Op weg naar een veerkrachtige water-nutriënten-koolstof dynamiek op Nederlandse hoge zandgronden

Cécile Alsbach | c.m.e.Alsbach@uu.nl

Stefan Dekker (UU)
Stefanie Lutz (UU)
Joachim Rozemeijer (Deltares)

Universiteit Utrecht

Deltares

RESHAPE

Achtergrond

BSc Bèta-Gamma

Specialisatie aardwetenschappen

MSc Earth Sciences

Bodemchemie

Interacties bodem, water en ecosysteem

PhD Environmental Sciences

RESHAPE

Work project 1

Water-nutriënten-koolstof dynamiek op de Nederlandse hoge zandgronden onder toekomstig klimaat

Onderzoeken hoe we Nederlandse zandlandschappen dynamischer kunnen maken, ter behoud van de waterkwaliteit nu, en in de toekomst.

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Onderzoeksrichting

Begrijpen wat het effect is van de mens en klimaat, inventariseren van mogelijke maatregelen

Meten aan maatregelen

- Maatregelen langs de waterkant
- Perceelsmaatregelen

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Uw input

Waarin bent u geïnteresseerd?

Heeft u lopende projecten ter verbetering van de waterkwaliteit?

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nature-inspired water-system solutions

WORK PACKAGE -3

WATER AND SOIL BASED SPATIAL PLANNING AND DESIGN FOR RESILIENT DUTCH SAND LANDSCAPES

Ir. Tapasya Mukkamala,

Landscape architecture and Spatial Planning Group
& Soil Geography and Landscape Group,

Wageningen University & Research

email: tapasya.mukkamala@wur.nl

WAGENINGEN
UNIVERSITY & RESEARCH

NWO

Economic perspective

Zsóka Halászová

3.6.2024

Background

Since 2024 - PhD Candidate, Vrije Universiteit Amsterdam

2021 – 2023 Msc. Environmental Sciences, Wageningen University

2018 – 2021 Bsc. Environmental Sciences, Wageningen University

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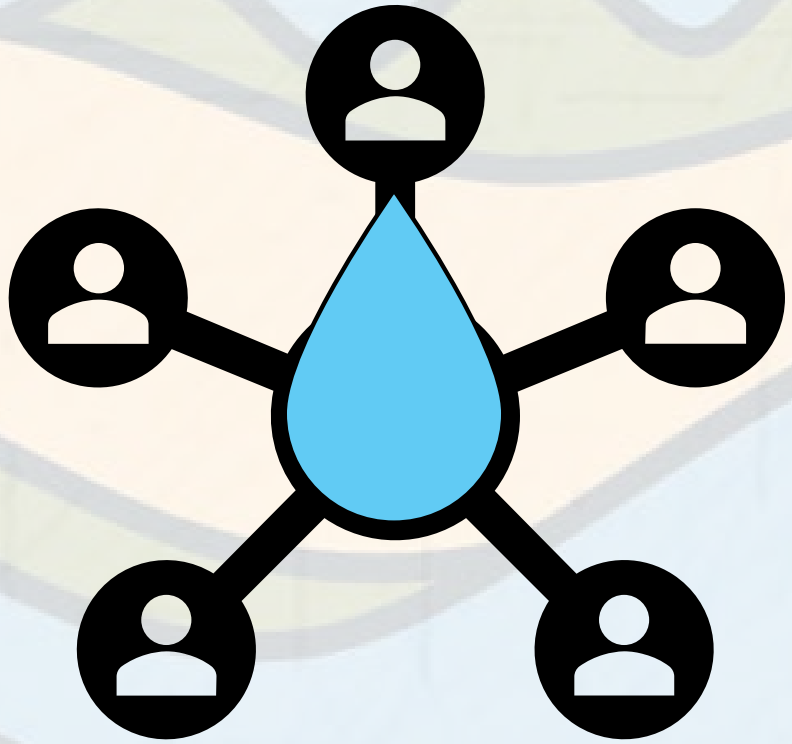
Water from an economic perspective

- Competition in scarcity
- Limiting is difficult

- Essential

- Can switch between sources



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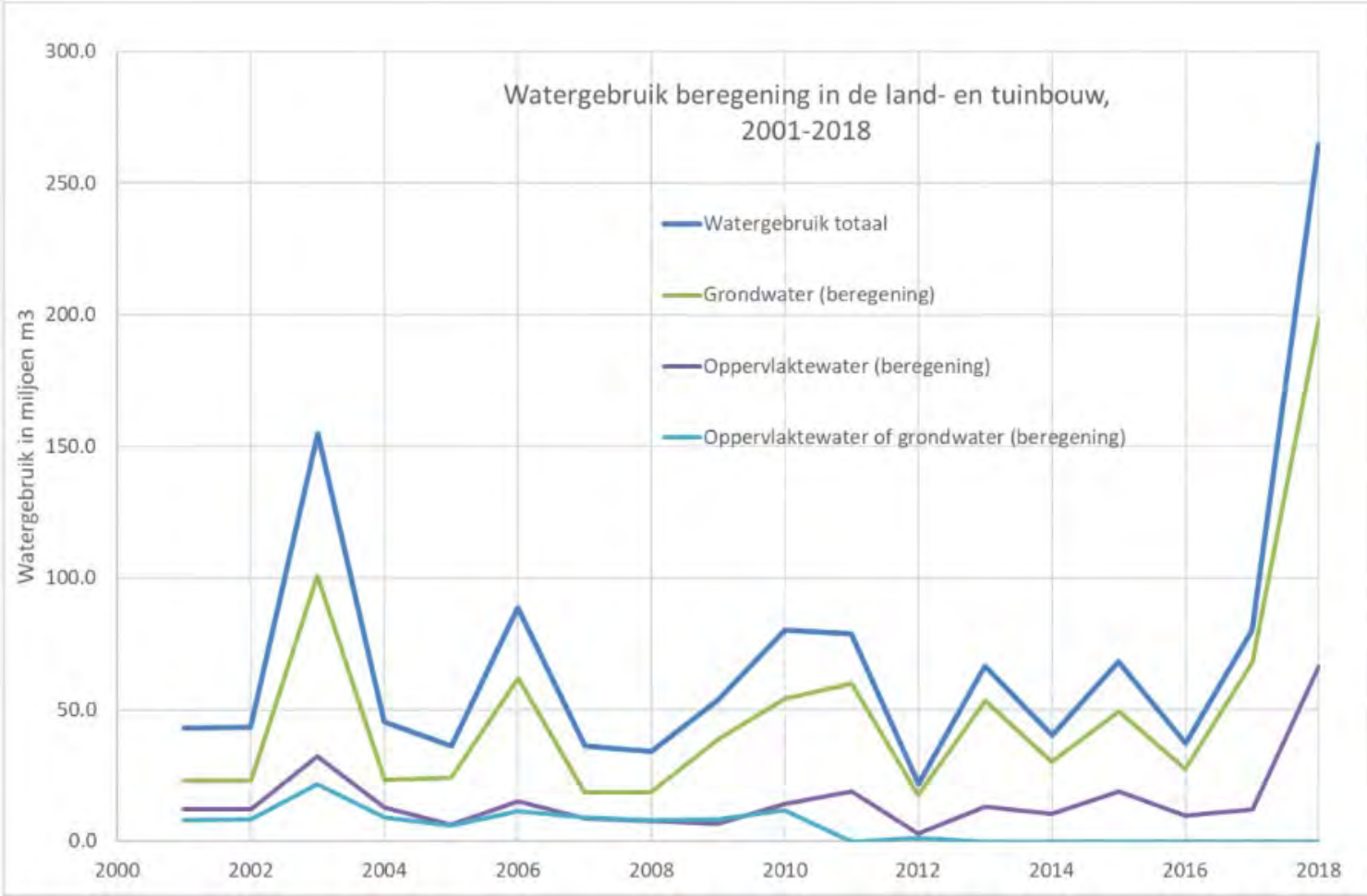
Pressure on groundwater sources



- Pressure on groundwater sources

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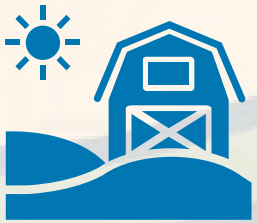
Technology not enough?

Need to justify costs by higher yields

Technological irrigation efficiency



Less water

More water

Greater demand by plants

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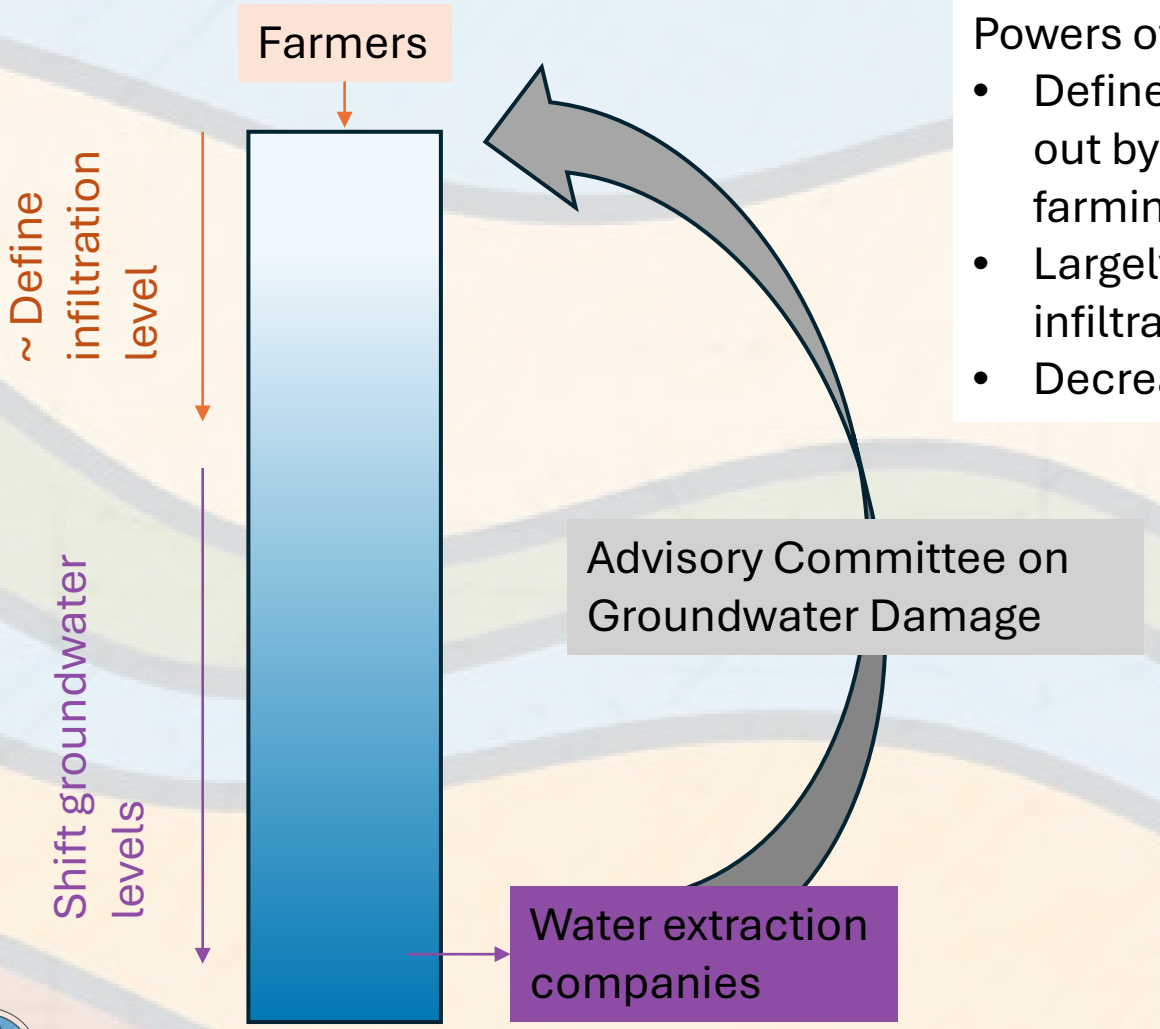
Room for cooperation?



Powers of farmers:

- Define the upper level of the damages that need to be paid out by water extraction companies (by the choice of crop and farming practices)
- Largely define the size of the common pool source by the infiltration capacity of their land
- Decrease the common pool source by extraction

Powers of water extraction companies:

- Priority to decrease the common pool source by extraction

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See you at the posters!

Contact:

z.halaszova@vu.nl

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Ir. TAPASYA MUKKAMALA

PhD Researcher, Wageningen University and Research (WUR)

WORK PACKAGE 3

Advisory group: Dr. Martha Bakker, Dr. Ilse Voskamp, Dr. Jasper Candel & Dr. Jakob Wallinga

WORK EXPERIENCE

LANDSCAPE DESIGNER - OKRA Landschaparchitecten.B.V, UTRECHT, NL

LANDSCAPE DESIGNER - Stijlgroep Landschaparchitecten.B.V, ROTTERDAM, NL

ASSOCIATE URBAN DESIGN - JANA Urban Space India, BENGALURU, IND

EDUCATION

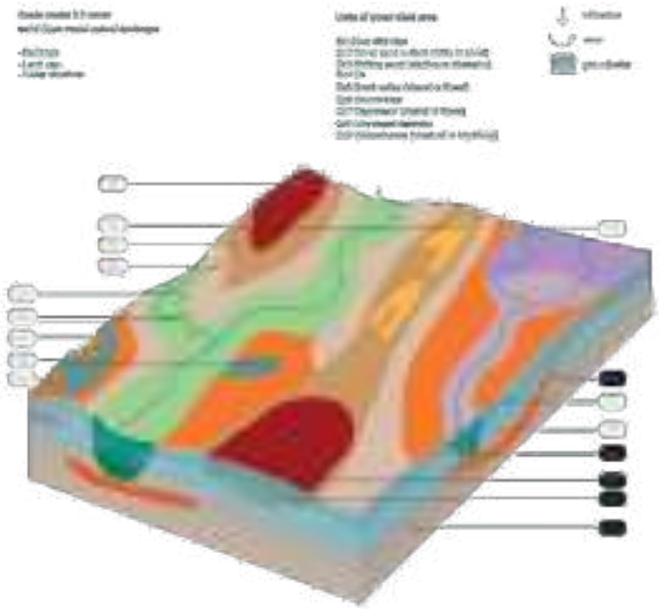
MSC. LANDSCAPE ARCHITECTURE - Faculty of Architecture and the Built Environment, Delft University of Technology, NL

Annotation: Infrastructure and Environmental Design

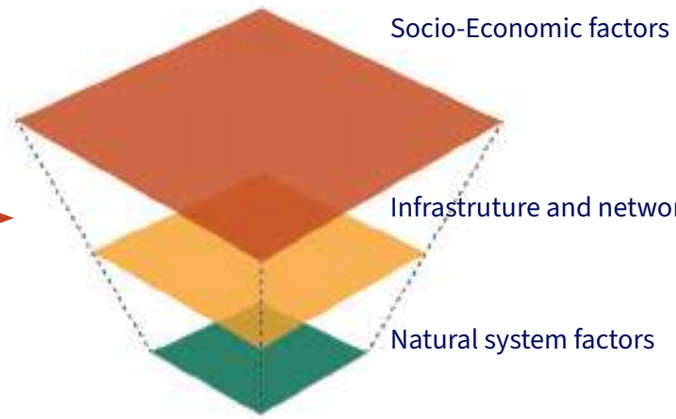
BACHELOR IN ARCHITECTURE (B.ARCH)- IND

PROBLEM IDENTIFICATION

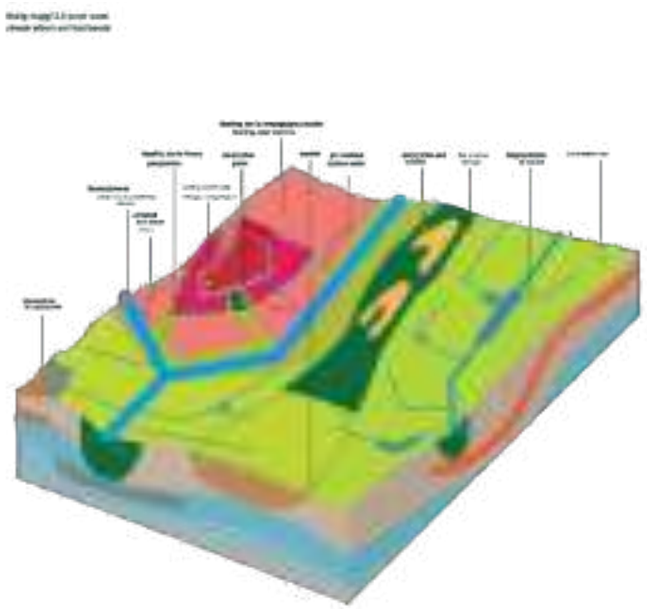
SANDY SOILS ARE HIGHLY MODIFIED LANDSCAPES



Geo-morphology of sandy landscapes.



Spatial Planning approach and technological intervention.

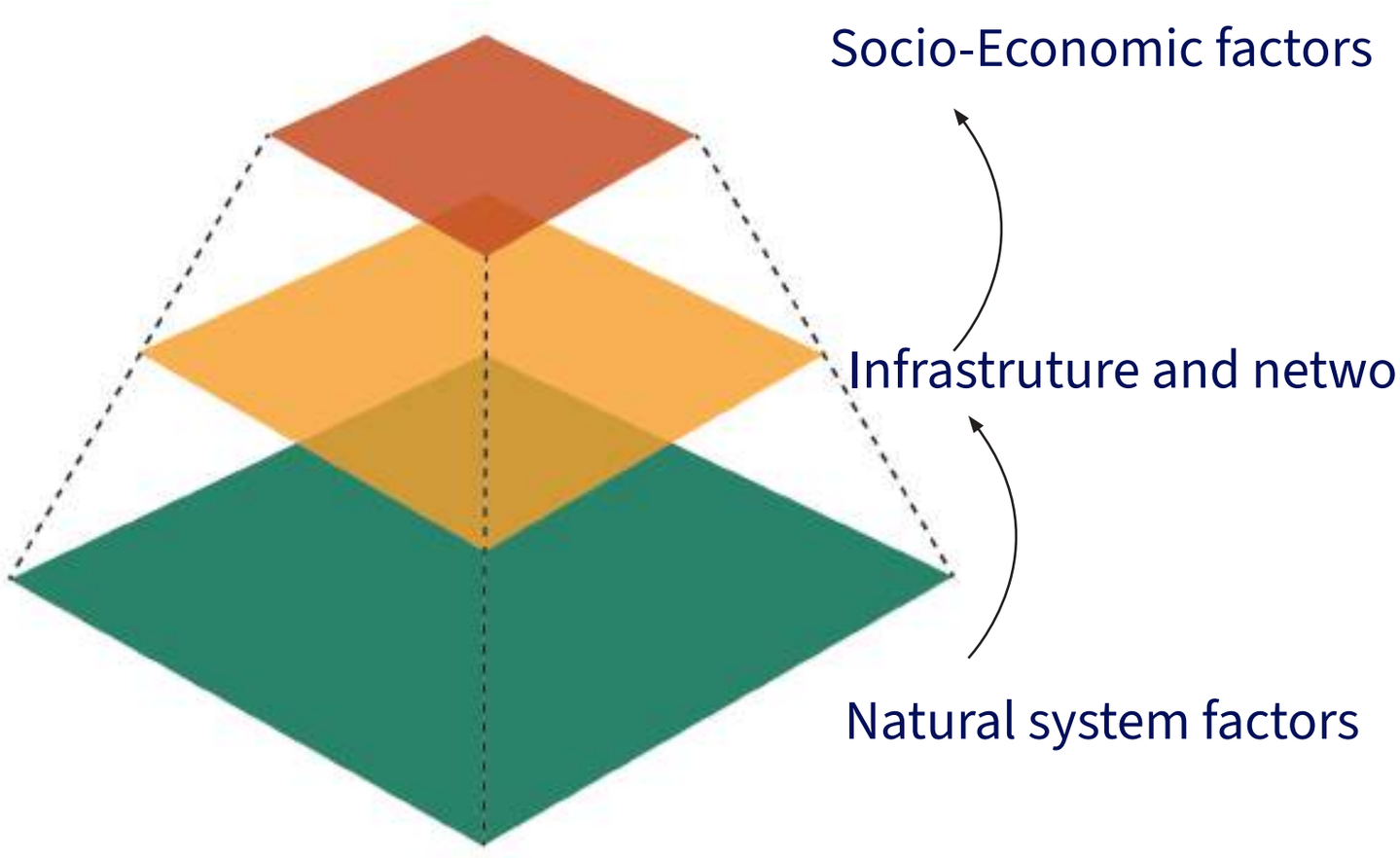


Highly modified Landscapes: Land use detached from the natural soil and water system.

Source: Gidsmodel dekzand (Maas & Grond, 2021)

OVERALL OBJECTIVE OF SPATIAL PLANNING

Soil and water leading "A self-steering landscape system for long-term resilience"



CHALLENGES AND GAPS

Delineation of socio-ecological landscape systems.

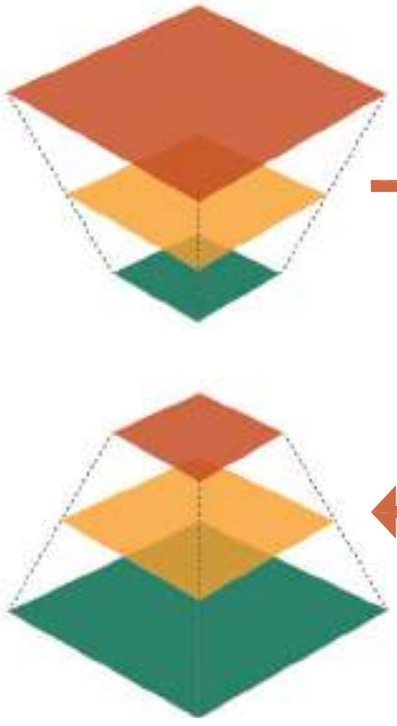
Linking functional and structural relationships of landscape to spatial design.

Translation of complex predicition emperical models to usable tools.

Knowledge on the impact of land use change beyond administrative boundary.

RESEARCH OBJECTIVE

Highly modified and managed landscapes



Self-steering Nature inspired landscapes

RO1

Identify crucial ecosystem service hotspots and cold spots at the watershed scale

RO2

Derive and quantify spatial design strategies based on the NIPs at local scale.

Operationalise water and soil guiding approach

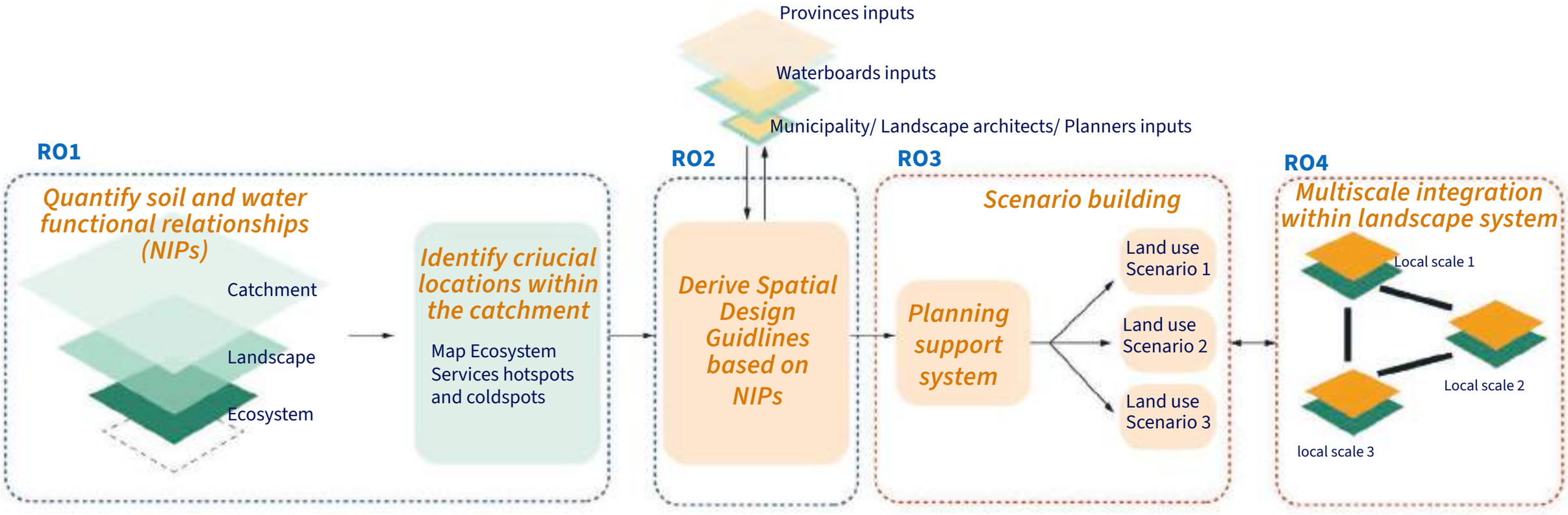
RO4

Assess opportunities and conflicts of the land use plans beyond independent project boundaries.

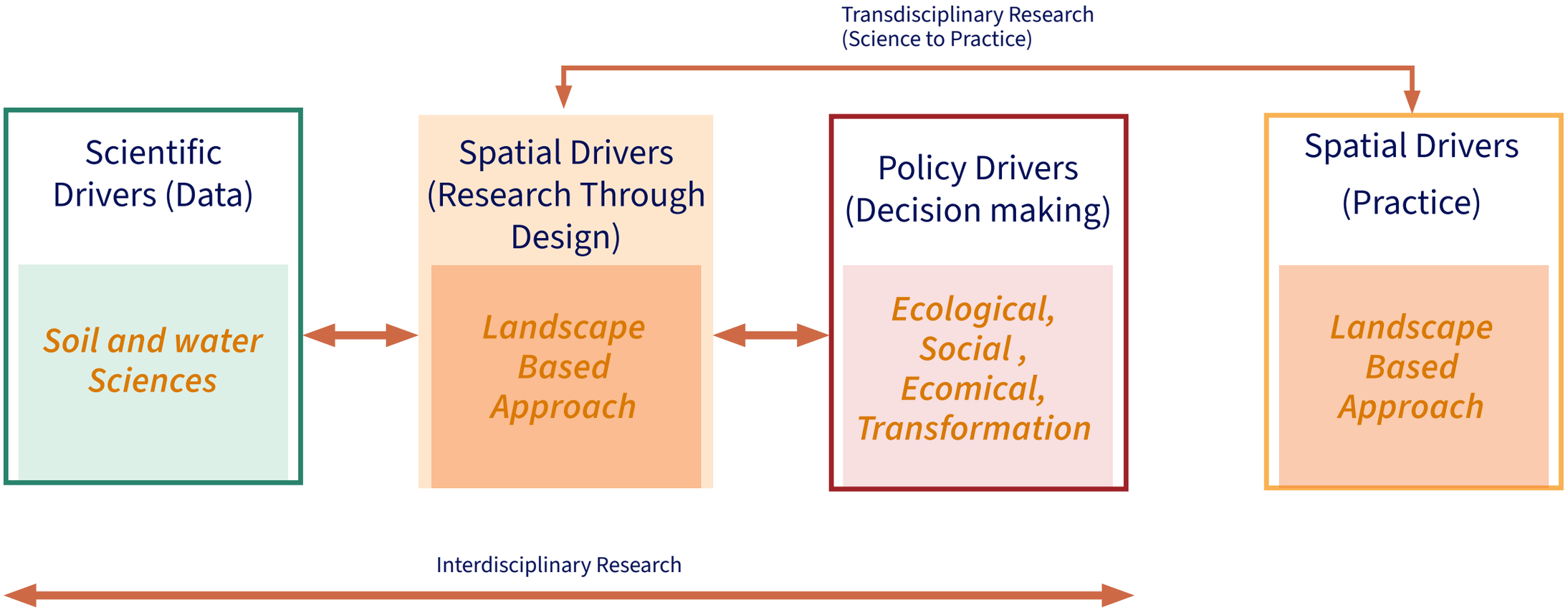
RO3

Generate of multiple “area-based” land use plans supported by quantitative evidence.

EXPECTED RESEACH OUTPUT



EXPECTED RESEARCH IMPACT



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