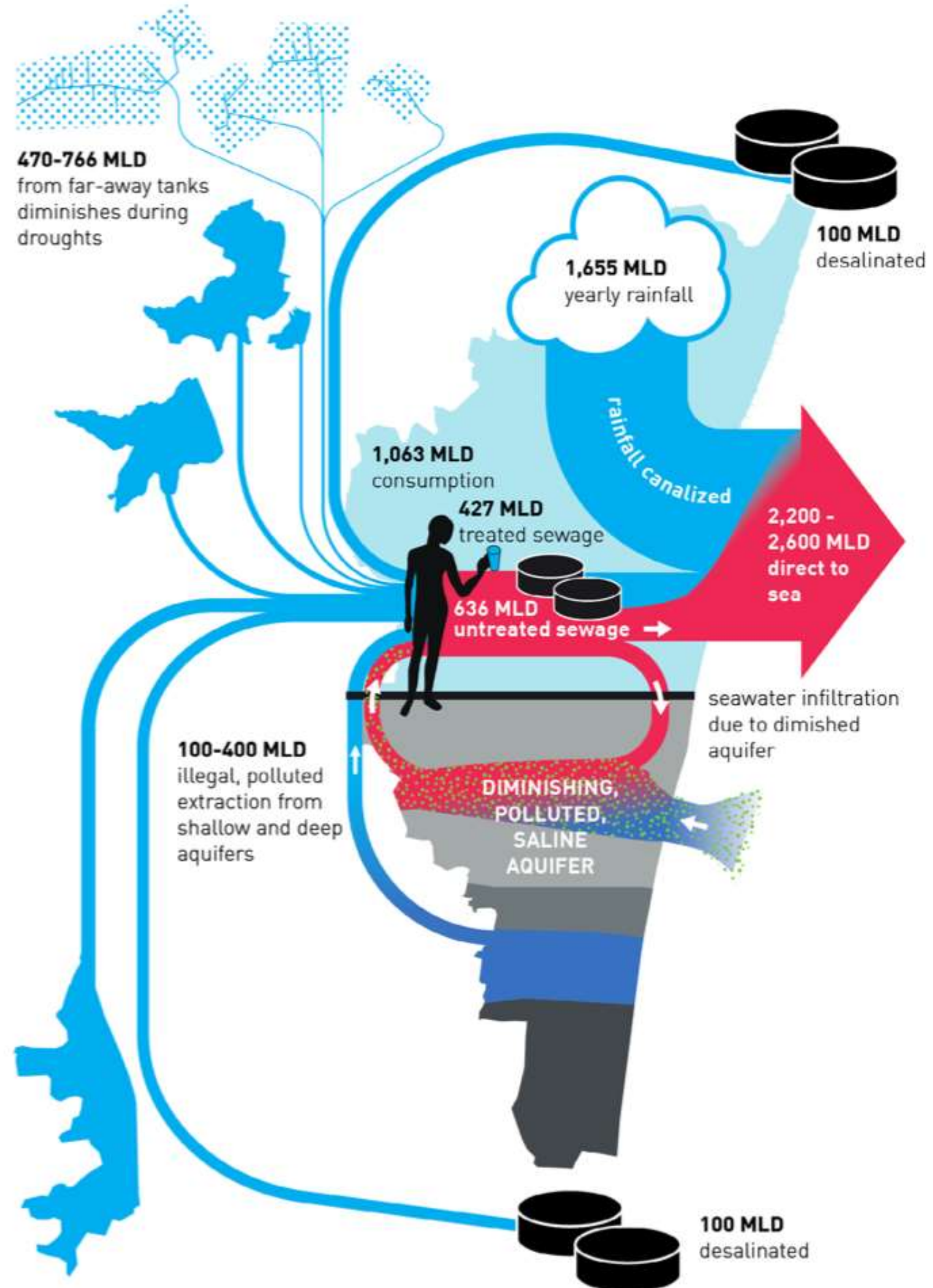
Last week we joined a Water as Leverage for Resilient Cities Asia 3-day workshop in #Singapore aimed at working with three Asian cities – Semarang (Indonesia), Kulna (Bangladesh) and Chennai (India) - to design bankable projects to solve water related challenges, including flooding, land subsidence, and lack of safe drinking water. AIIB is proud to partner such upstream effort and hopes to provide finance for projects reaching implementation.”

transformative
bankable
catalytic
replicable & scalable
urban
climate adaptation
projects

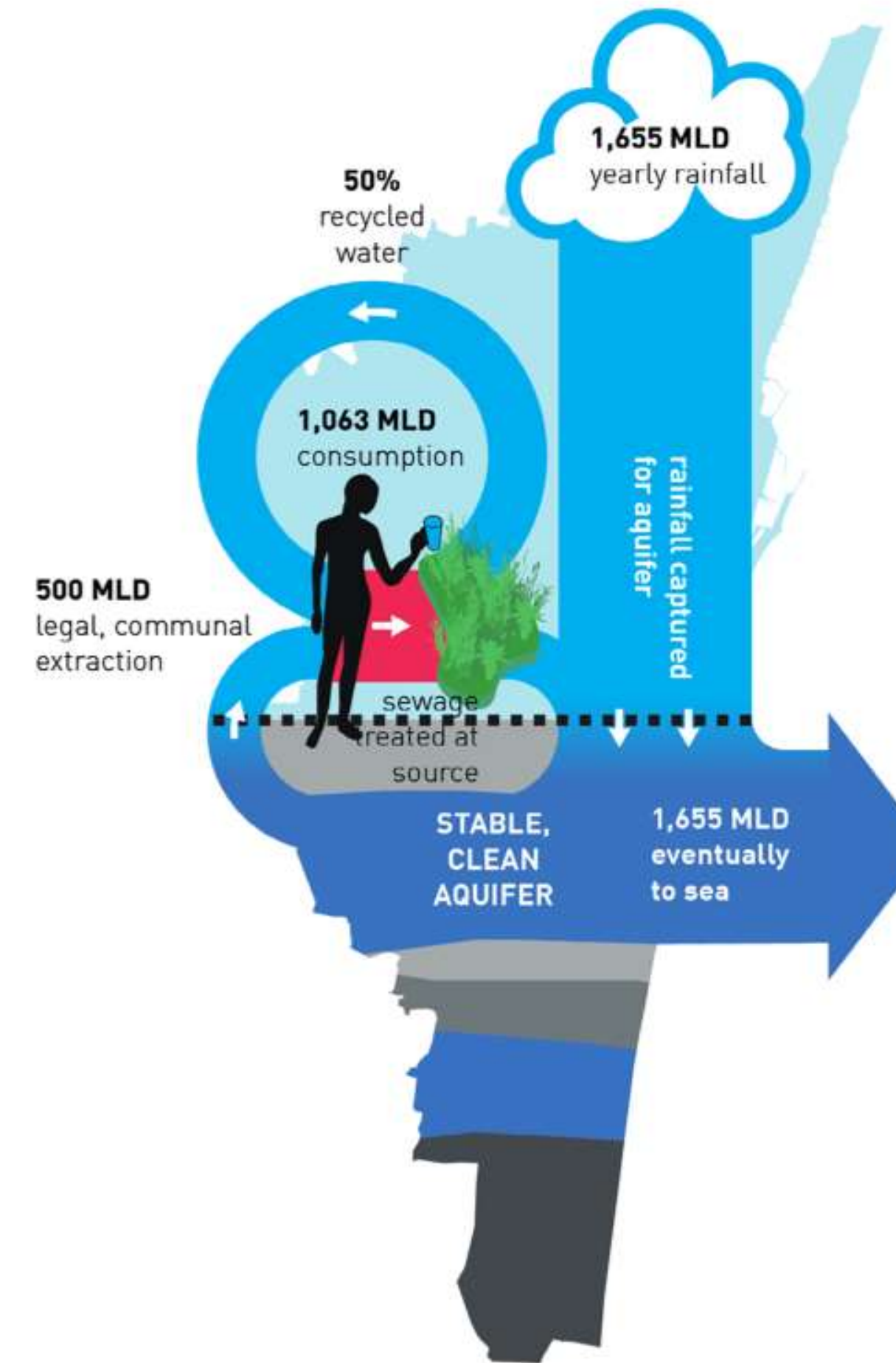


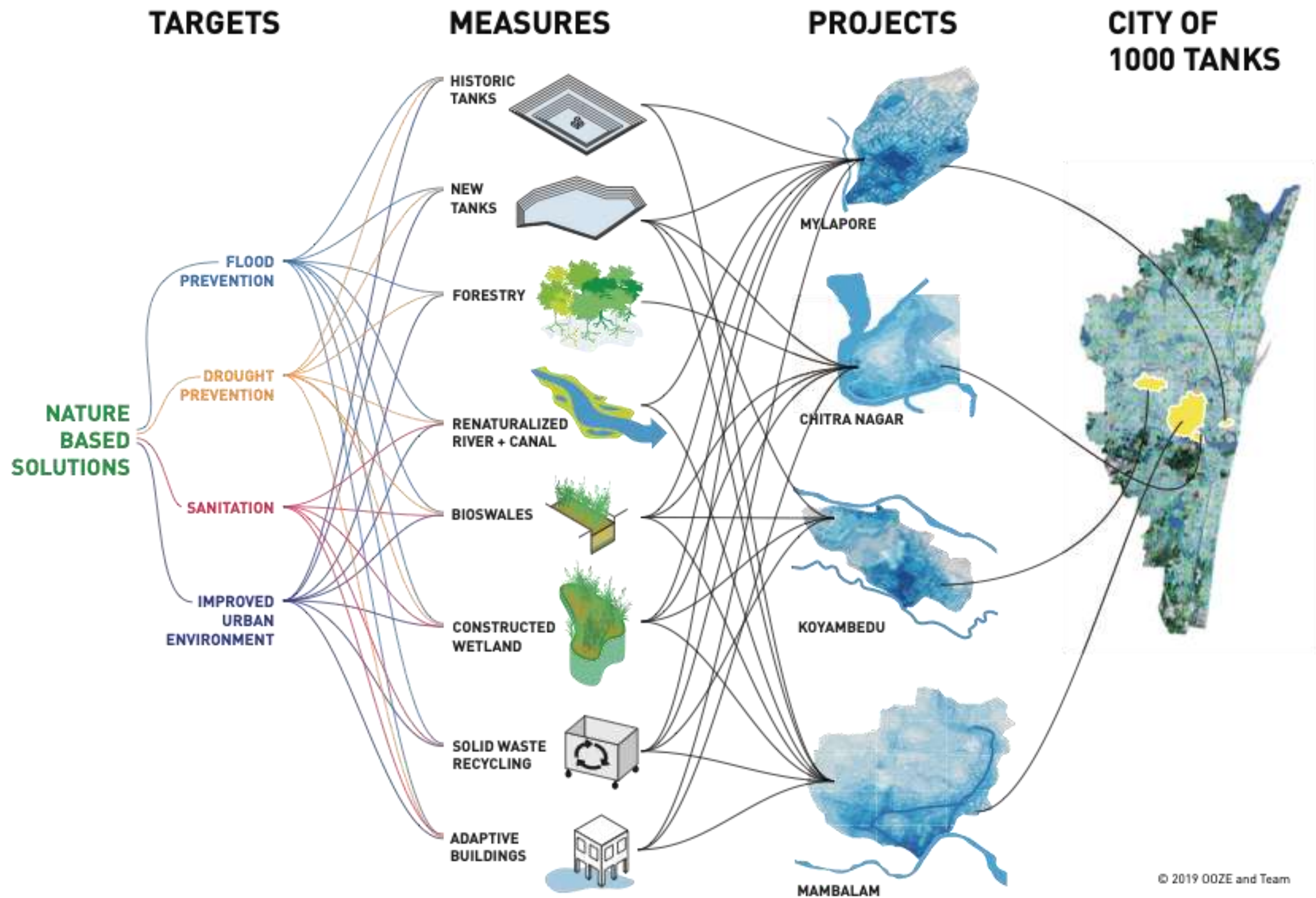
Chennai

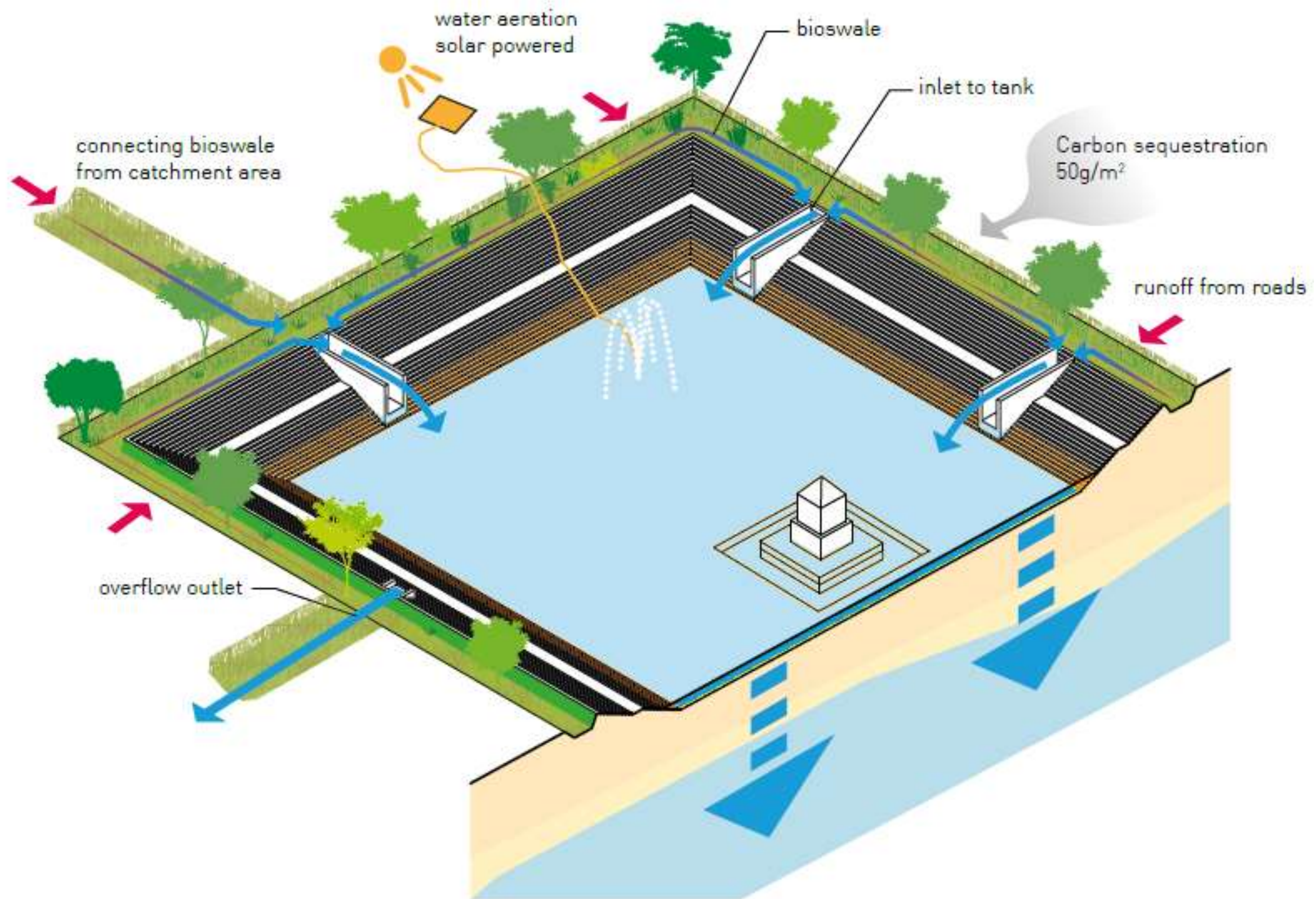
CURRENT SYSTEM SCARCITY



PROPOSED SYSTEM CLOSED LOOP







Temple Tanks

SUMMER VIEW OF DYNAMIC PLAYGROUND AND HOUSING



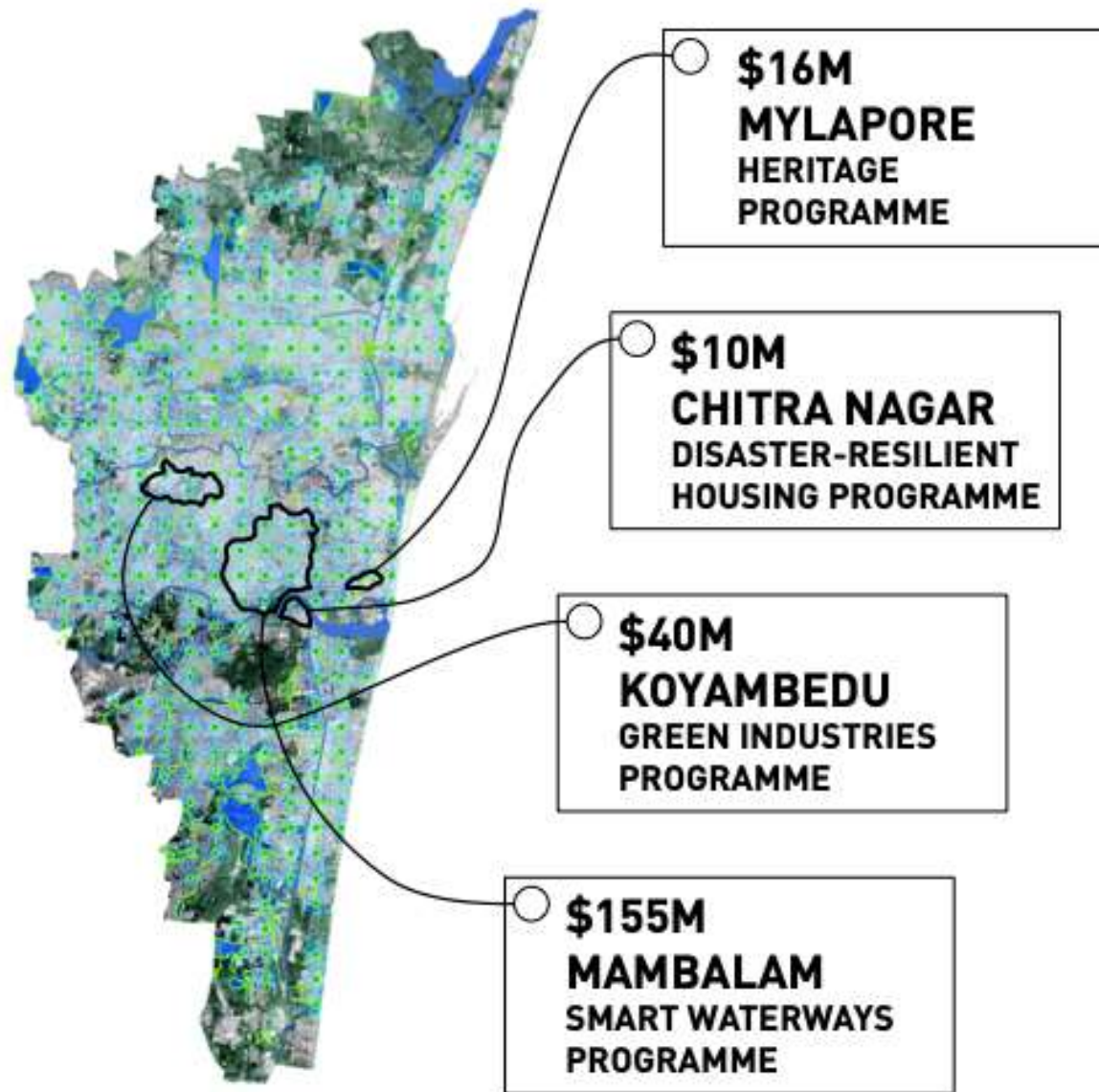




DISPLAY AT THE ANNUAL MYLAPORE FESTIVAL 2019



\$221M FOUR FLAGSHIP PROJECTS



SUSTAINABLE DEVELOPMENT GOALS

IMPROVED WATER SUPPLY

1.4 5.4 6.1 6.4 6.6 6b

FLOOD RESILIENCE

1.5 2.1 2c 11.5 13.1

SANITATION

1.5 3.3 6.2 6.3 11.6 12.4 12.5 14.1

IMPROVED HEALTH

3.3 3.9

NATURE & BIODIVERSITY

4a 6.6 12.8 15.1 15.5

SUSTAINABLE LOCAL BUSINESSES

6.3 8.3 12.5 14.1

HERITAGE & PARTICIPATION

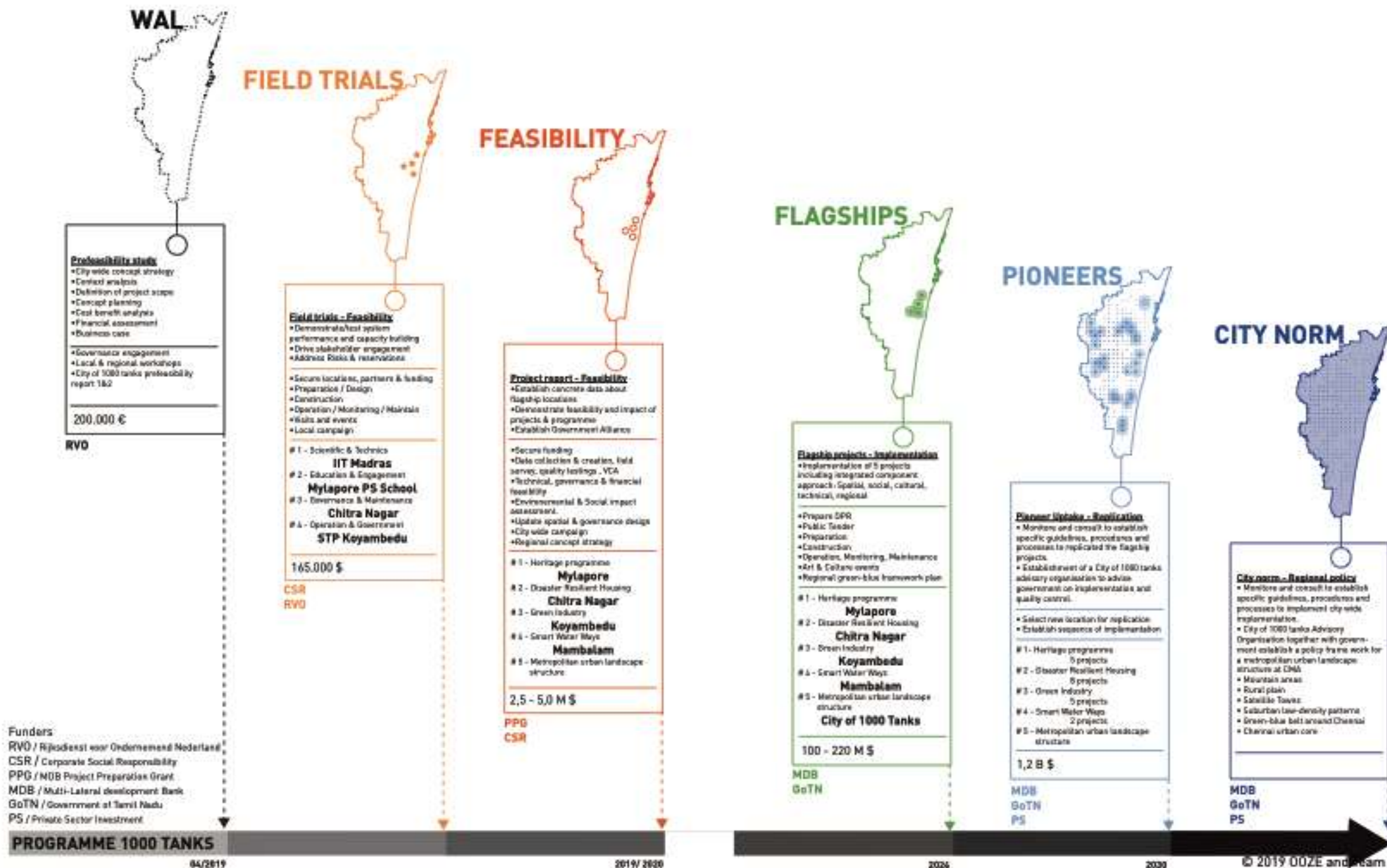
11.3 11.4

REDUCED CARBON EMISSIONS

13.2

IMPROVED URBAN ENVIRONMENT

8.9 11.1 11.6 11.7 12.b



HARDWARE — ORGANISATION — **SOFTWARE**

HARDWARE

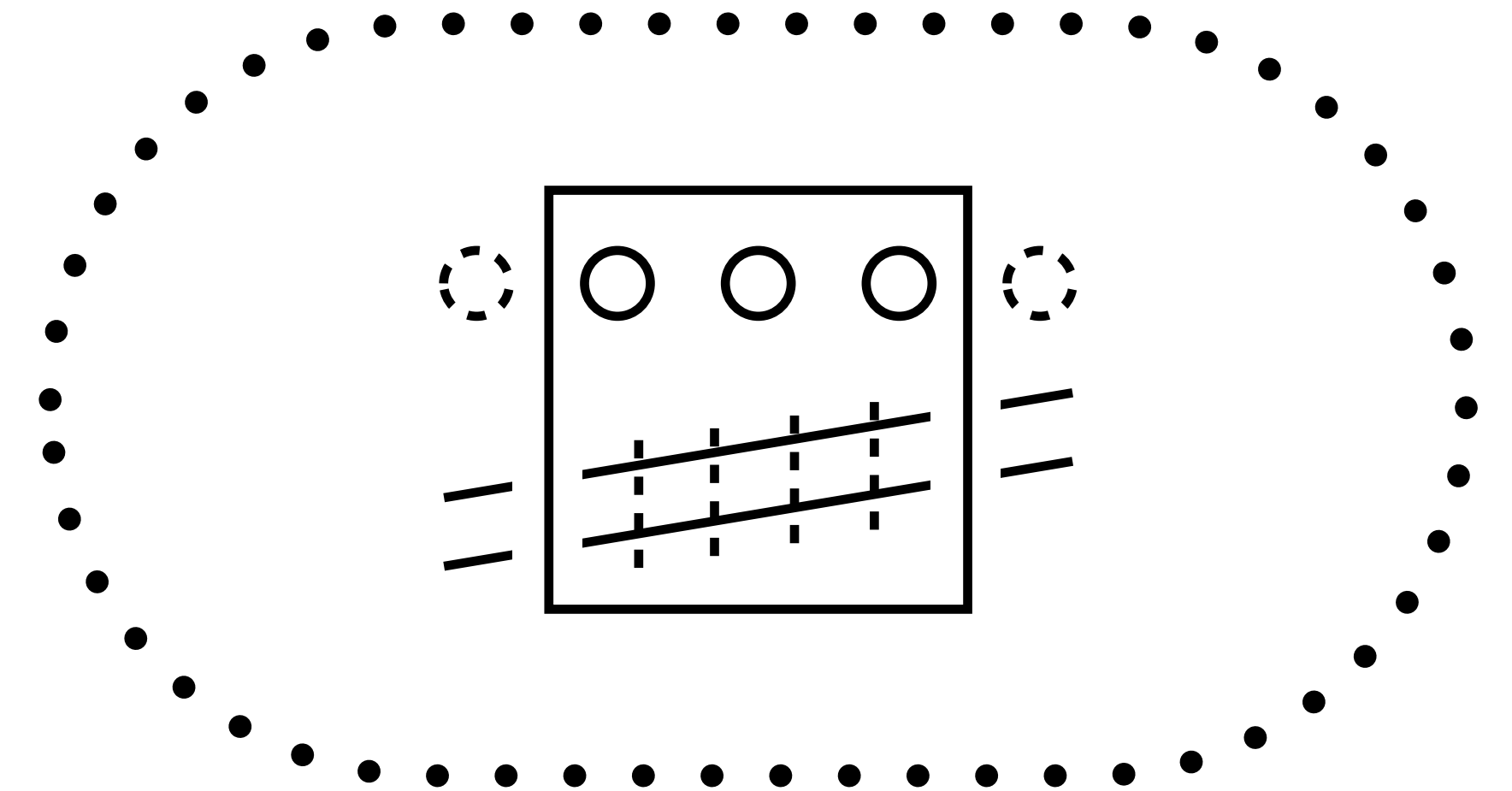
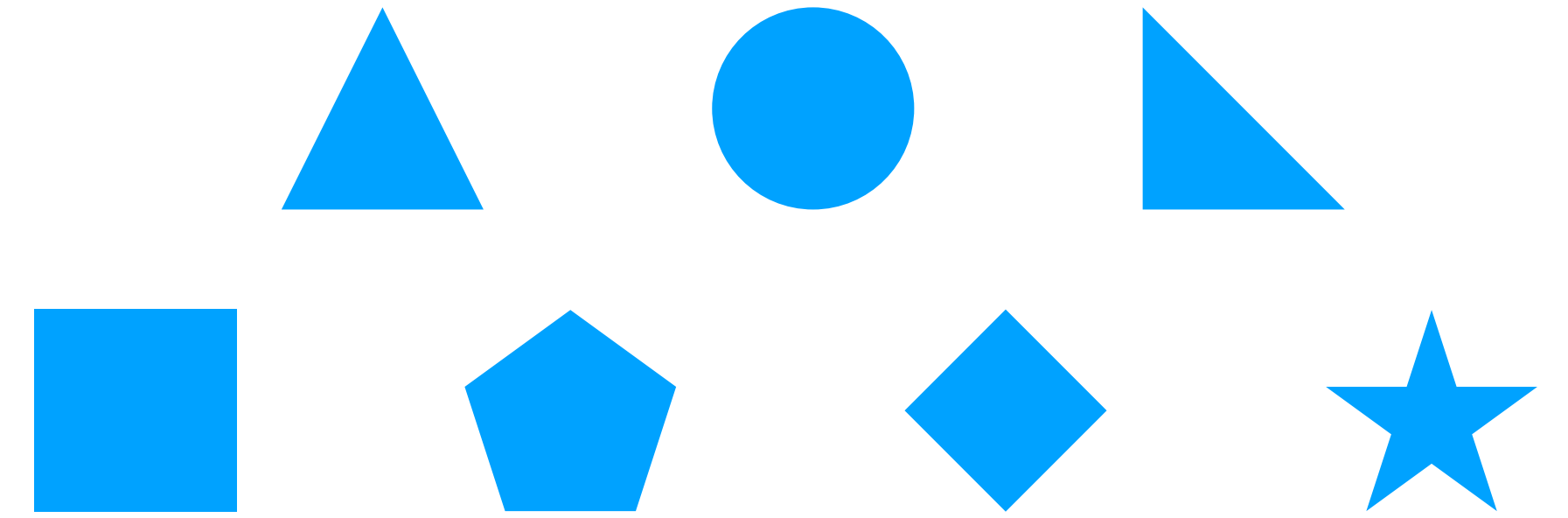
- programs (from rigorous comprehensive analysis, collaboration & vision)
- projects (the hotspots for change, climate/SDG impact, catalytic, scalable/replicable)

ORGANISATION

- governance
- institutional arrangements
- programmatic approach
- partnerships / deals

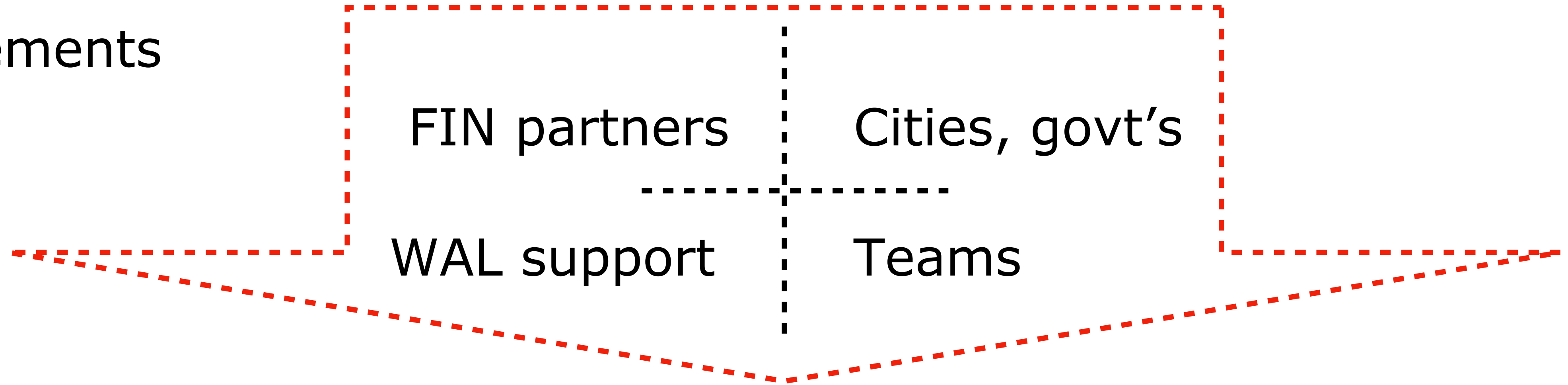
SOFTWARE

- inclusive process
- collaborative approach
- cultural process
- every next step



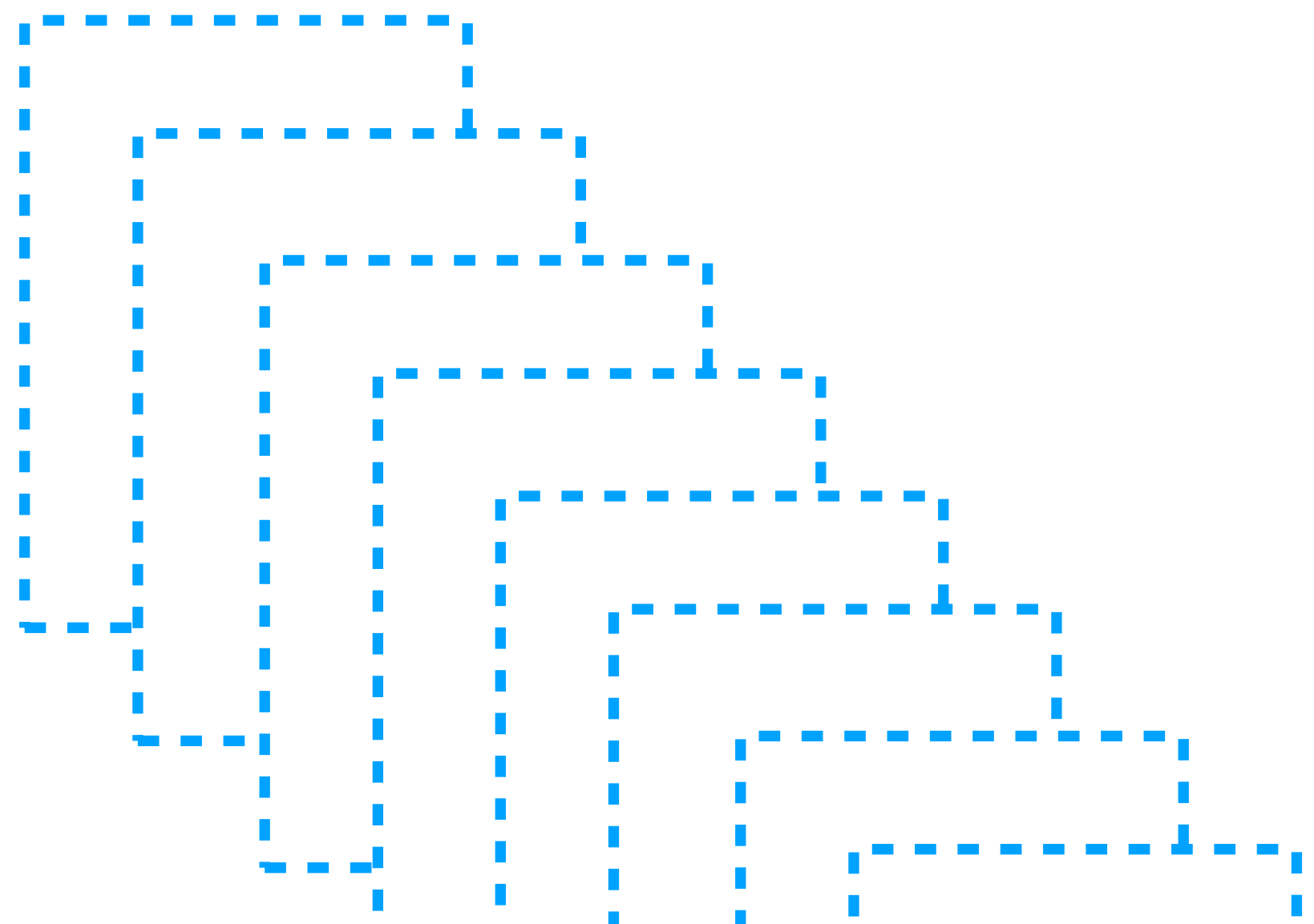
what's *NEXT*

Arrangements

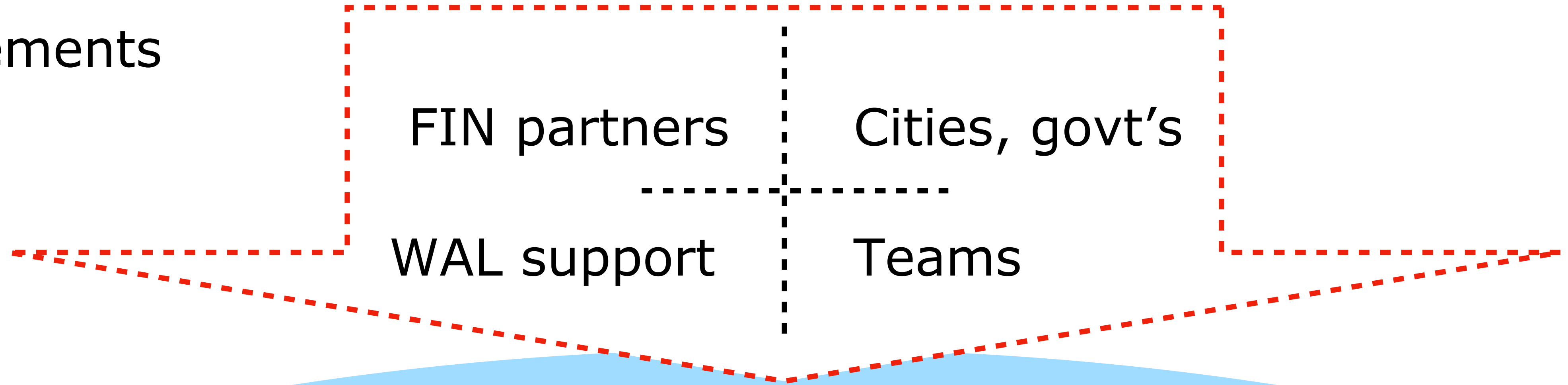


What, who, how, when, ...

Projects, programs



Arrangements

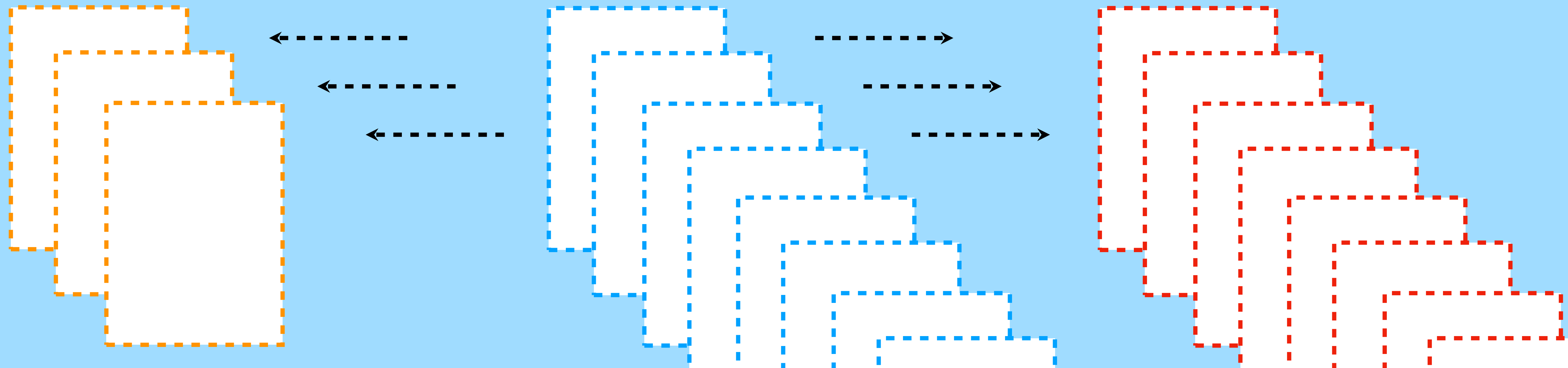


Water as Leverage

Cities, programs

Projects, programs

Partners



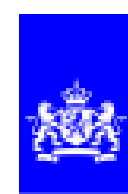
Water as Leverage challenges

- Funding pre-feasibility to feasibility
- Cherry picking: accelerating with project implementation while not losing the integrated proposition
- support national and regional governance levels
- Keeping the coalition together: teams, MDB's, local and national governments, local communities
- Keeping the momentum going!



Water for as Resilient Cities Leverage Asia

Water
as
Leverage



Kingdom of The Netherlands
Water Envoy



Netherlands Enterprise Agency

PIONEERED BY THE
ROCKEFELLER FOUNDATION
100



IABR—

