KOTA KITA
A CITY FOR ALL

CLIMATE ACADEMY 2021

Resilient Kampung: Participatory community-based adaptations in urban neighborhood in Semarang, Indonesia

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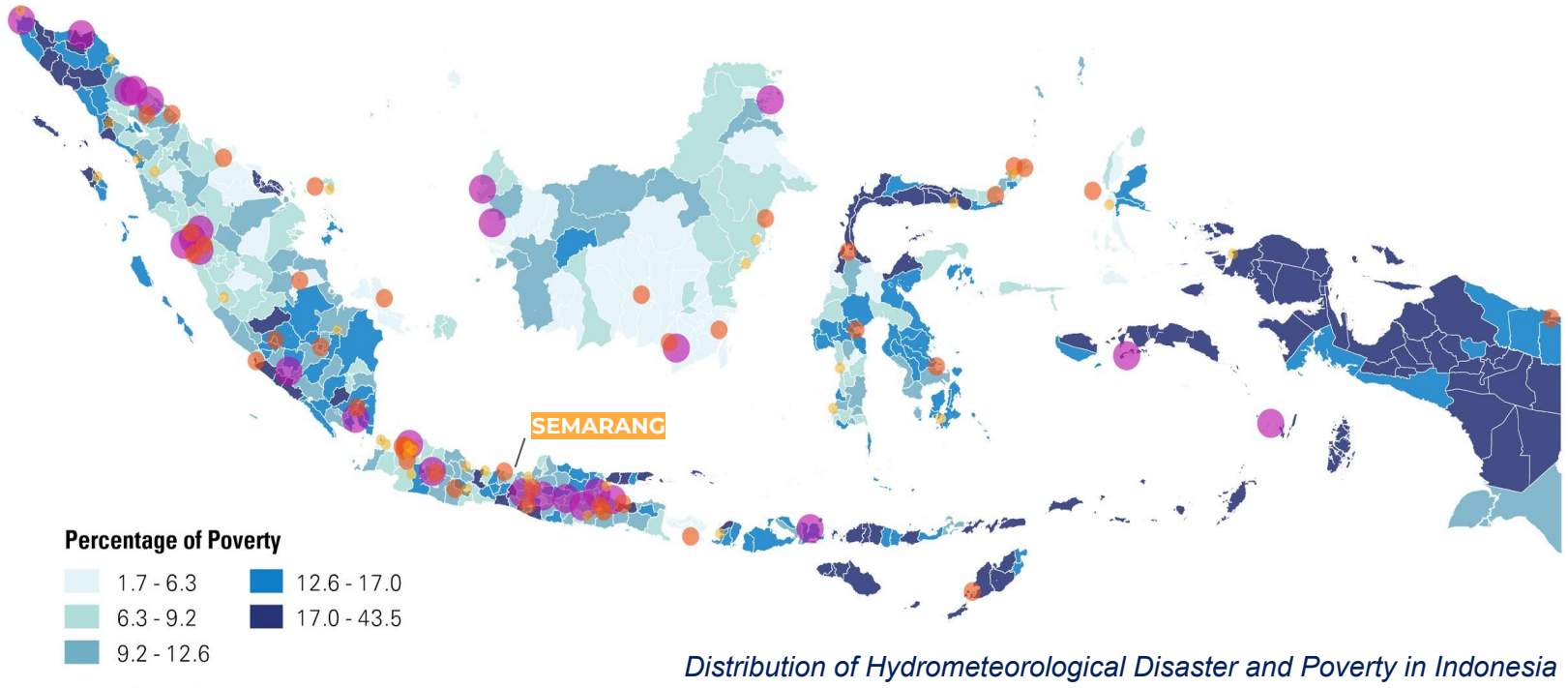
Indonesia as an archipelago is home to many coastal cities under threat of **climate change**, **urban growth** and **institutional challenges**

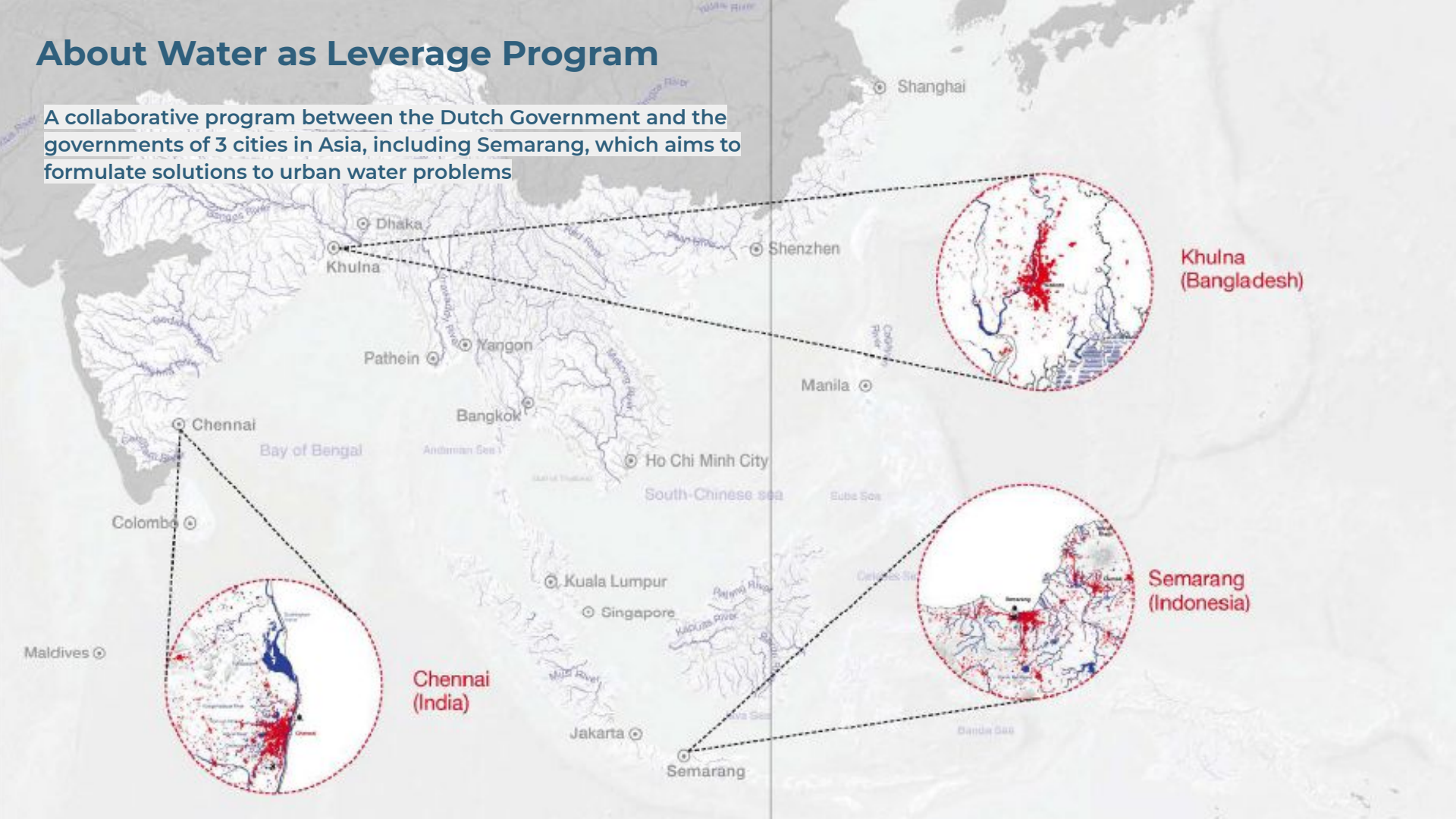


Distribution of Hydrometeorological Disaster and Poverty in Indonesia

Semarang is one of coastal city in Indonesia with exposure to coastal flooding, sea level rise, and other climate hazards.

About Water as Leverage Program

A collaborative program between the Dutch Government and the governments of 3 cities in Asia, including Semarang, which aims to formulate solutions to urban water problems



BUILDING A COALITION

BAPPEDA KOTA SEMARANG

PELINDO III

Badan Pengatur Jalan Tol

Kementerian PPN/ Bappenas

Bandarharjo

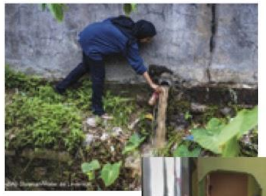
Kawasan Industri Tambak Aji

Kawasan Industri Wijayakusuma

Genuk And Kaligawe Clusters

Kawasan Industri Candi

Proposed Industry In Kendal



UNDIP

PARTNERS FOR RESILIENCE

100 RESILIENT CITIES

Palang Merah Indonesia

BINTARI FOUNDATION

hysteria

MERCY CORPS

Nongosawit

Bedono

Tembalang

Terboyo & Trimulyo

Sukurejo

Rowosari

Kalipancur

Wonosari

Kemijen

PROGRAM PROPOSALS

strategic program

network of resilient kampungs

Everyday water practices at the community level

... have a direct impact on the city as a whole.

KAMPUNG TYPOLOGIES

COASTAL KAMPUNG

PLACE

- tidal flood and sea level rise risks
- water scarcity
- land subsidence
- risk of "bathtub effect" / drainage issues
- pressure of ongoing harbor projects

COST

- cost of flood damages
- additional expenses to obtain freshwater
- large stormwater pumping volume
- structural damages due to land subsidence

RIVERINE KAMPUNG

PLACE

- located in riverbank area
- riverine flood risk
- water scarcity
- water pollution
- landslide risks in some areas

COST

- cost of flood damages
- additional expenses to obtain freshwater
- cost of public health due to environmental pollution and water borne illness

DENSE-URBAN KAMPUNG

PLACE

- dense urban neighborhood both in flat (lowland) or hilly area (upland)
- inundation due to poor drainage system
- water scarcity
- water pollution

COST

- cost of flood damages
- productivity loss during inundation
- additional expenses to obtain freshwater
- cost of public health due to environmental pollution

RURAL-URBAN KAMPUNG

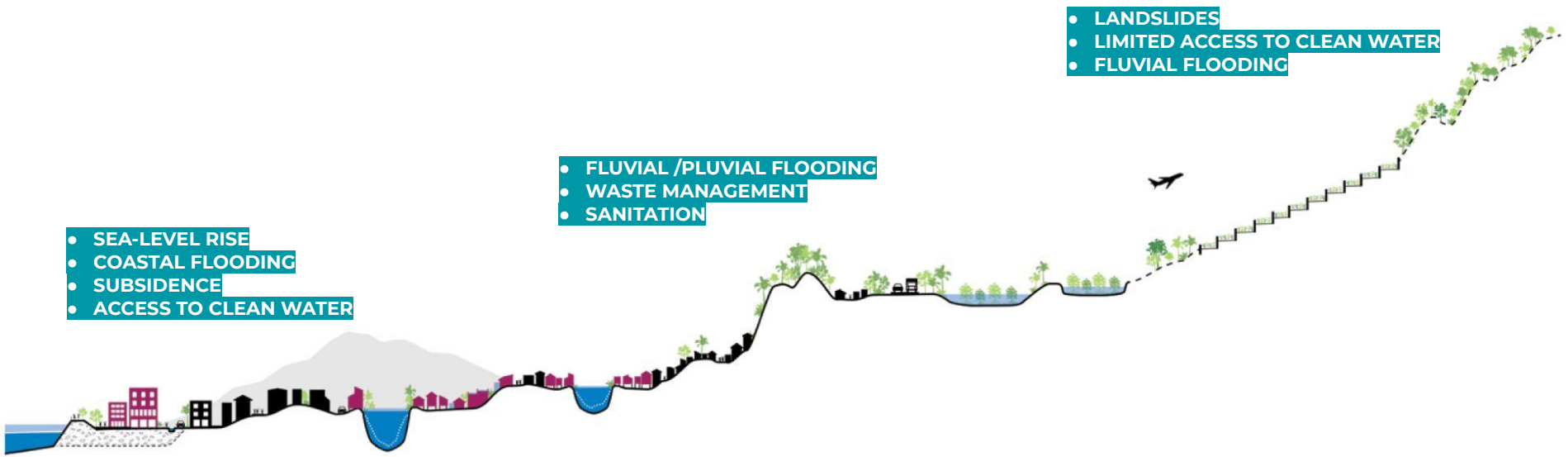
PLACE

- riverine flood risks
- water scarcity
- drought
- deterioration of natural springs
- urbanization pressure in the rural areas

COST

- additional expenses to obtain freshwater
- cost of flood damages
- cost of public health due to environmental pollution and water borne illness

There is no one-size-fits -all solution for each area. **Thus**, it is important **to solve problem locally**.



Communities **are the most vulnerable to the impact of climate change**—yet are **not empowered to address the larger phenomena**

At the same time, in the context of Indonesia, local community have **strong social modalities** in the form of strong social bonds that can be further leverage in building resilience from the ground.

Kampung Iklim (Climate Kampung)

- Ministry of Environment program implemented at local level aims to increase awareness of local community to address the impact of climate change.

Kampung Tematik (Thematic Kampung)

- The purpose is to strengthen identity of neighbourhoods. Kampung propose projects that reflect certain thematic activities. Some of them focuses on adaptation projects like recycling, urban agriculture, etc.

How can we scale-up the pilot interventions and promote climate actions in a more systematic & structured way?

ROOM FOR THE RIVER, NETHERLANDS

WHAT IF WE CAN MANAGE STORMWATER AT THE COMMUNITY LEVEL?

RATAGUL FRESHWATER FLOODED FOREST, BANGLADESH

WHAT IF COMMUNITY CAN PROPOSE MORE TAILORED ADAPTATION PROGRAMS FOR THEIR NEIGHBOURHOOD?

RAIN HARVESTING PROJECT BY ACCCRN - SEMARANG, INDONESIA

CASA RAIN HARVESTING PROJECT - NUEVA BELEN, PERU

MINGHU WETLAND PARK, GUIZHOU, CHINA

KOMPONG KLEANG FLOATING VILLAGE, TONLE SAP, CAMBODIA

WHAT IF WE INVEST IN GREEN INFRASTRUCTURE THROUGH PARTICIPATORY BUDGETING?

MUSRENBANG - SOLO, INDONESIA

BISHAN-ANG MO KIO PARK, SINGAPORE

DISASTER RESILIENT VILLAGE, BANGLADESH

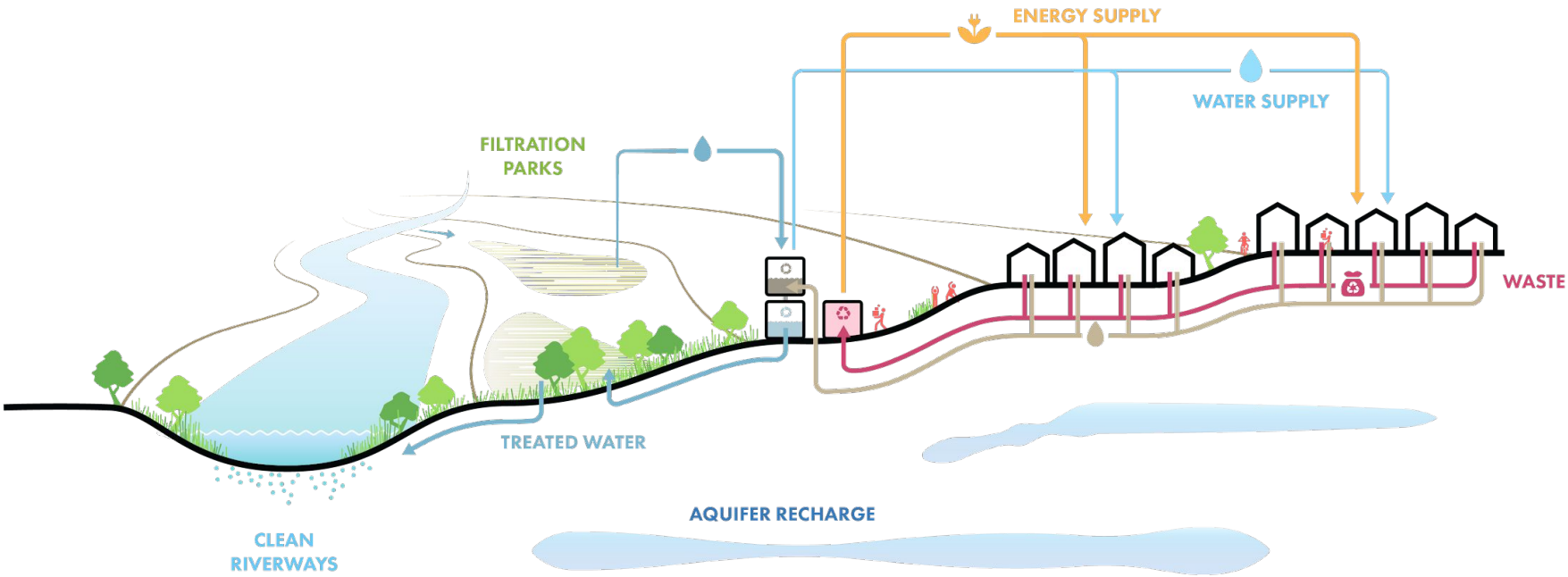
RAINWATER HARVESTING, UGANDA

WHAT IF KAMPUNGS CAN CAPTURE, TREAT AND REUSE WATER LOCALLY?

RAINWATER CAPTURE AND STORAGE SYSTEM, MEXICO CITY

TONLE SAP, CAMBODIA

RESILIENT KAMPUNG CONCEPT




Approximate
RW Boundary
Limited
River Area
Approximate
RT Boundary
Approximate
RW Boundary
Need for Water
Supply
Approximate
RT Boundary


Retention
Intervensi-intervensi skala kecil yang dapat mengurangi risiko secara lokal, jika diterapkan di seluruh kota, maka dampaknya juga akan besar dalam membangun ketangguhan kota secara menyeluruh.
Stormwater
Capture
Treatment
Filtration Park
River Water
Kampung
Collection and Recycle
Filtration Park
Landfill
Expanded River Area
Meandering Riverway
Filtration Park
Small Scale Water Treatment Facility
Water Supply Route
Water Collection and Recycle Center
Approximate RW Boundary
Water Collection Route
Approximate RT Boundary
Household Stormwater Storage Tank

PROGRAM COMPONENTS

PHYSICAL INTERVENTIONS

CAPACITY BUILDING

Target audience of the Resilient Kampung Guide includes community leaders, civil society organization leaders, and facilitators of participatory budgeting.

RESOURCE ALLOCATION

PROGRAM PROCESS

PARTICIPATORY PLANNING PROCESS

problem setting

- How to map issues?
- How to assess needs?
- How to find assets?
- How to define goals together?
- How to prioritize problems?
- What are the tools to get input from your neighborhood in a participatory way?

inclusive planning

- How do you organize your neighborhood?
- How do you get people involved?
- How to involve PKK or Karang Taruna, etc.?

advocacy

- Who should you talk to in the government?
- Who is responsible for what?
- How do you convince government/ your leaders to pay attention? (sending letters, approaching government, etc.)
- How do you work with other kampungs?
- Which other kampungs have similar problems?

fund raising

- How do you pay for it? (community savings, cooperatives, musrenbang, etc.)

TECHNICAL IMPLEMENTATION PROCESS

mainstreaming to the current governance process / agenda

- What current programs can you access or learn from? (PAMSIMAS, PDAM, etc.)
- Who from the current programs will you reach out to work with?

training and educating

- Who can you reach out to for technical training assistance?
- Who will be trained to start implementation? *
- How do you educate the residents about resiliency approaches? (guide, workshops, etc.)

implementation by the community

- Who should take the lead in the implementation on each site?
- Which tool will you choose from the manual to implement on site?

monitoring and evaluating

- Who will monitor and evaluate the installations?
- How do you monitor each facility/ installation?

***NOTE:** In the case of a district scale water hub, there will need to be trained operators by professionals. Interested and qualified community members could work with more experienced operators.

In 2021 **City Government of Semarang integrate the concept of "resilient kampung" into existing PB Process: Green Musrenbang**

Resilient Kampung Guideline: Promoting climate actions at different levels - household, community, neighbourhood

RUMAH TANGGA

Biopori

■ MERESAPKAN

Lubang silindris berisi sampah-sampah organik yang dibuat secara vertikal ke dalam tanah.

Sistem pemanen air hujan

■ MENAMPUNG & MENGGUNAKAN KEMBALI

Penangkap air hujan dari atap rumah yang kemudian disalurkan ke tangki penampungan untuk digunakan kembali.

Paving berpori (halaman rumah)

■ MERESAPKAN

Metode perkerasan halaman rumah melalui paving berongga untuk meresapkan air limpasan hujan ke dalam tanah.

RT / RW

Sumur resapan

■ MERESAPKAN & MENAMPUNG

Sumur buatan yang digunakan untuk menampung dan meresapkan air ke dalam tanah dalam jumlah banyak.

Sistem pemanen air hujan komunal

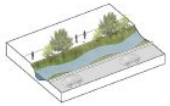
■ MENAMPUNG & MENGGUNAKAN KEMBALI

Pemanenen air hujan dalam kapasitas yang lebih besar dan dapat dibangun di fasilitas umum / komunal.

Tanki penampungan bawah tanah

■ MENAMPUNG & MENGGUNAKAN KEMBALI

Tanki penampungan air dengan sistem pengolahan air sederhana, yang dapat menghemat ruang.

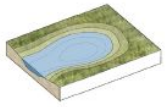


Bioswale

■ MERESAPKAN & MENUNDA

Sistem resapan alami yang dapat dibangun secara linear di sepanjang jalan kampung untuk mengalirkan limpasan air hujan.

KELURAHAN



Kolam retensi

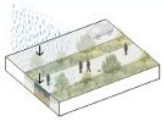
■ MENUNDA & MENAMPUNG

Kolam permanen untuk menampung air hujan sebagai upaya konservasi atau pelestarian air dan pengendalian banjir.

Taman hujan (rain garden)

■ MERESAPKAN & MENUNDA

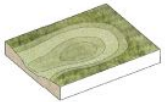
Taman dimana air hujan dapat berkumpul dan terserap ke dalam tanah sehingga dapat mengurangi limpasan air hujan.



Paving berpori (trotoar/jalan)

■ MERESAPKAN

Menutup jalan atau trotoar dengan paving berongga untuk meresapkan air limpasan hujan ke dalam tanah.



Kolam detensi

■ MENUNDA & MENAMPUNG

Kolam penampungan air sementara yang kemudian dikeluarkan secara bertahap ketika puncak banjir telah lewat.

Water square

■ MENUNDA & MENAMPUNG

Alun-alun untuk menampung limpasan air ketika musim penghujan dan menyediakan ruang publik pada musim kemarau.


Sumber Air Dunia
Kekurangan Air
Ketika Siklus Air Tidak Seimbang...
SEBELUM
SESUDAH
Sedimentasi
Dampak Ketika Siklus Air Diganggu
BANJIR RUTIN


Puas Sedapnya!

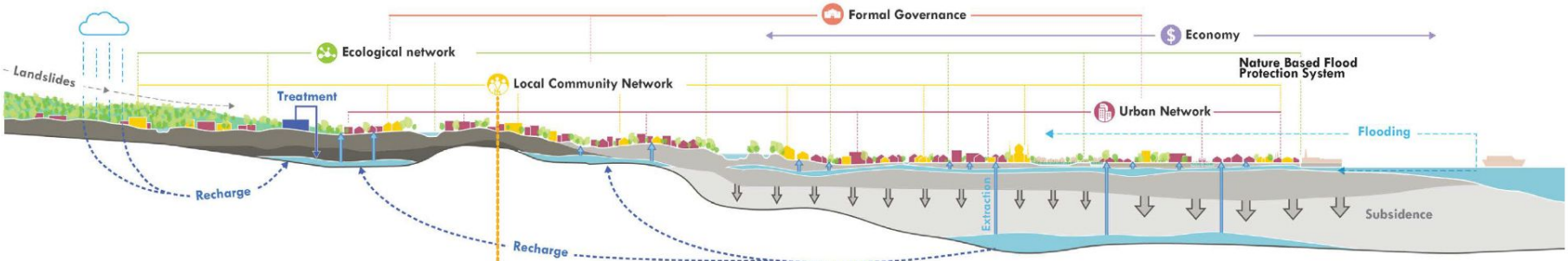
Even though each of this kampungs intervention are small, but if a critical mass of kampungs promotes more green infrastructures, we believe that we will create an exponential effect for the city.

This bottom up effort should also be complemented with a city scale projects that look the system approach which integrates NbS in multiple scales.

TOP - DOWN

Coordinate and integrate projects in multiple scales

Establish regulatory measures to manage the water commons



BOTTOM - UP

Foster a culture of resilience

Identify and implement pilot projects at hyper- local scale

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