SAFE ACCESS TO WATER ON HOMELANDS: A SOCIO-ECOLOGICAL FRAMEWORK
Dr Hannah Robertson & Dr Paul Satur

Homelands

remote

Figure 1: ASGC remoteness areas of Australia. Image source: Australian Institute of Health and Welfare (AIHW), "Rural, Regional and Remote Health: A Guide to Remoteness Classifications," in Rural Health Series, Number 4, Cat. No. PHE53 (Canberra: AIHW, 2004). 1.
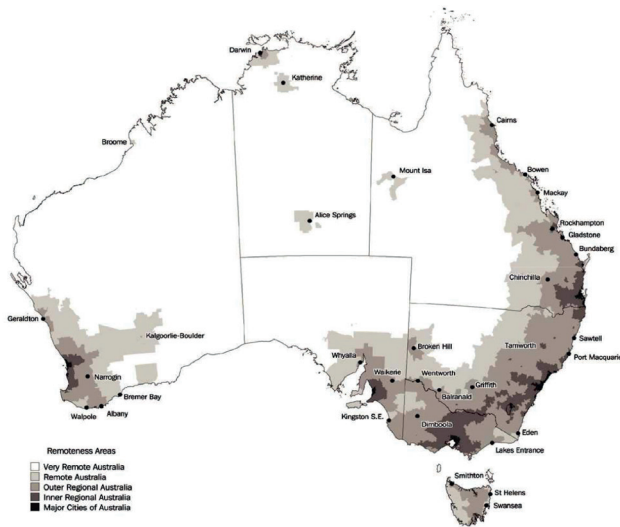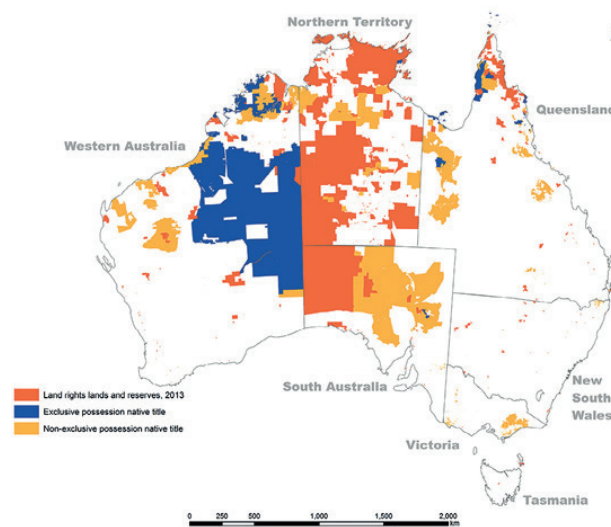
recognised tenure

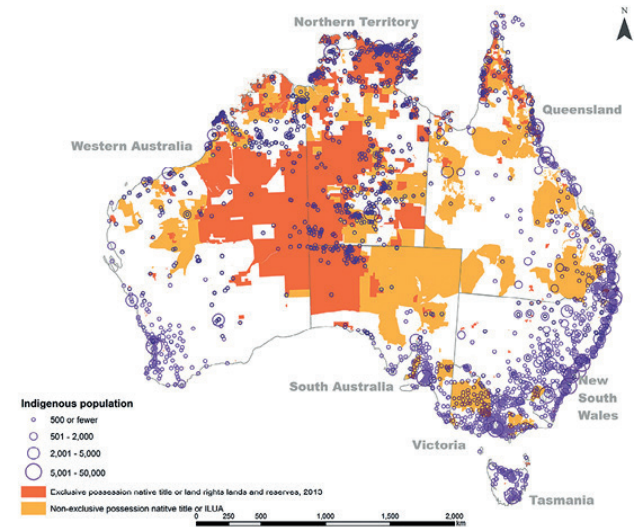Figure 2: Indigenous lands by tenure type.

Indigenous population

Figure 2& 3: Indigenous land tenure and Indigenous population distribution. Image source: J.C. Altman, "The political ecology and political economy of the Indigenous titling 'revolution' in Australia." Paper presented at the Indigenous Law Speaker Series 2014, New Zealand, March,2014. http://maorilawreview.co.nz/2014/03/the-political-ecology-and-political-economy-of-the-indigenous-landrevolution-in-australia/, accessed March 15, 2018.

Water is the foundation of life

Inequality of access

99.9% of Australia's urban population have access to safely managed drinking water.

This represents **96.5% of the total Australian population**.

Darwin

Katherine

Broome

Cairns

Bowen

Mount Isa

Mackay

Rockhampton

Gladstone

Bundaberg

Alice Springs

Chinchilla

Geraldton

Kalgoorlie-Boulder

Sawtell

Tamworth

Broken Hill

Port Macquarie

Whyalla

Narrogin

Waikerie

Wentworth

Griffith

Bremer Bay

Balranald

Walpole

Albany

Kingston S.E.

Dimboola

Eden

Lakes Entrance

Smithton

St Helens

Swansea

Remoteness Areas

- ☐ Very Remote Australia
- ☐ Remote Australia
- ☐ Outer Regional Australia
- ☐ Inner Regional Australia
- ■ Major Cities of Australia

Inequality of access

In **3.5% of Australians in small towns, rural or remote communities** the water does not comply to safe standards or there is insufficient data.

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Inequality of access

For **Western Australia's small remote indigenous communities only 19% of communities reported 100% microbiological compliance** between July 2012 and June 2014. One in five of these communities also exceeded safe levels for nitrates or uranium.

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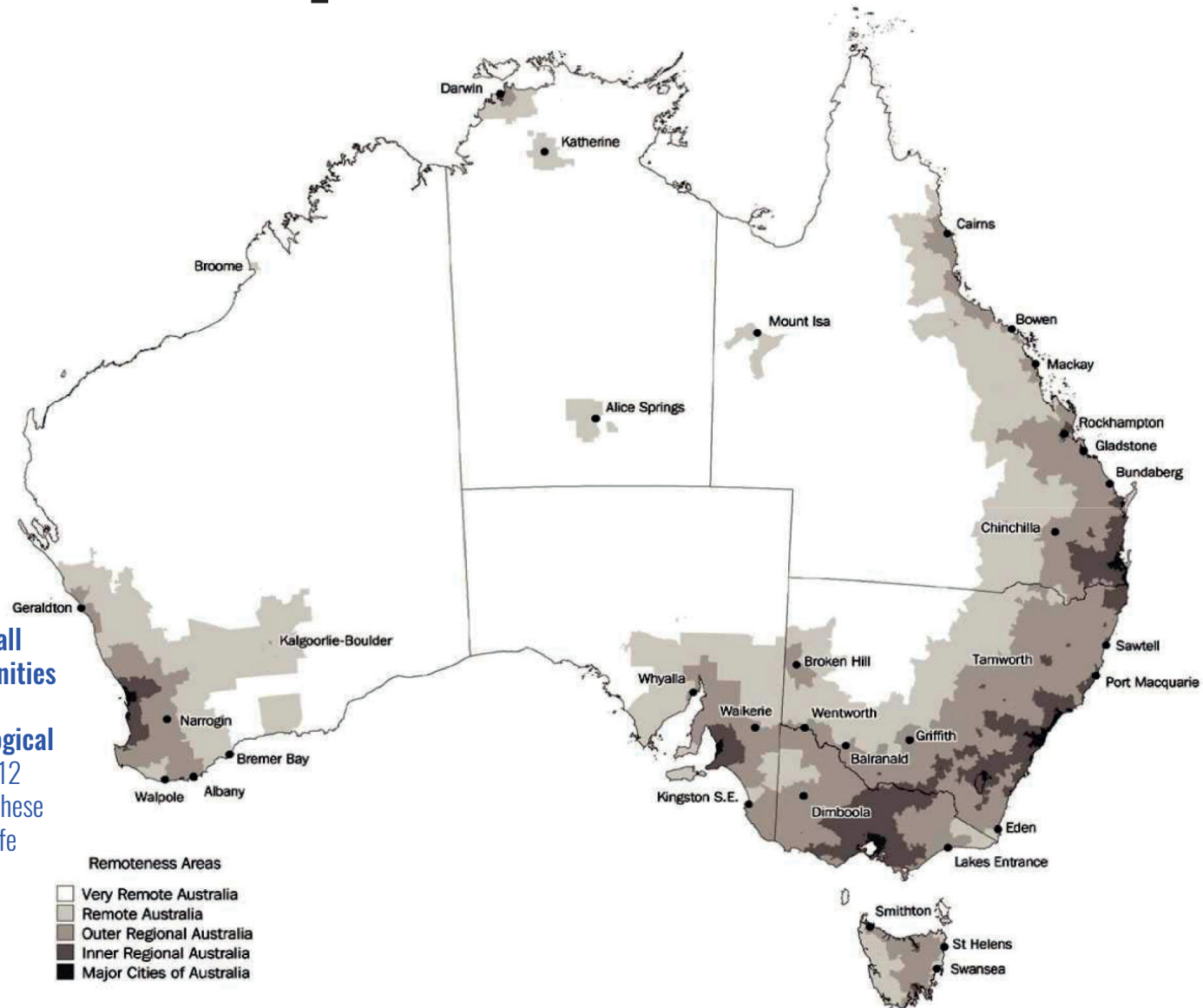
Inequality of access

In the **Northern Territory, 42% of homeland communities lacked access to safe drinking water**, while only 34% of those with access were classified as low risk in terms of both drinking quality and operational capacity.
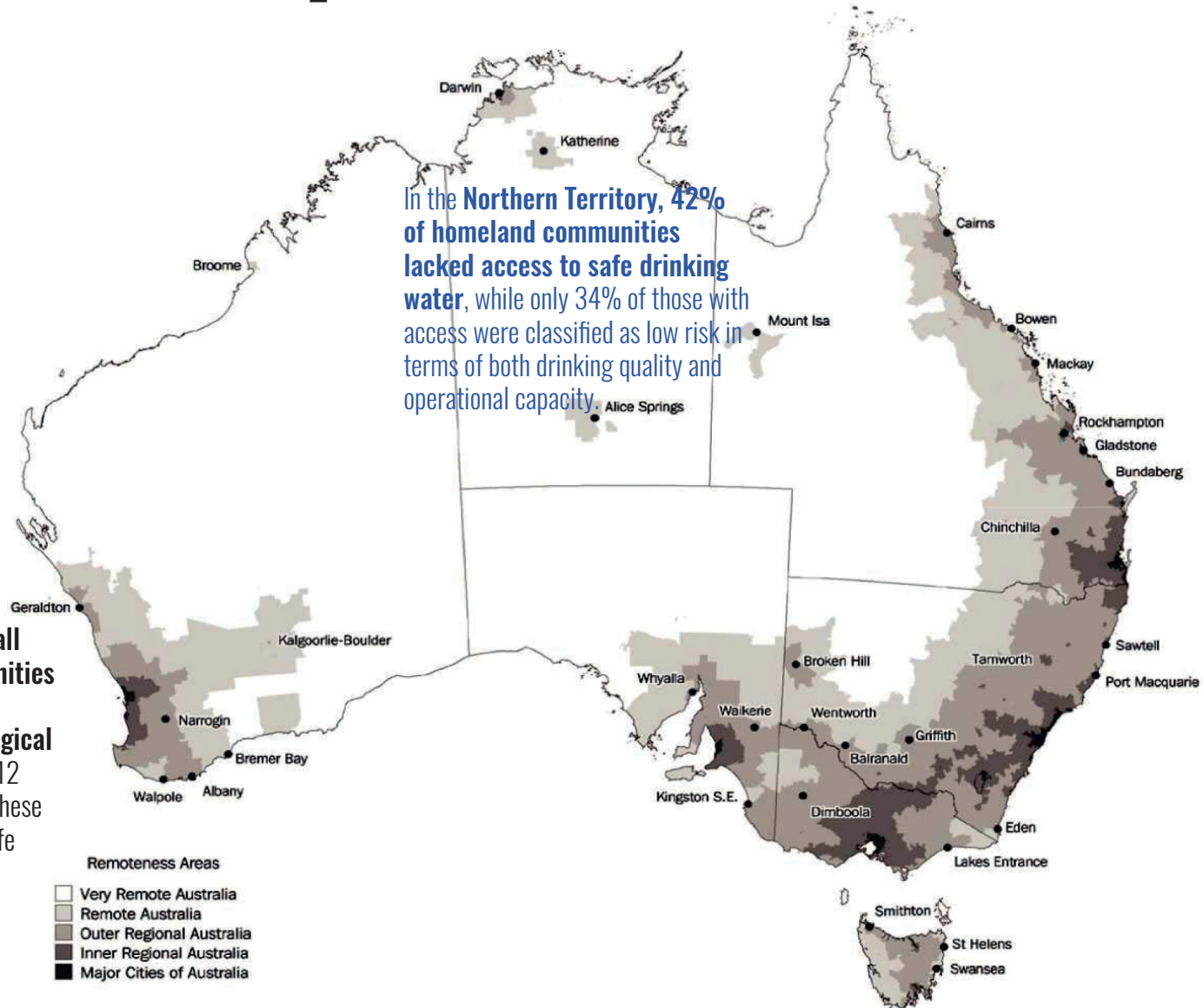
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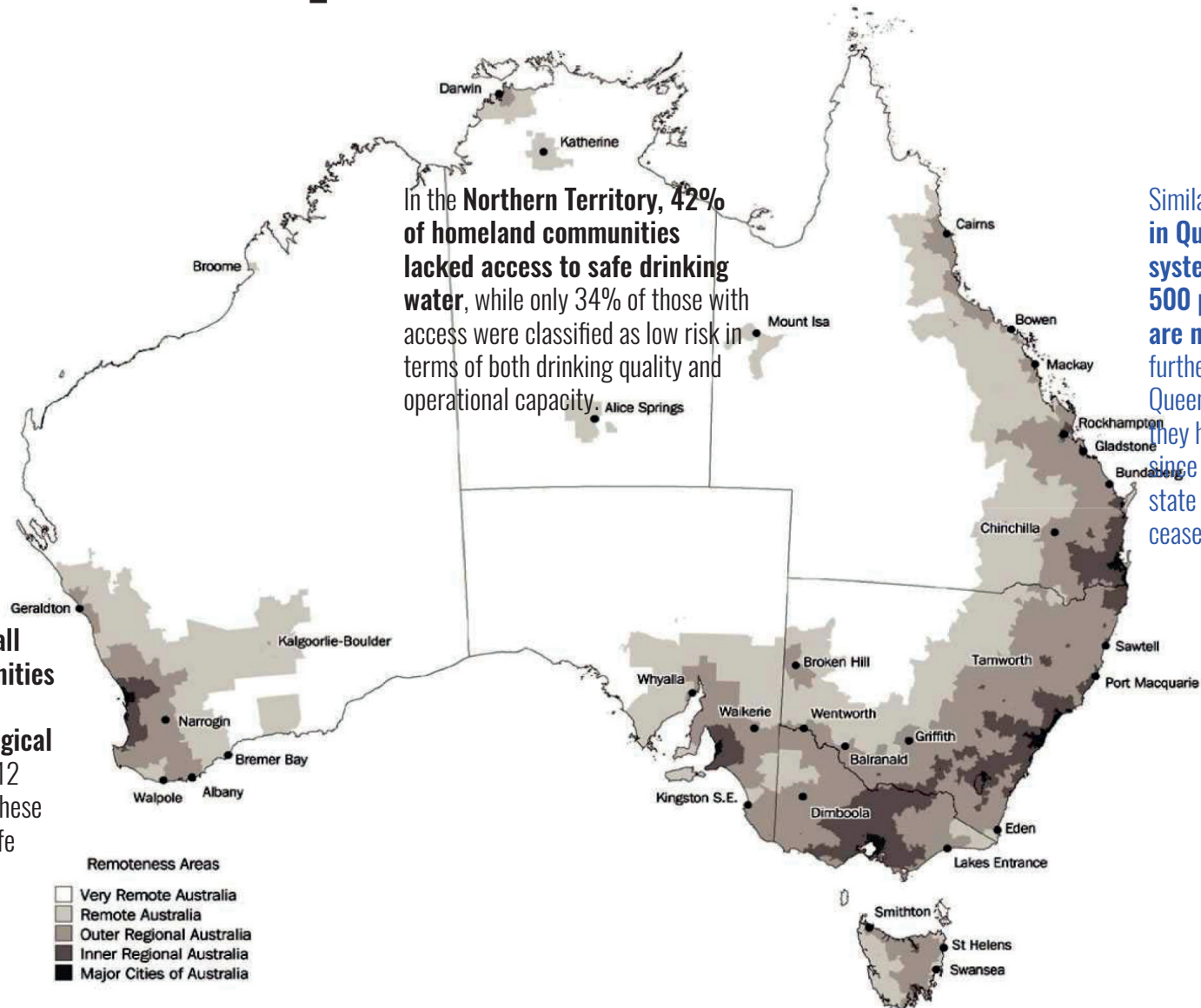
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Inequality of access

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Similarly for **remote communities in Queensland, 44% of water systems service fewer than 500 people and 12% of these are not potable.** There are further threats to the longevity of Queensland water supplies because they have been locally managed since 2009 when co-investment by state and local state government ceased.

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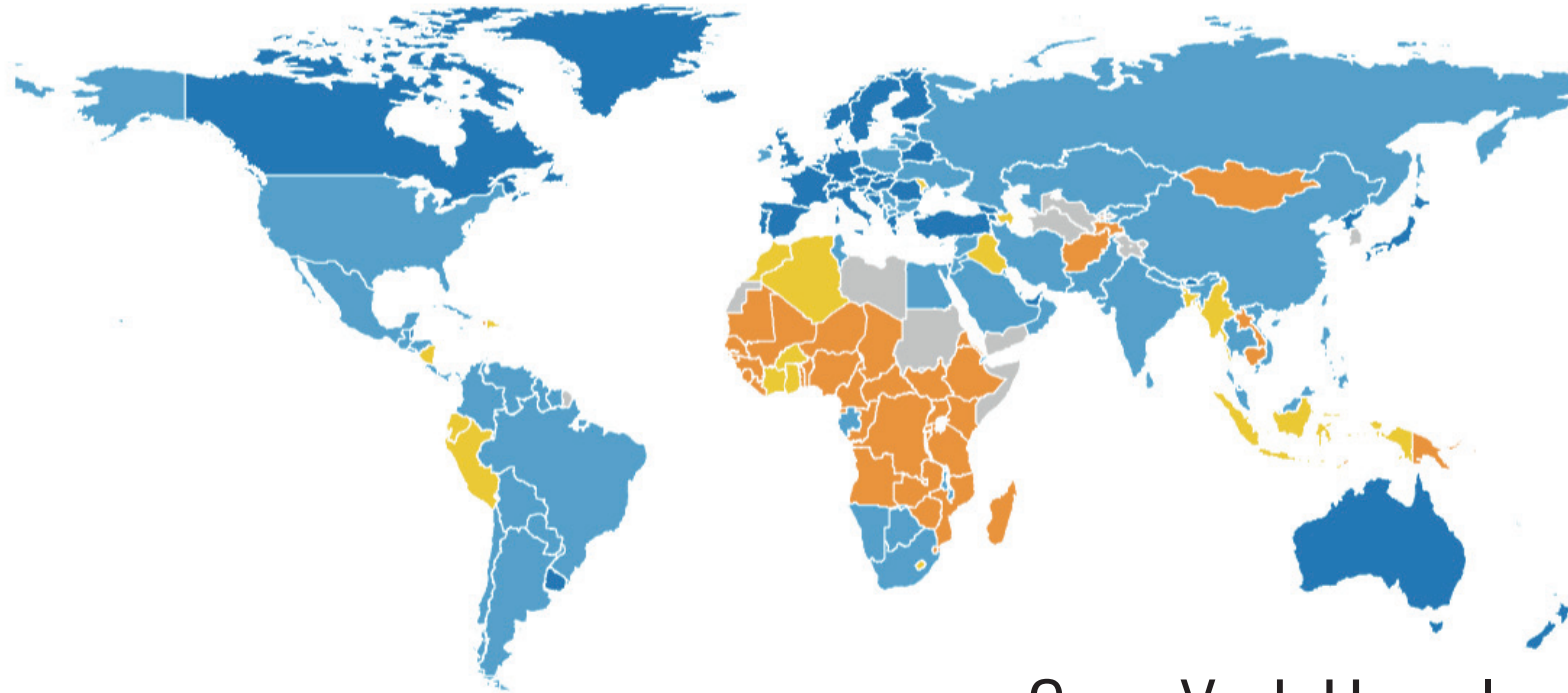
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Percentage of population using poor water drinking quality

Source: JMP Thematic Report on Drinking Water 2016

Legend: ■ <1   ■ 1-10   ■ 11-20   ■ >20   ■ Insufficient data or not applicable
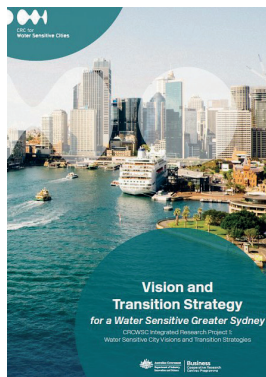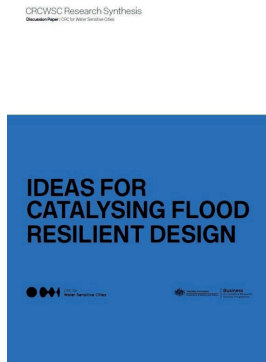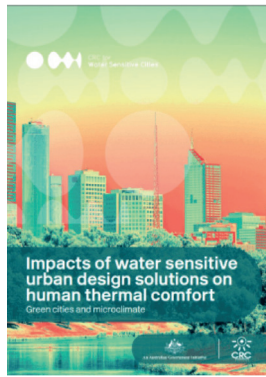

India

Indian Government funded water reservoir.
Photos: Anupam Mishra, The Ancient Ingenuity of Water Harversting, TED Talk, 2009.

Cape York Homelands

Sand filtered pump and standing lagoon.
Photo: Engineers Without Borders and the Centre for Appropriate Technology, 2016.
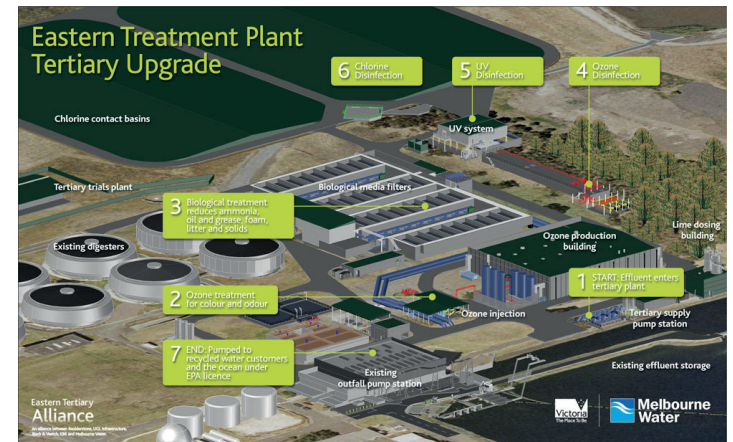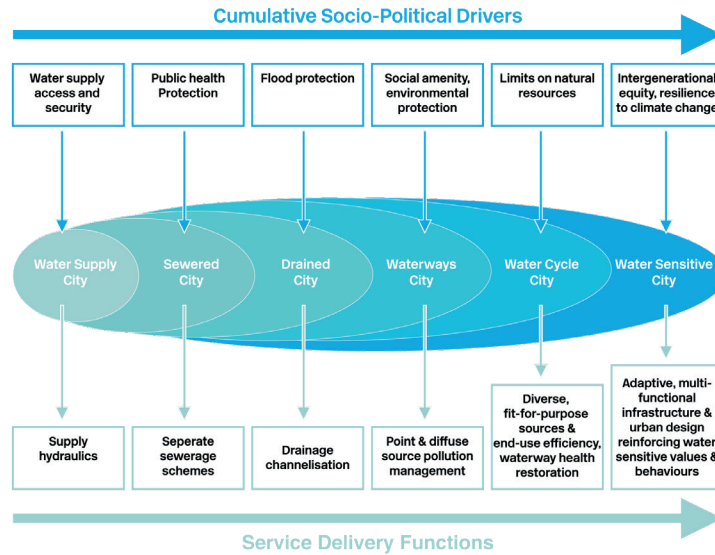
IDEAS FOR CATALYSING FLOOD RESILIENT DESIGN

Cumulative Socio-Political Drivers

Water supply access and security	Public health Protection	Flood protection	Social amenity, environmental protection	Limits on natural resources	Intergenerational equity, resilience to climate change

Water Supply City — Sewered City — Drained City — Waterways City — Water Cycle City — Water Sensitive City

Supply hydraulics	Seperate sewerage schemes	Drainage channelisation	Point & diffuse source pollution management	Diverse, fit-for-purpose sources & end-use efficiency, waterway health restoration	Adaptive, multi-functional infrastructure & urban design reinforcing water sensitive values & behaviours

Service Delivery Functions

The International WaterCentre (IWC)

Water Leadership for the Future

IWC - creating tomorrow's leaders in water management by changing the way people think about, act and solve complex water management challenges
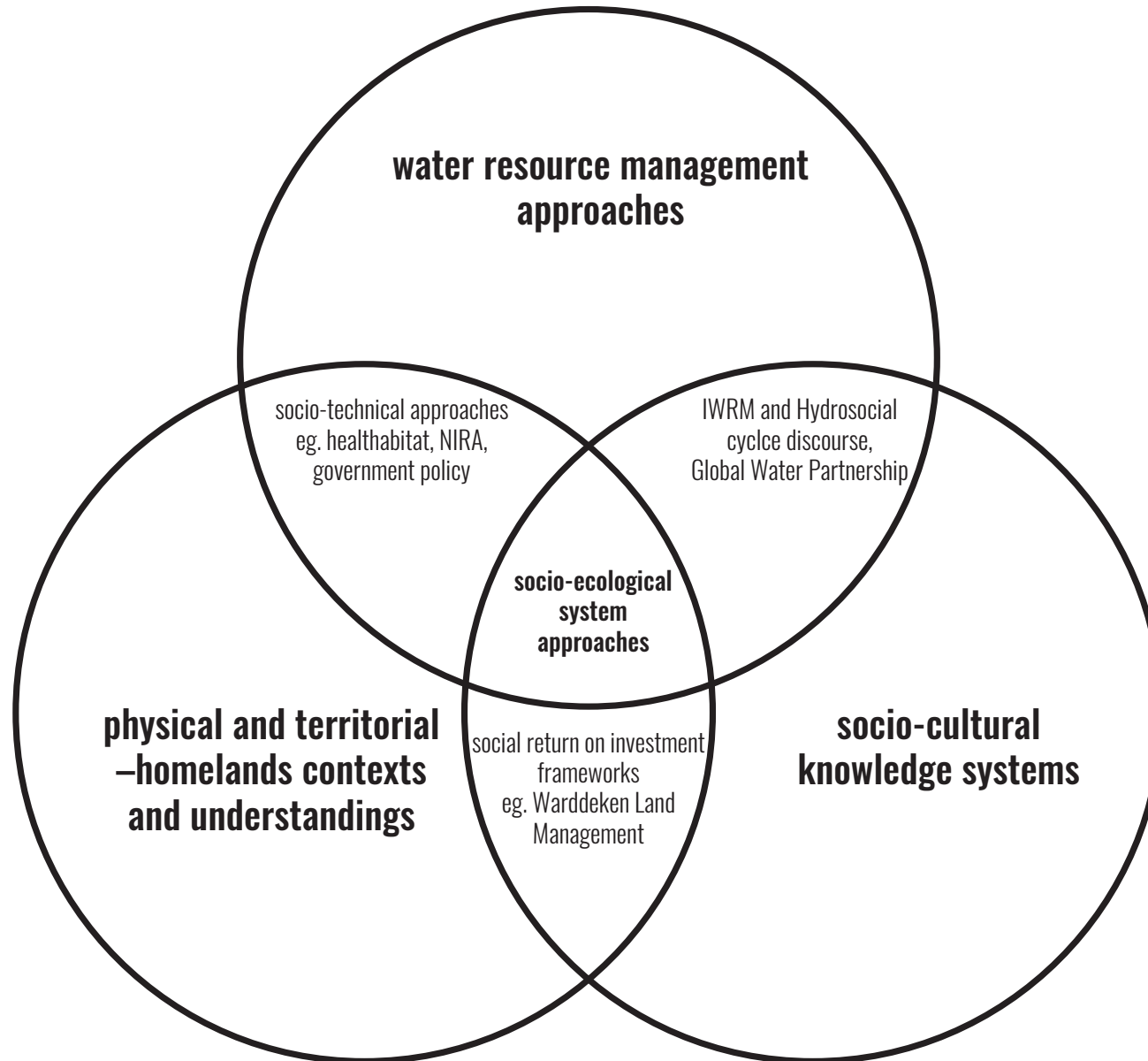
INTERNATIONAL WATERCENTRE

Eastern Treatment Plant Tertiary Upgrade

What can we do to improve safe access to water on homelands?

Systematic rapid review

water resource management approaches

socio-technical approaches eg. healthabitat, NIRA, government policy

IWRM and Hydrosocial cyclce discourse, Global Water Partnership

socio-ecological system approaches

physical and territorial –homelands contexts and understandings

social return on investment frameworks eg. Warddeken Land Management

socio-cultural knowledge systems

- territorial connections
- cultural connections
- climate (drought/flood)
- geology
- geography

- topography

The co-influence between water resourcing variables
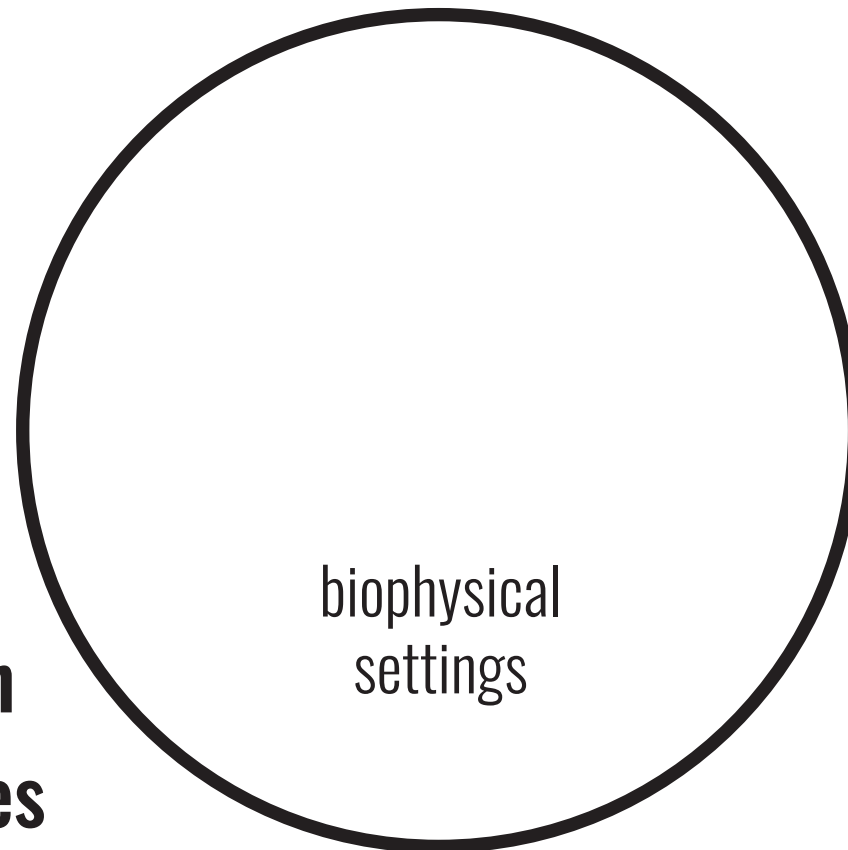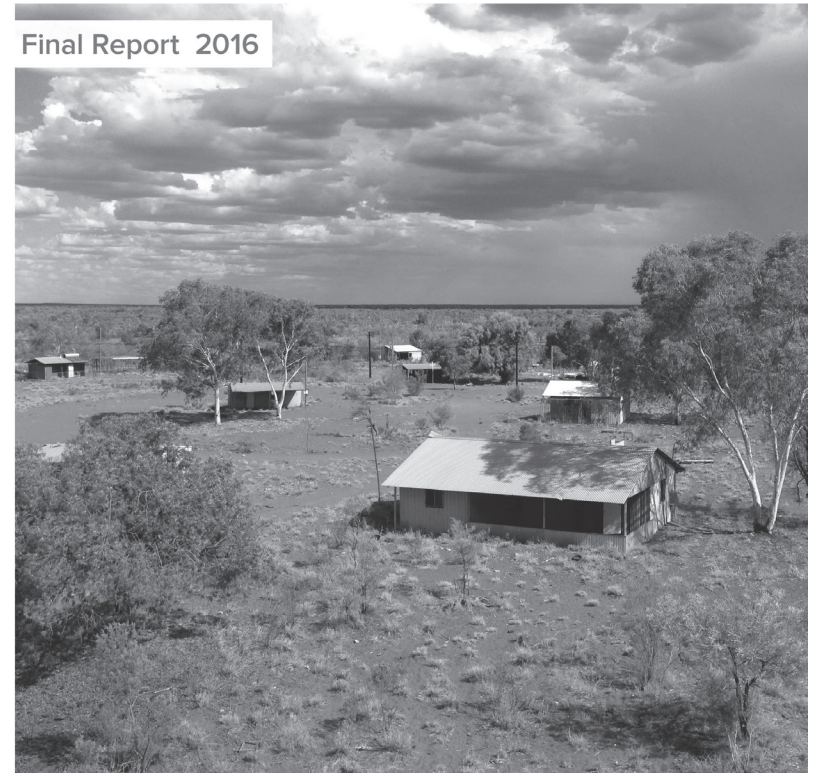
biophysical
settings

- ad hoc policy settings
- insufficient funding
- restrictive land tenure
- insufficient infrastructure
- insufficient water quality data

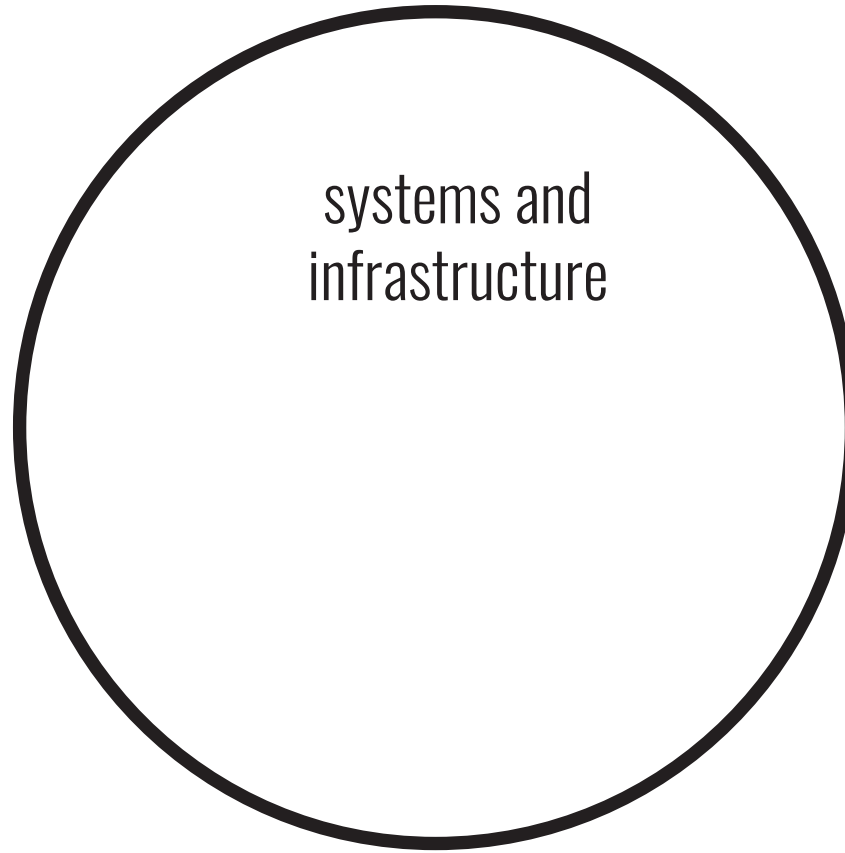domestic contexts
and technologies

The Northern Territory
Homelands and Outstations
Assets and Access Review

Final Report 2016

The co-influence between
water resourcing variables

- remoteness
- lack of reticulated services
- urban centric systems
- poor levels of maintenance

systems and infrastructure
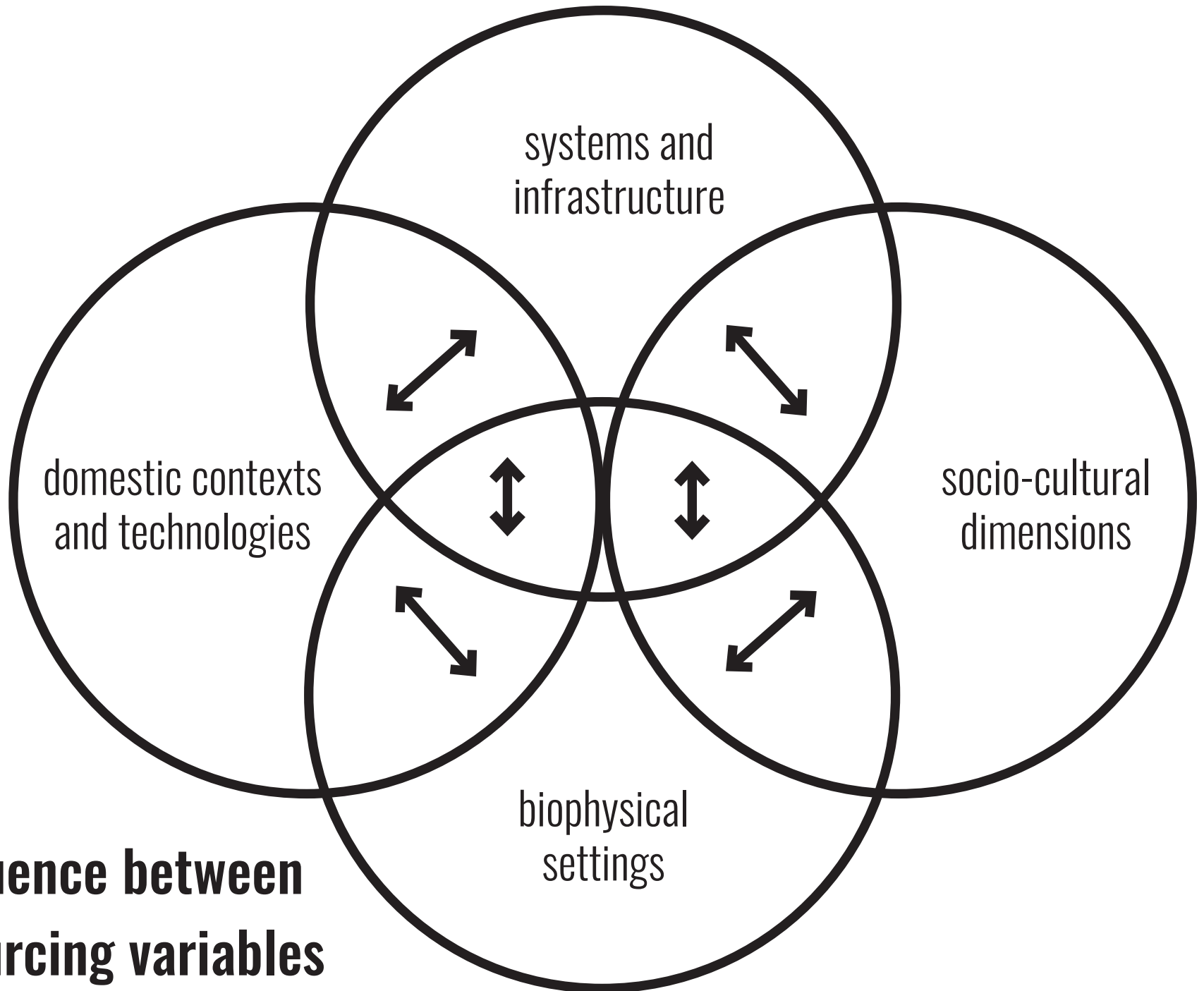
The co-influence between water resourcing variables

- educational capacity
- meanings ascribed to water
- cultural knowledge
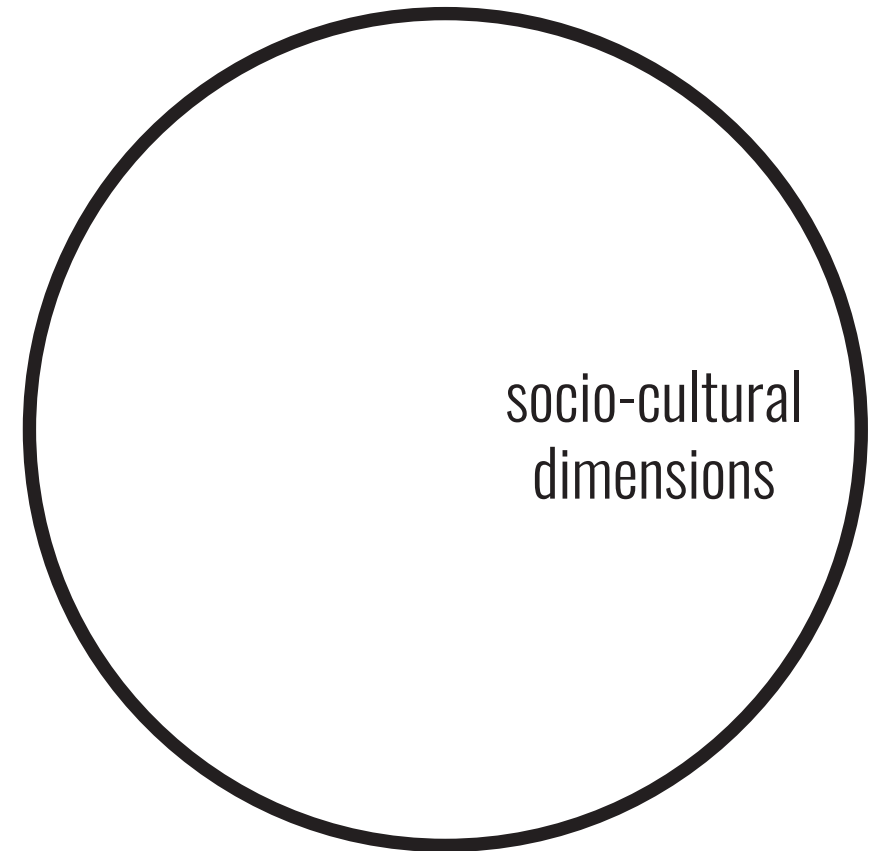
socio-cultural
dimensions

The co-influence between
water resourcing variables

systems and
infrastructure

domestic contexts
and technologies

socio-cultural
dimensions

biophysical
settings

**The co-influence between
water resourcing variables**

top down
technocentric

policy drivers

macro

Government dominates in policy delivery with an emphasis on socio-technical systems that are "city-centric" with limited contextual sensitivity.

meso

safe access to water

community driven
bottom up

social drivers

micro

top down
technocentric

policy drivers

macro

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meso

safe access to water

Bio-physical conditions are complex. Local skills and existing technologies.

Social, cultural, economic and material settings determine experiences, needs and capacities.
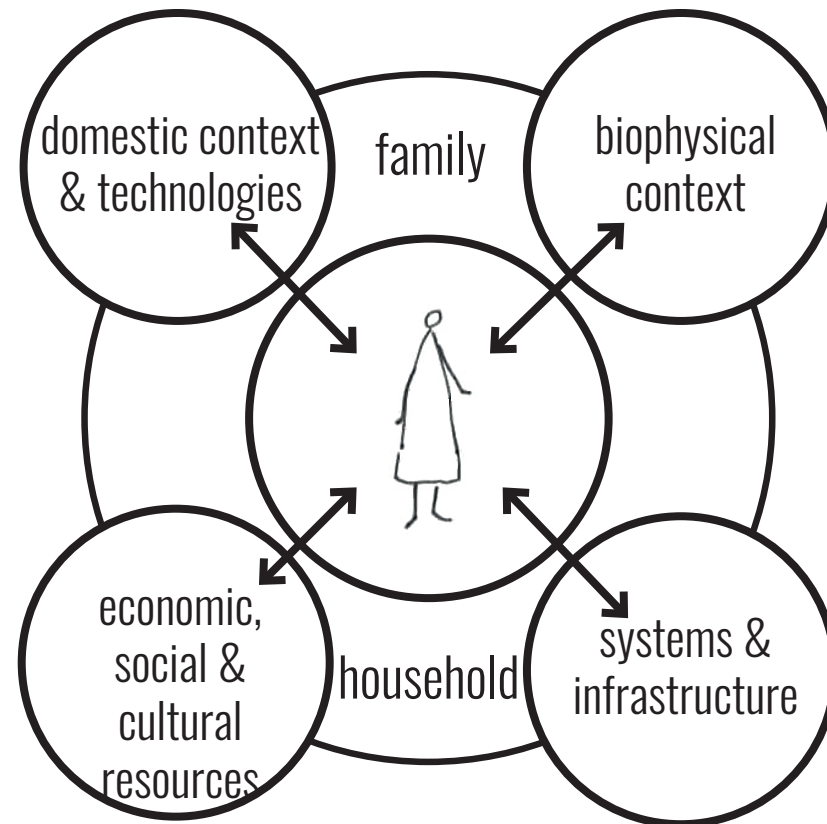
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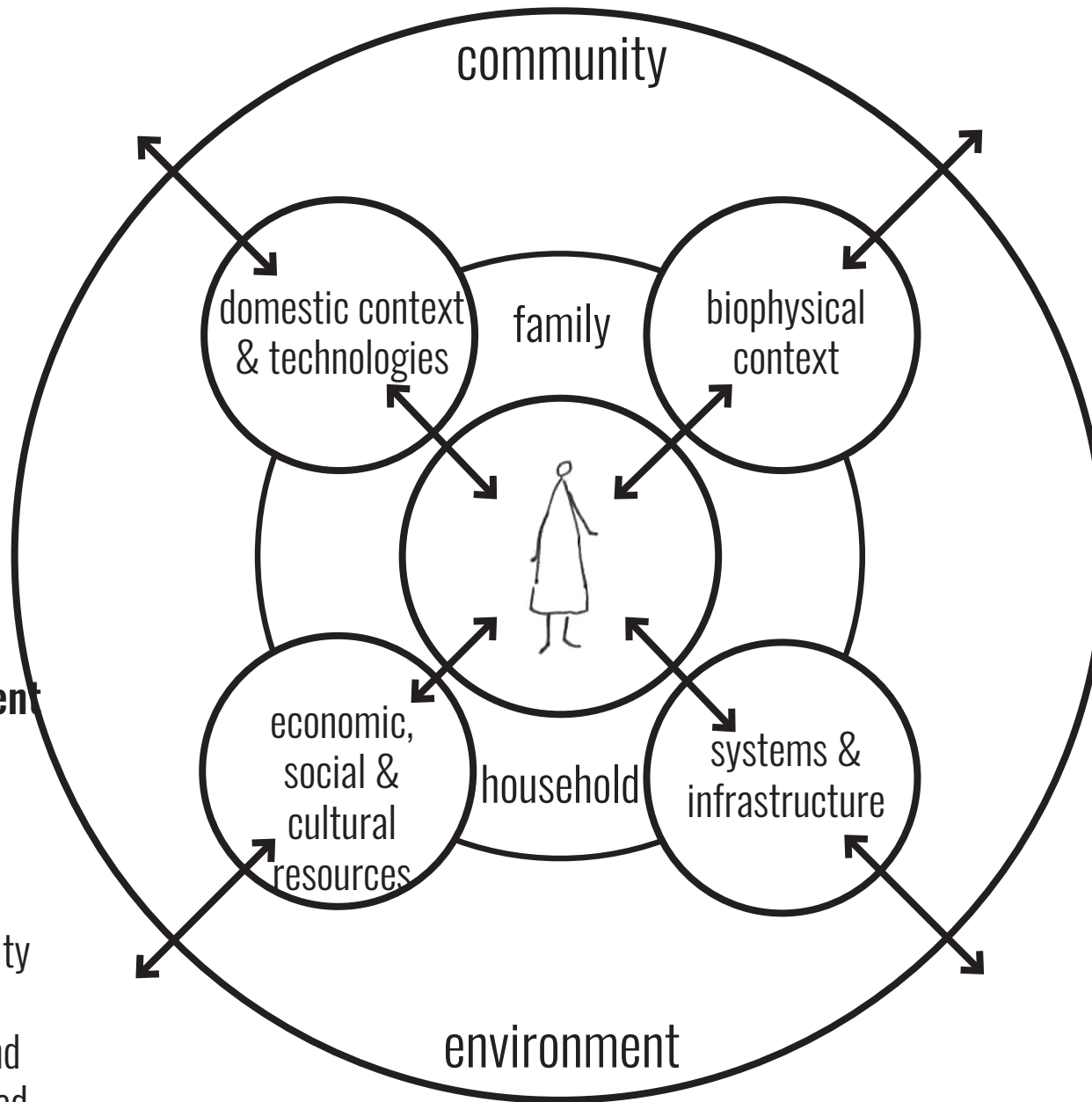
micro

Micro
Individual & Household

The **materials, meaning and competencies (knowledge)** that underpin the daily processes for water access and use are **shaped by intersecting biophysical, infrastructure, technical and socio-cultural dimensions.**

domestic context & technologies

family

biophysical context

economic, social & cultural resources

household

systems & infrastructure

Meso
Community Scale

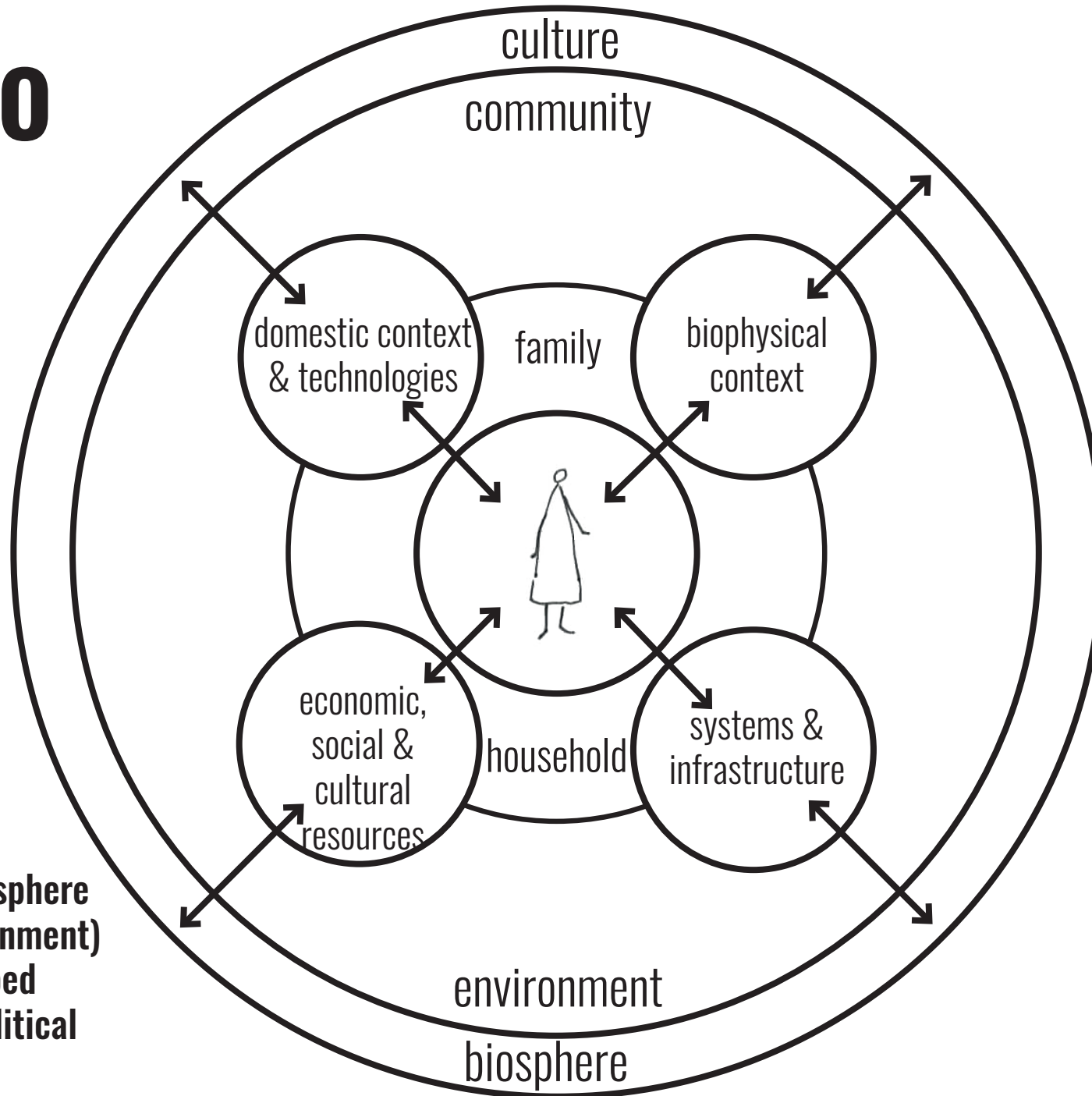Intersection of **community (socio-cultural process of place)** with **environment (natural and built form).**

Processes shaping the individual play out at the community scale. Knowledge, meaning and materials are experienced, access and re-perpetuated.

community

domestic context & technologies

family

biophysical context

economic, social & cultural resources

household

systems & infrastructure

environment

Macro
Context

Intersection of **biosphere (people in environment)** and **culture (shaped by Social and Political dynamics)**

culture

community

domestic context & technologies

family

biophysical context

economic, social & cultural resources

household

systems & infrastructure

environment

biosphere

culture

community

liveability

domestic context
& technologies

family

biophysical
context

sustainability

meanings   materials

resilience

competencies

economic,
social &
cultural
resources

household

systems &
infrastructure

equity

environment

biosphere

What is the value of the framework?

Useful policy tool for developing more contextually sensitive water resource management responses.

What are the next steps?

Partnering with communities to pilot and test the efficacy of the framework.

For the framework to work effectively **more robust data collection is needed to determine the specific contextual needs and resources** (physical, social, natural, cultural or financial) that can be used to provide safe access to water.

Thank you!