

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**

Rossana Poblet/UN-Habitat UN Habitat consultant on Integrated Regional Development Plans

Global Perspectives on strategic planning tools and methods for sustainable futures

**Integrated urban planning strategies and planning and design
tools - Lima Ecological Infrastructure Strategy**

**24-25th
March 2021**

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



LIMA

ECOLOGICAL

INFRASTRUCTURE

STRATEGY

CONTEXT

LiWa

INTEGRATION

STUDY AREA

PILOT PROJECTs

TRANSFERIBILITY

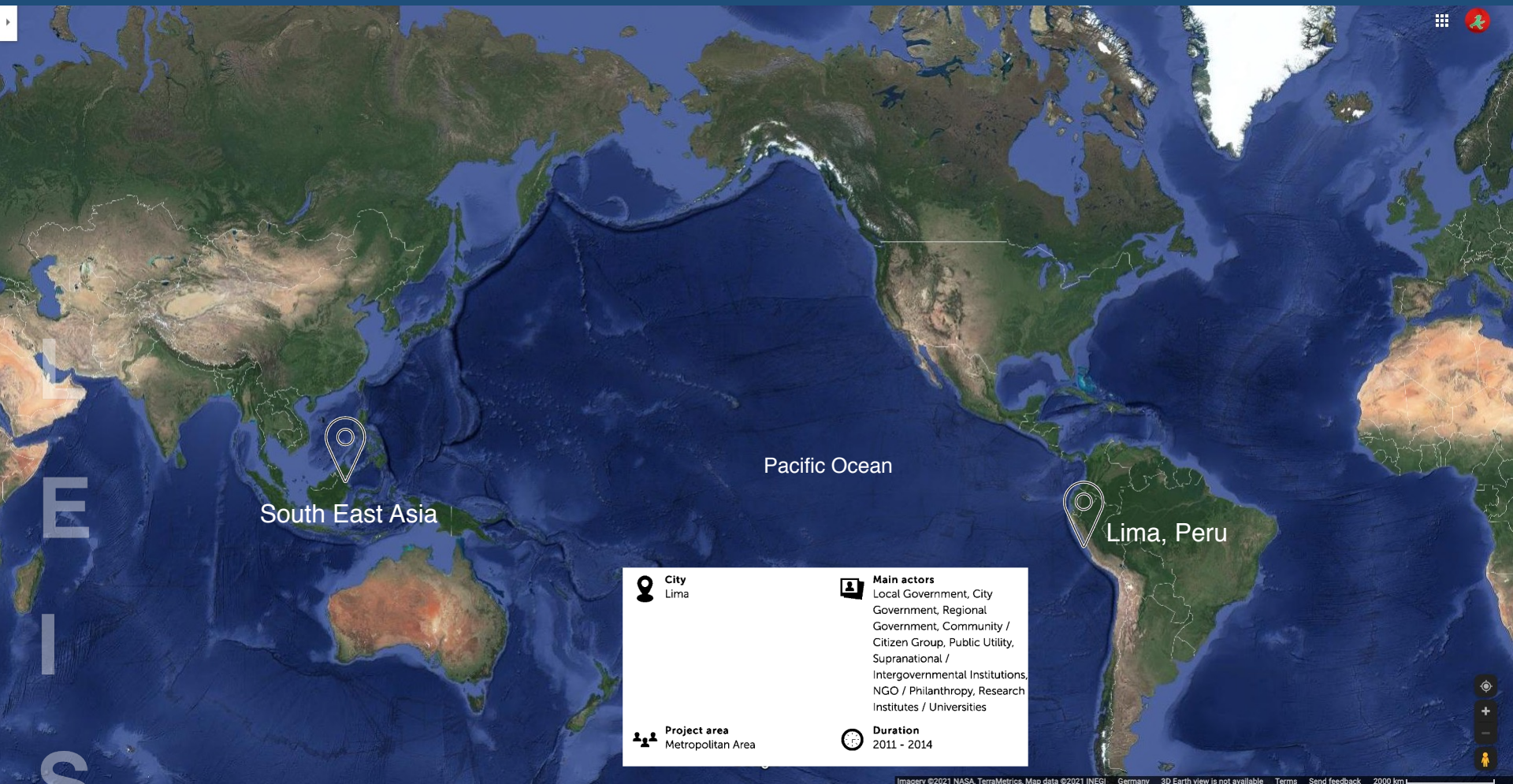
LIMA

E_COLOGICAL

I_NFRASTRUCTURE

S_TRATEGY

CONTEXT

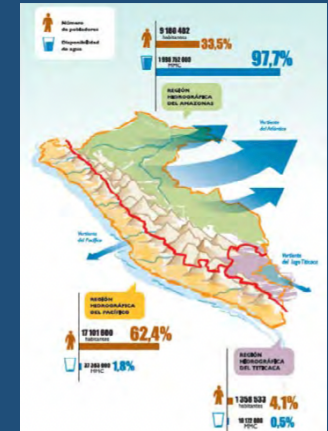


CONTEXT

"Sustainable Water and Wastewater Management in Urban Growth Centres Coping with Climate Change - Concepts for Lima Metropolitana (Peru) - (Lima Water -LiWa)"



LiWa was part of the "Future Megacities" Program (2008 - 2013), supported by the German Ministry of Education and Research. LEIS started in 2011 as Component 6 and included the implementation of one of the programs Pilot Projects

[illegible]

Lima Metropolitana
Estratos Nivel Socioeconómico CPV 1993

Lima Metropolitana
Estratos de Nivel Socioeconómico (Censo Población y Vivienda 1993)

Estratos de Pobreza

- 1 (Muy pobres)
- 2
- 3
- 4 (Muy pobres)

Áreas Sin Población

CONTEXT of a dry-wet city: land, ecosystems, open spaces, water sources

open spaces



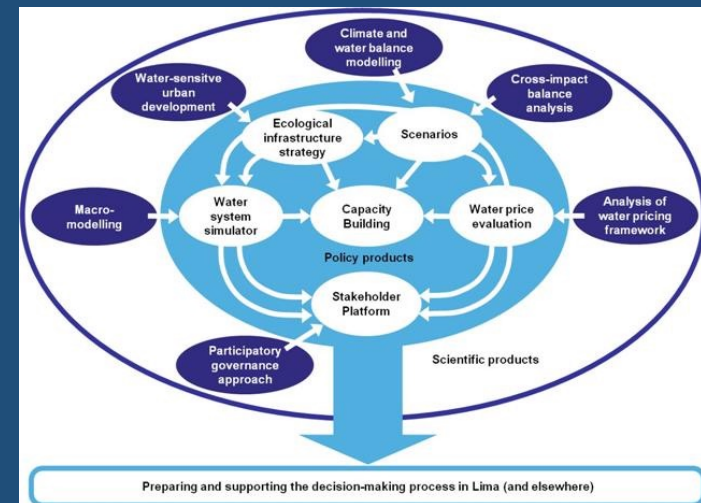
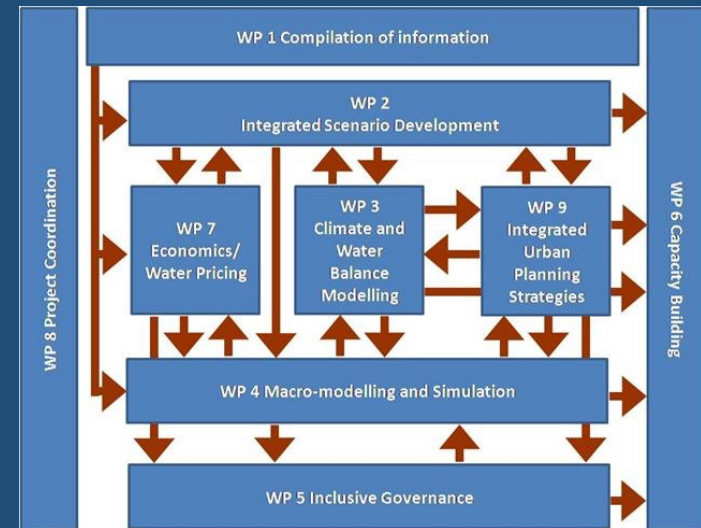
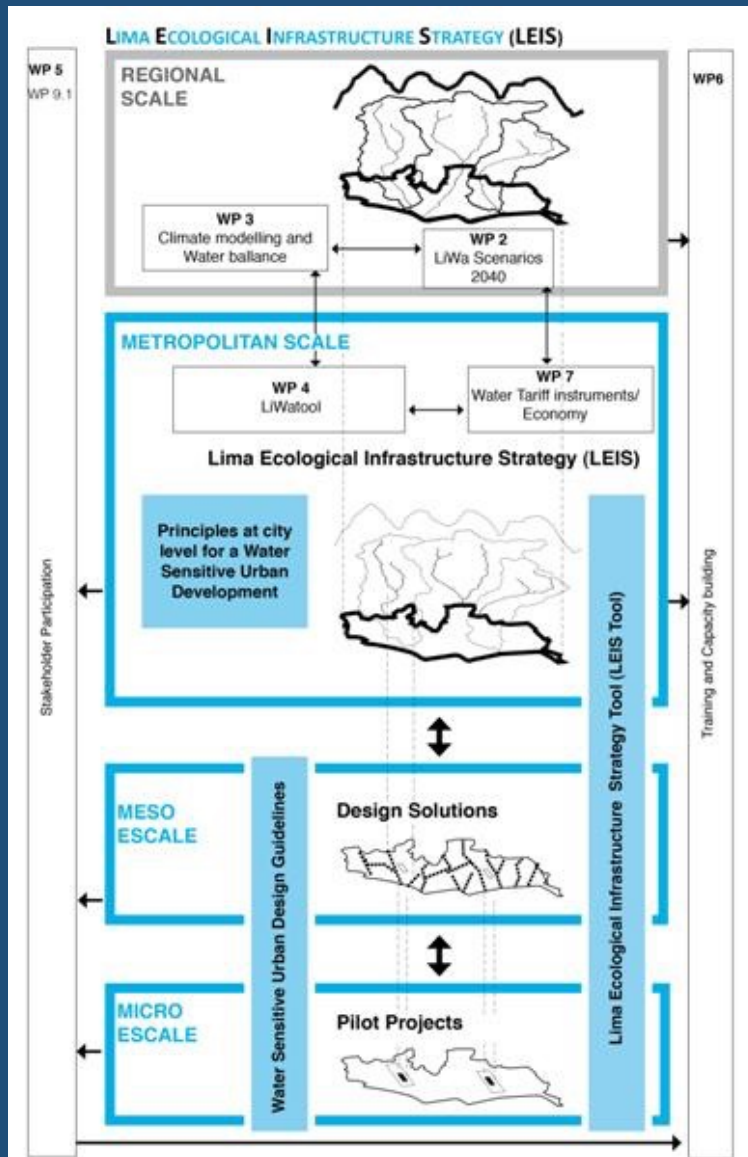
seasonal rivers
spring water
grey water
domestic wastewater
treated wastewater
untreated wastewater
coastal wetlands
fog



Natural and Artificial Ecosystems
Ecological structure (Ecosystems)
Green and recreation areas
Urban Public Open spaces
Urban Private Open spaces
Road system
Electric lines
vacant land

water sources

LiWa - INTEGRATION of water sources, urban open spaces and people

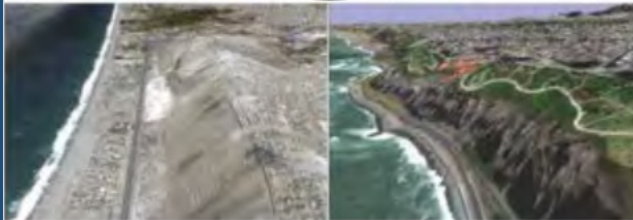


LiWa - INTEGRATION of water sources, urban open spaces and people

open spaces



the **open space system** can help to improve and protect the **water cycle**



Water cycle
facilitates **green open space** generation

seasonal rivers-
spring water-
grey water-
domestic wastewater-
treated wastewater-
untreated wastewater-
coastal wetlands-
fog-



Open space support
the **urban water cycle**
by recycling water

- Natural and Artificial Ecosystems
- Ecological structure (Ecosystems)
- Green and recreation areas
- Urban Public Open spaces
- Urban Private Open spaces
- Road system
- Electric lines
- vacant land

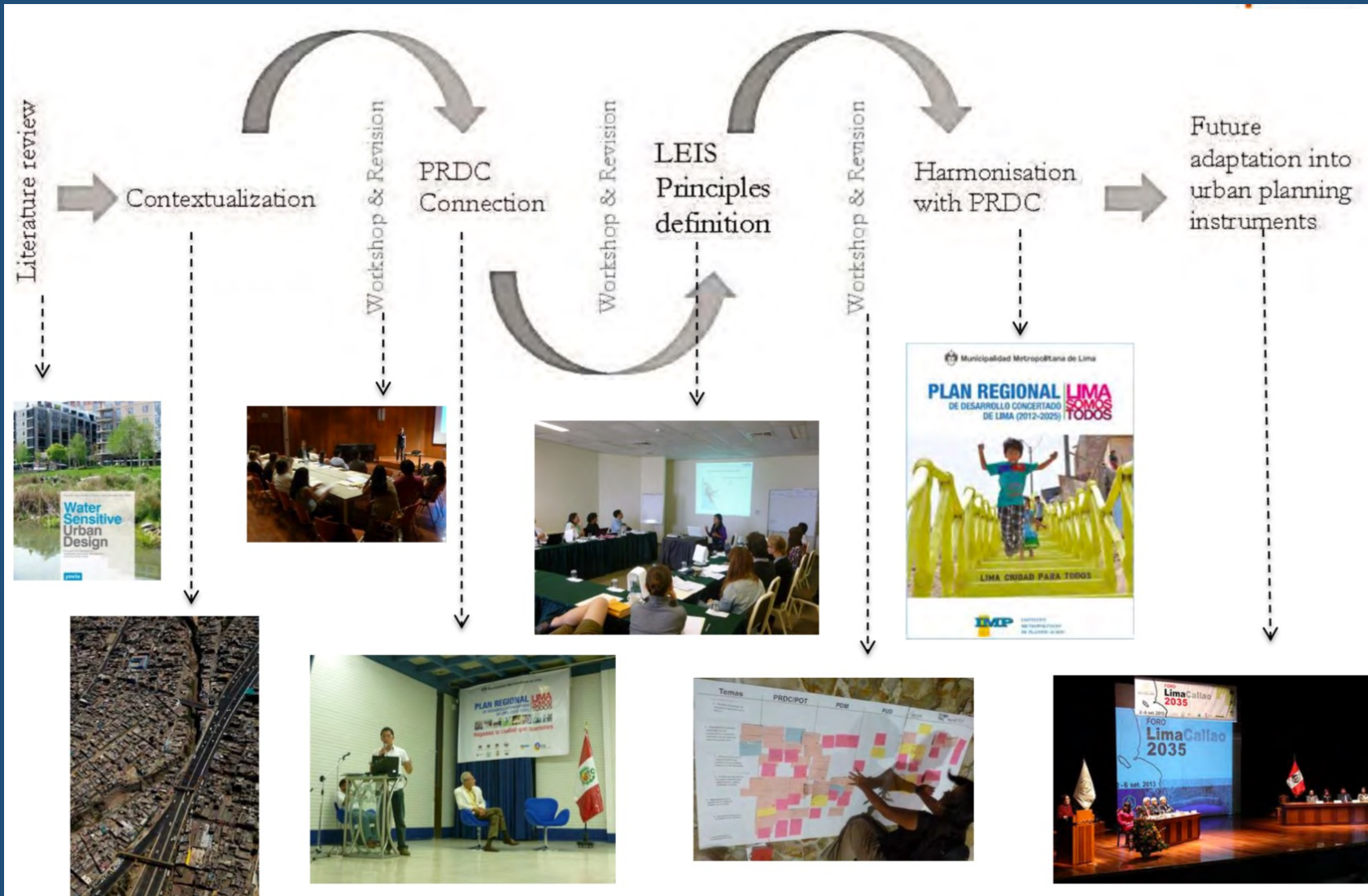


the **urban water cycle** contributes to the **open space system**

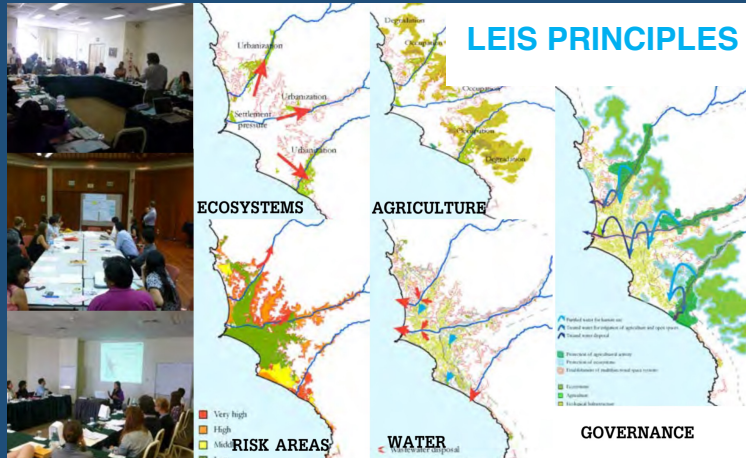


water sources-

LiWa - INTEGRATION in the local planning process



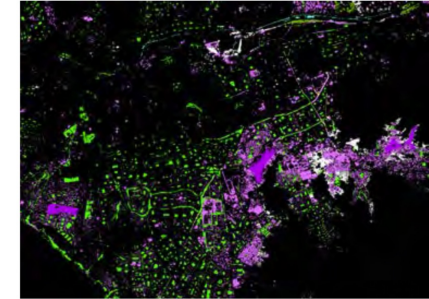
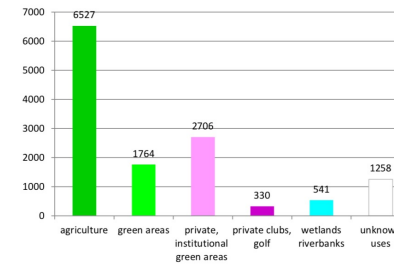
INTEGRATION at different scales: macro, meso, micro



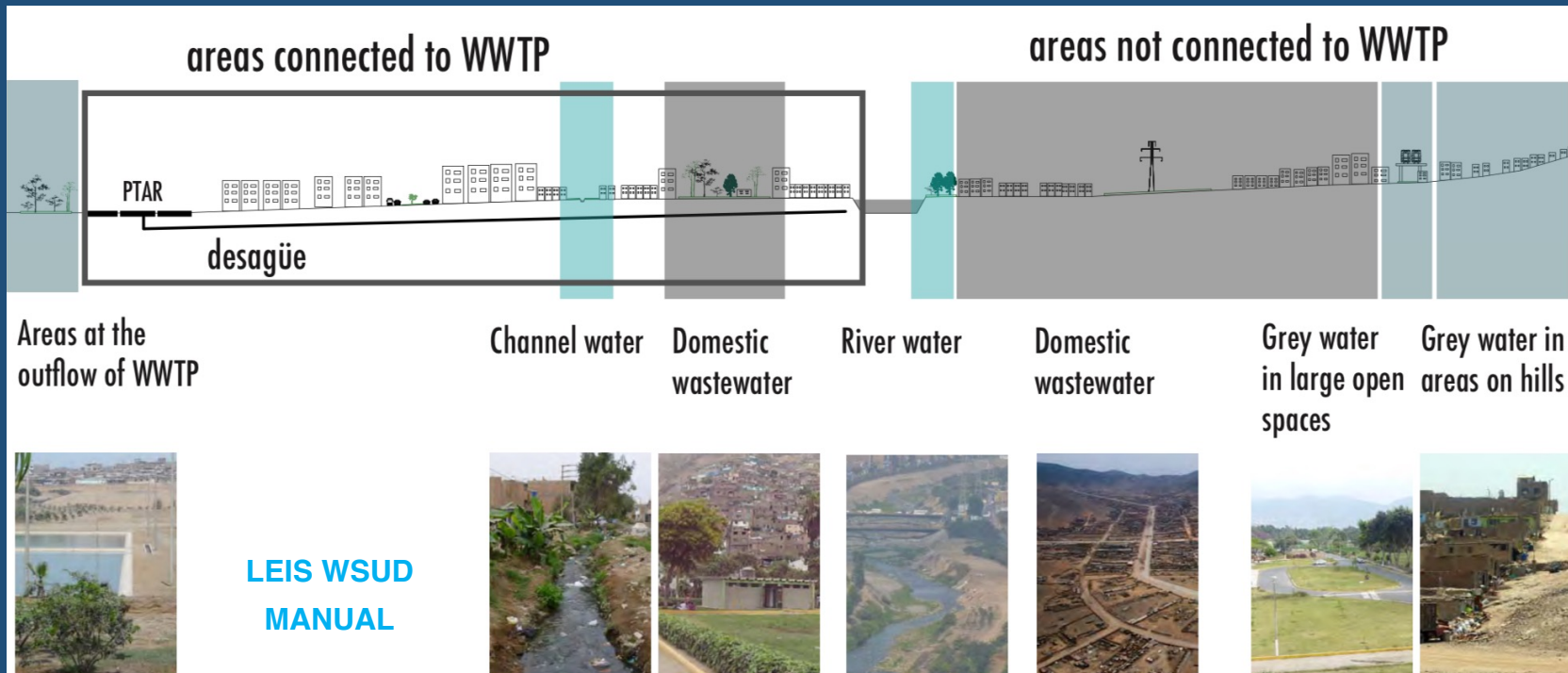
Distribution of green areas = areas with vegetation in Lima and Callao

Analyses of satellite images extraction of vegetated areas (NDVI = natural difference vegetation index)
Overlay with uses/ownership

Approx. Area 13,000 ha in autumn 2011/12



LEIS TOOL



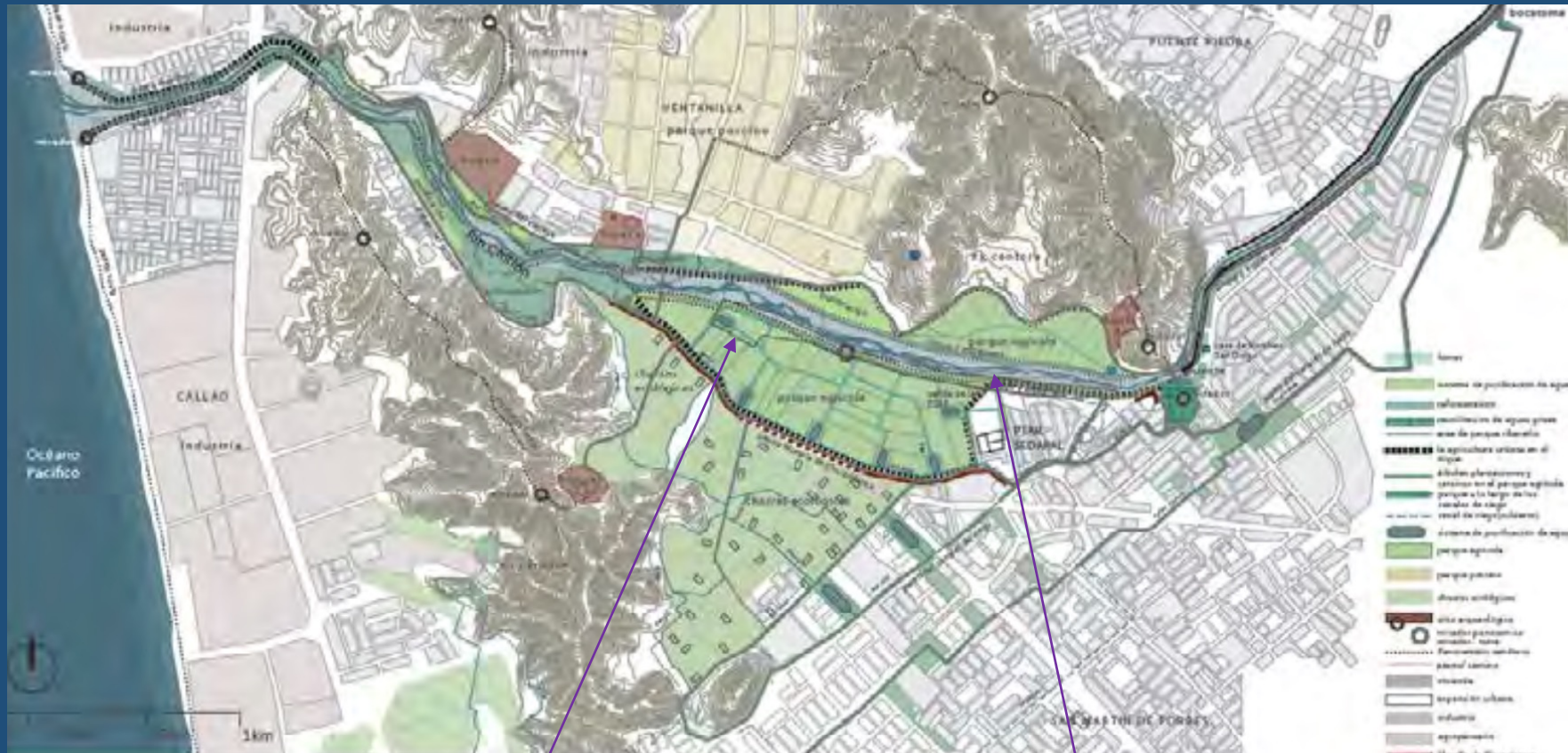
STUDY AREA at the Lower Chillon River Valley, Lima North



Natural Landscape + Cultural Landscape + Cultural Heritage = Ecological Infrastructure



Lower Chillon Ecological Infrastructure Master Plan



Polluted untreated wastewater in ancient canals becomes a public health threat

Meanwhile closure of canals and ground water exhaustion, produce desertification



PILOT PROJECT Wastewater Treatment Park 'Children's Park'



PILOT PROJECT Wastewater Treatment Park 'Children's Park'





TRANSFERIBILITY IN PIURA AFFECTED BY EL NIÑO (+COSTERO)



1925: Av. Moquegua



1972: Esquina de Ministerio Público



1997/1998 en la Región Piura



1940: Plaza de Armas

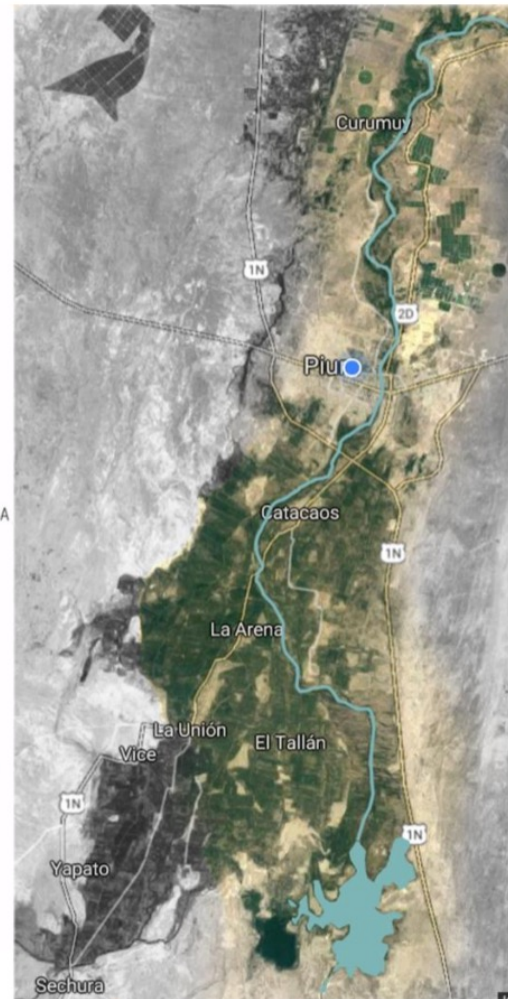
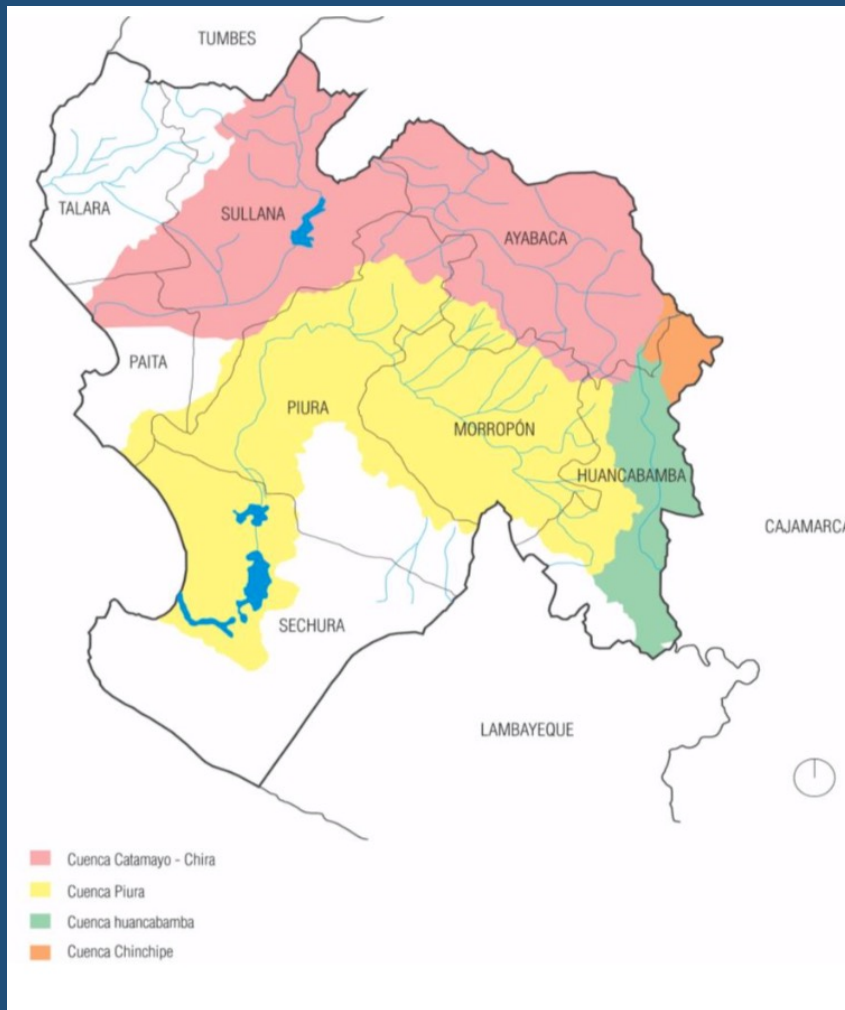


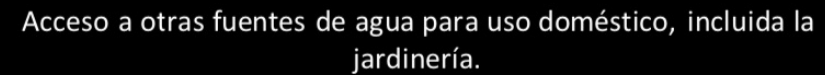
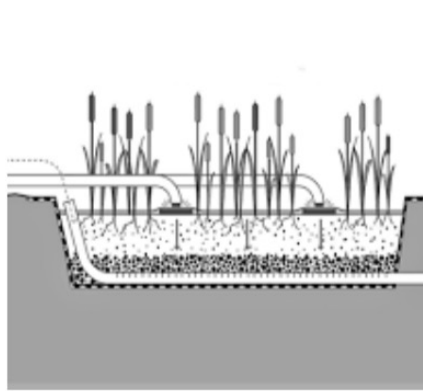
1983: Caída de Puente



2017: Plaza de Armas

TRANSFERIBILITY: PIURA Beyond the Park landscape analysis at Regional level





- Multifunctional open space system
- Structure acting as memory and shelter center for children in case of flooding events
- Rainwater and Grey water treatment and reuse
- Use of native species from the desert climate
- Integrated Water management and open space system
- Participative design process



PIURA Beyond the Park: PARQUE DE LA MEMORIA DEL NIÑO COSTERO



PIURA Beyond the Park: PARQUE DE LA MEMORIA DEL NIÑO COSTERO

LEIS



THANK YOU!

