

Aral School, Nukus, 29 January 2026

Bioregioning as Health Care **Slides with many words**

@johnthackara

Contents

A. Why bioregioning?

A short history

Diverse approaches today

My focus: Bioregioning as Health Care

B. Food, Agriculture, Natural Farming

What agroecology needs from us

Soil, Microbes, Fermentation

Pastoralism

Fiber

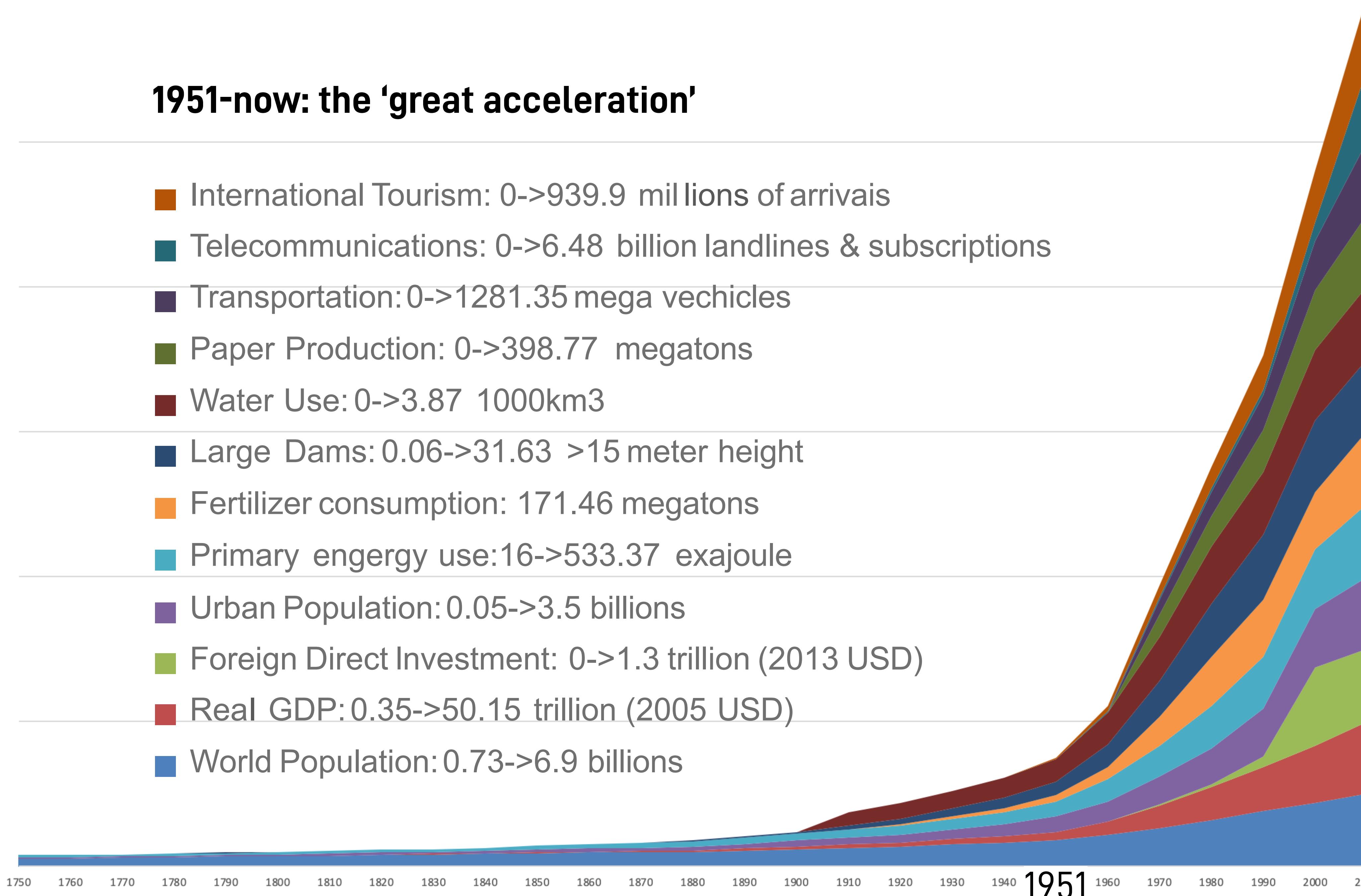
C. Watersheds and Wetlands

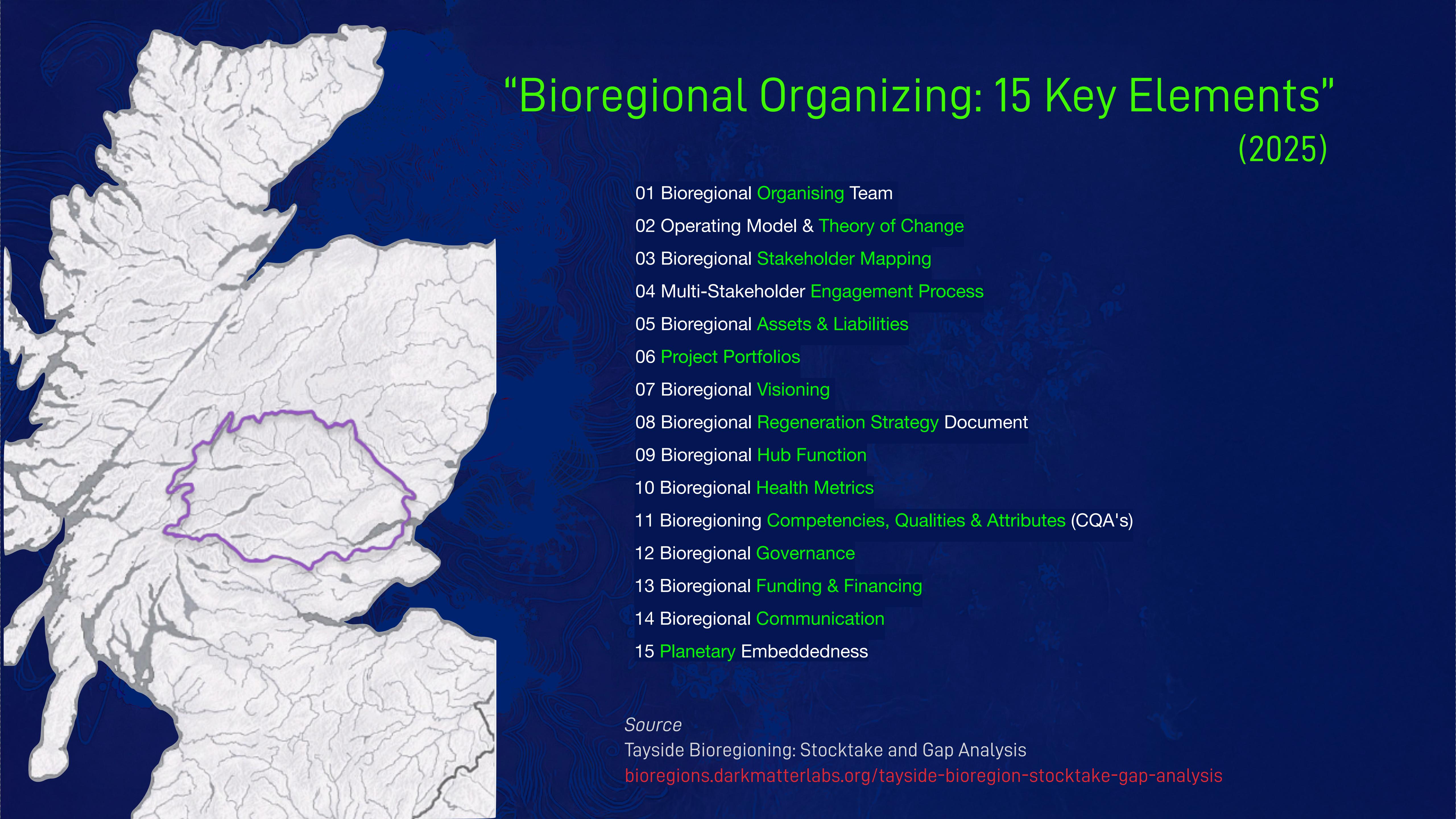
D. Bioregion as Classroom

Ecological Knowledge Systems

1951-now: the 'great acceleration'

- International Tourism: 0->939.9 millions of arrivais
- Telecommunications: 0->6.48 billion landlines & subscriptions
- Transportation: 0->1281.35 mega vechicles
- Paper Production: 0->398.77 megatons
- Water Use: 0->3.87 1000km³
- Large Dams: 0.06->31.63 >15 meter height
- Fertilizer consumption: 171.46 megatons
- Primary engergy use:16->533.37 exajoule
- Urban Population:0.05->3.5 billions
- Foreign Direct Investment: 0->1.3 trillion (2013 USD)
- Real GDP:0.35->50.15 trillion (2005 USD)
- World Population:0.73->6.9 billions





“Bioregional Organizing: 15 Key Elements”

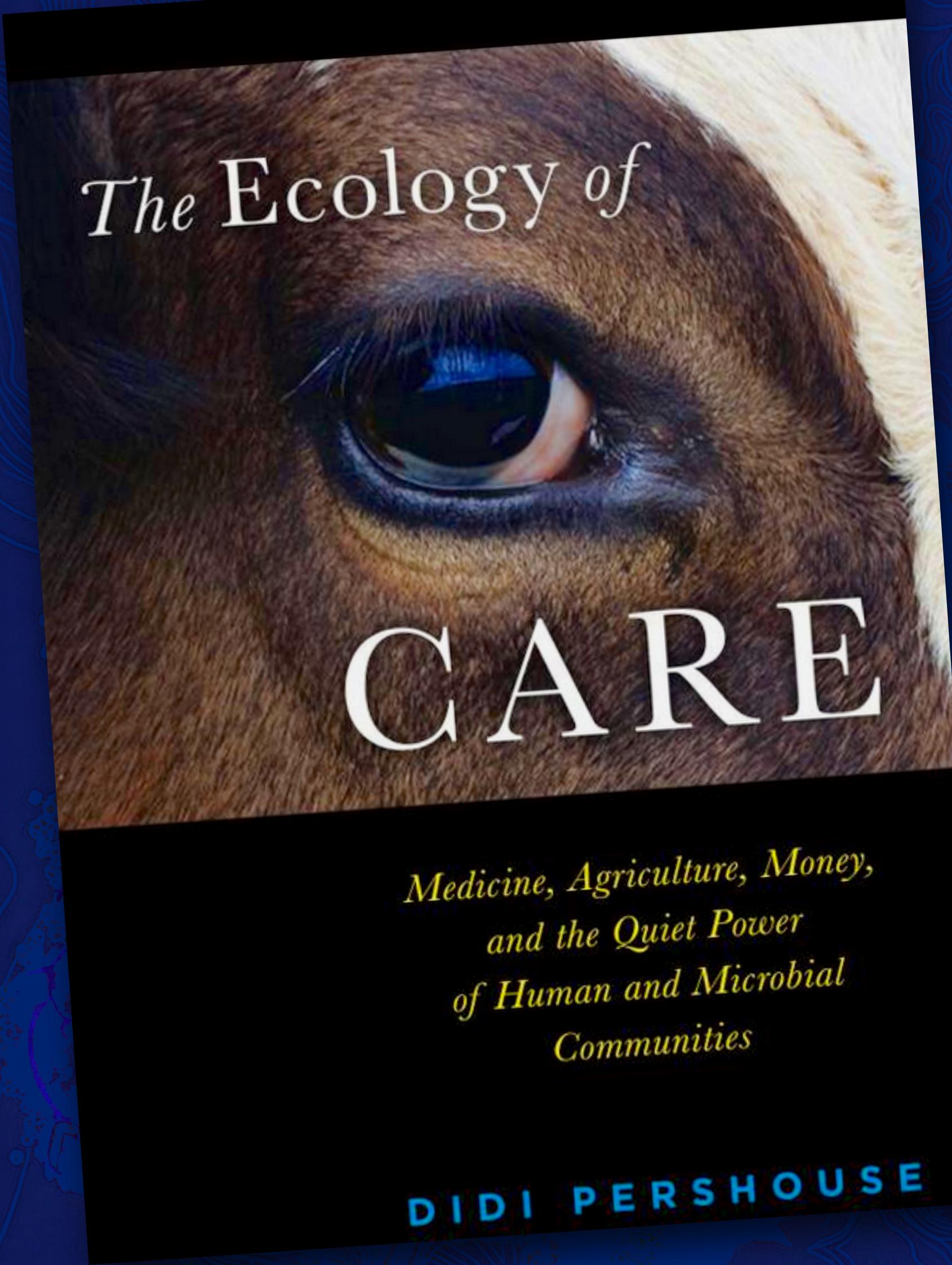
(2025)

- 01 Bioregional **Organising Team**
- 02 Operating Model & **Theory of Change**
- 03 Bioregional **Stakeholder Mapping**
- 04 Multi-Stakeholder **Engagement Process**
- 05 Bioregional **Assets & Liabilities**
- 06 **Project Portfolios**
- 07 Bioregional **Visioning**
- 08 Bioregional **Regeneration Strategy Document**
- 09 Bioregional **Hub Function**
- 10 Bioregional **Health Metrics**
- 11 Bioregioning **Competencies, Qualities & Attributes (CQA's)**
- 12 Bioregional **Governance**
- 13 Bioregional **Funding & Financing**
- 14 Bioregional **Communication**
- 15 **Planetary Embeddedness**

Source

Tayside Bioregioning: Stocktake and Gap Analysis

bioregions.darkmatterlabs.org/tayside-bioregion-stocktake-gap-analysis



'whole-of-system care is a living, ongoing, relationship between, practitioner, patient, plants, and landscape'



DR DIDI PERSHOUSE



Natural Farming (Agroecology)

1.5 billion small-scale farmers
89% of all farms
80% of world biodiversity
creates jobs, public health



- Edible Food Forests
- Alternative Trade Networks
- School-Farm Biocantines
- Social and Care Farming
- Soil Care Workshops
- Non-Timber Forest Experiences
- Farm Hack Camps
- Farmer Live Streaming
- Cooperative Grain Networks
- Fibersheds and Leathersheds
- Nature Reconnection Tourism
- Ecological Restoration Camps
- Wetland Watershed and River Restoration
- Bioregional Learning Centres
- Storying Of Place
- Ecomuseums and Forest Schools
- Coders in the Countryside
- Ecomuseums and Forest Schools
- Folk High Schools

Who Came? -----



October 18-21, 2023



L'Atelier Paysan
France

A cooperative of 800 peasants
collaboratively building farm tools
that create autonomy



Tzoumakers
Greece

A makerspace to collaboratively
build tools for small-scale farming



Serikat Petani Indonesia
Indonesia

A union of 2 million peasants
including an agroecological
research program



Prolinnova
Global

A global network that promotes
participatory innovation in
ecologically oriented agriculture
and natural resource management



Toekomstboeren
Netherlands

A network of farmers sharing
knowledge and advocating for
farmers' needs



La CAPÉ
Quebec

A cooperative of 150 small farmers
and 25,000 customers with an
autoconstruction program

FARM HACK

Farm Hack
USA

A community of farmers and
technologists that build, modify,
document and share their own
tools



Kenyan Peasants League
Kenya

A social movement fighting for
peasants rights and supporting
farmers to practice agroecology



Boer Bricoleur
Belgium

A network of organic growers
building and repairing their own
farm tools

Fabriek Paysanne
Belgium

A collective that supports farmers'
technological sovereignty

OpenTEAM

OpenTEAM
USA

A community of technologists and
farmers creating a tech ecosystem
that enables farmer control of data
and knowledge sharing



GIAN
India

A nationwide incubator for
grassroots innovations and
knowledge sharing network



Farm Hack Tool library

We are a worldwide community of farmers that build and modify our own tools. This work is licensed under a Creative Commons Attribution 4.0 International License.



www.latelierpaysan.org

Atelier Paysan Tutos

The Plans et Tutorials developed by L'Atelier Paysan



Honey Bee Network Knowledge & Innovation Database (HBNKIND)

Honey Bee Network Knowledge & Innovation Database (HBNKIND) is the Honey Bee Network Knowledge and Innovation database based on farmers' creativity and sustainable practices. It is supported by Godrej Vet under their CSR program.



Honey Bee Network database

HoneyBee published articles on innovations collected in the grassroots.



WikiMaraicher

Le WikiMaraicher has been developed by La Coopérative pour l'Agriculture de Proximité Écologique. Le Wiki maraîcher a été mis sur pied afin de permettre aux acteur·rices de la communauté de pratique du maraîchage biologique au Québec et



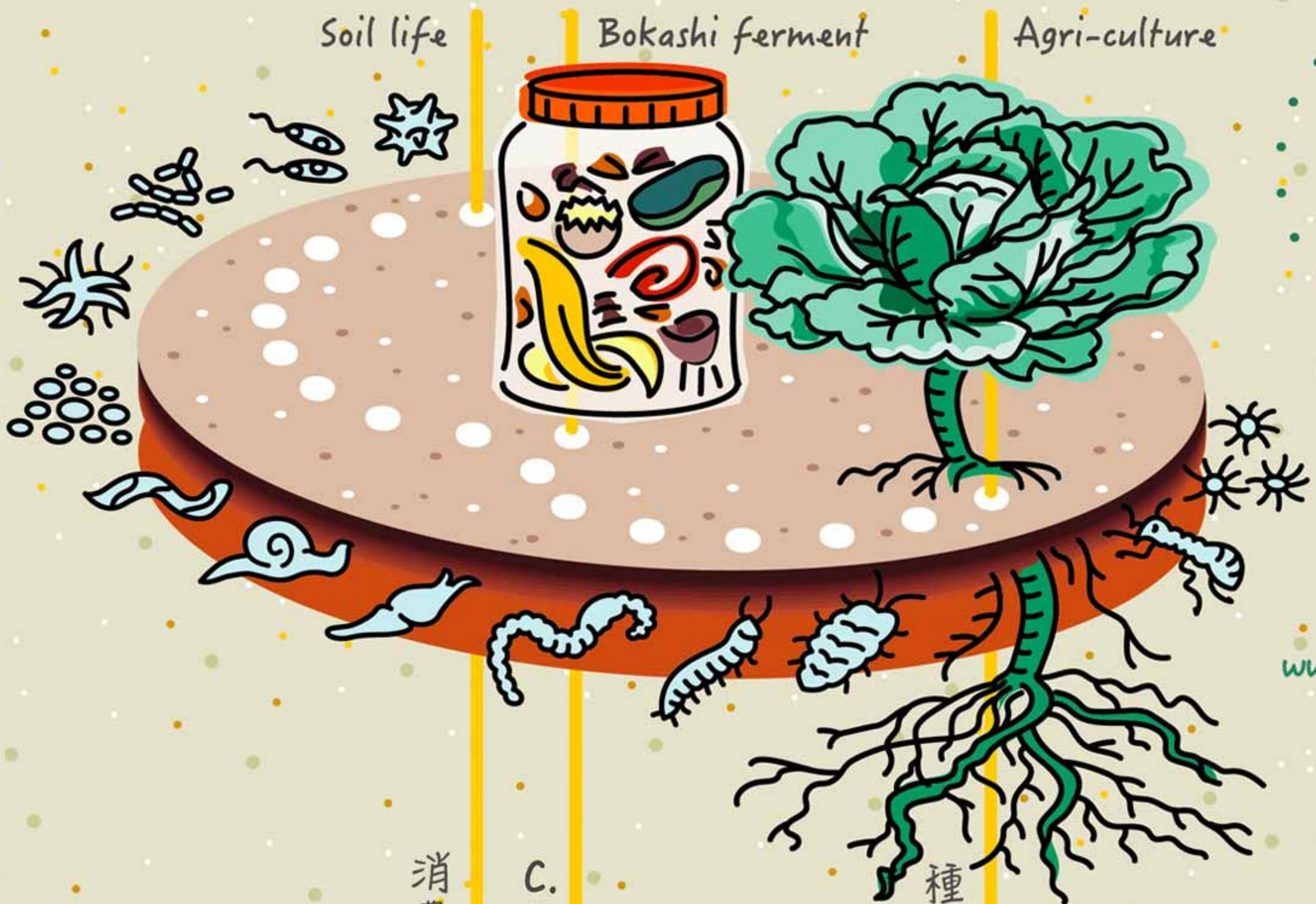
集「棄」還田 100 天

回田歸野

Grow crops, and
revitalise soils from
your foodscraps
in 100 days!

www.facebook.com/soiltrust.hk

The concept of fermentation
synthesized from S. Katz (2012)
and D. Zilber (2019)



回田
Belonging-to-the-Field



康苗有機農場



綠一點
Go More Green

PolyU Design

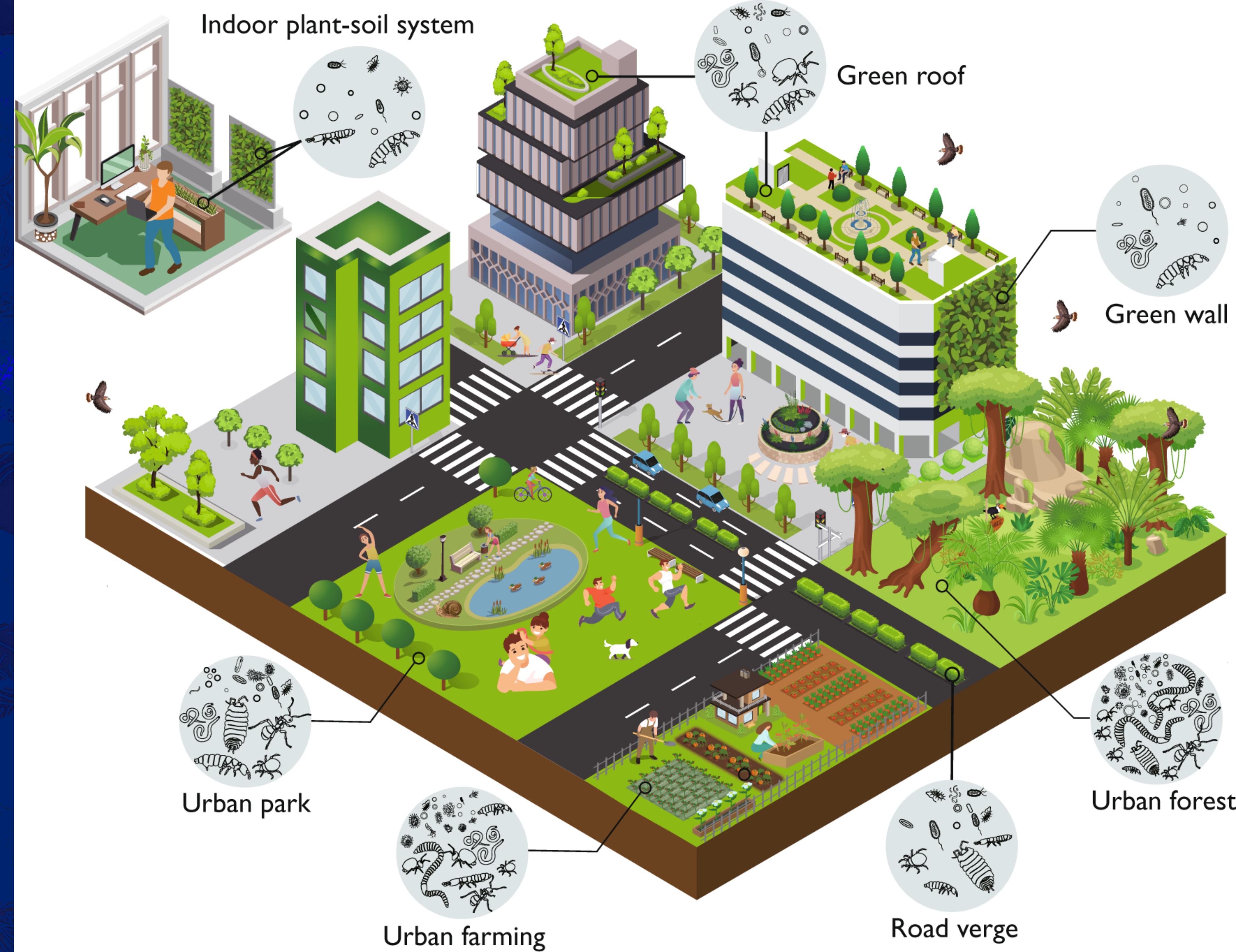
RiFood Research Institute for Future Food
未来食品研究院

DESIGNTRUST
信言设计大使
AN INITIATIVE OF THE
HONG KONG AMBASSADORS
OF DESIGN

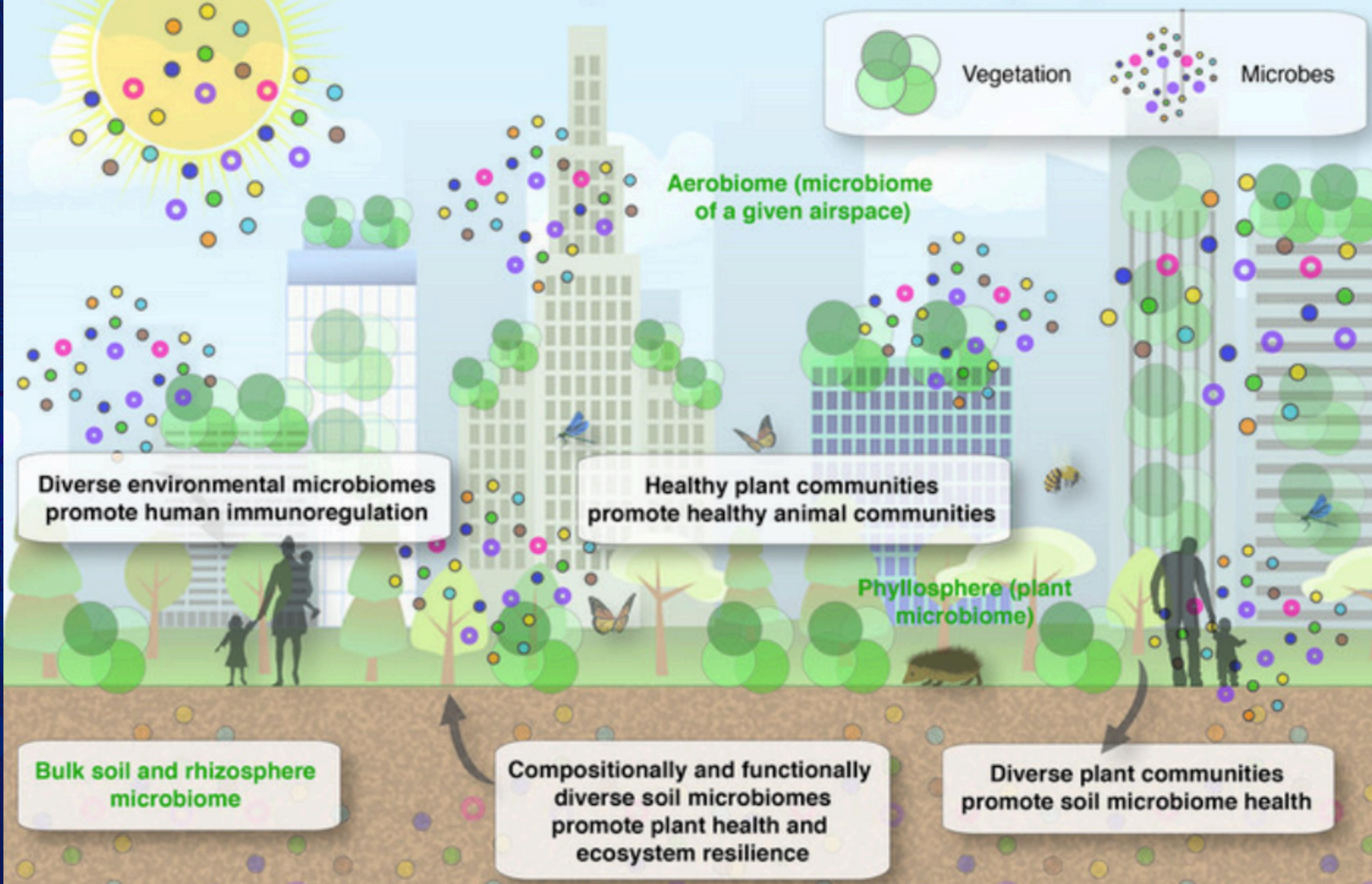


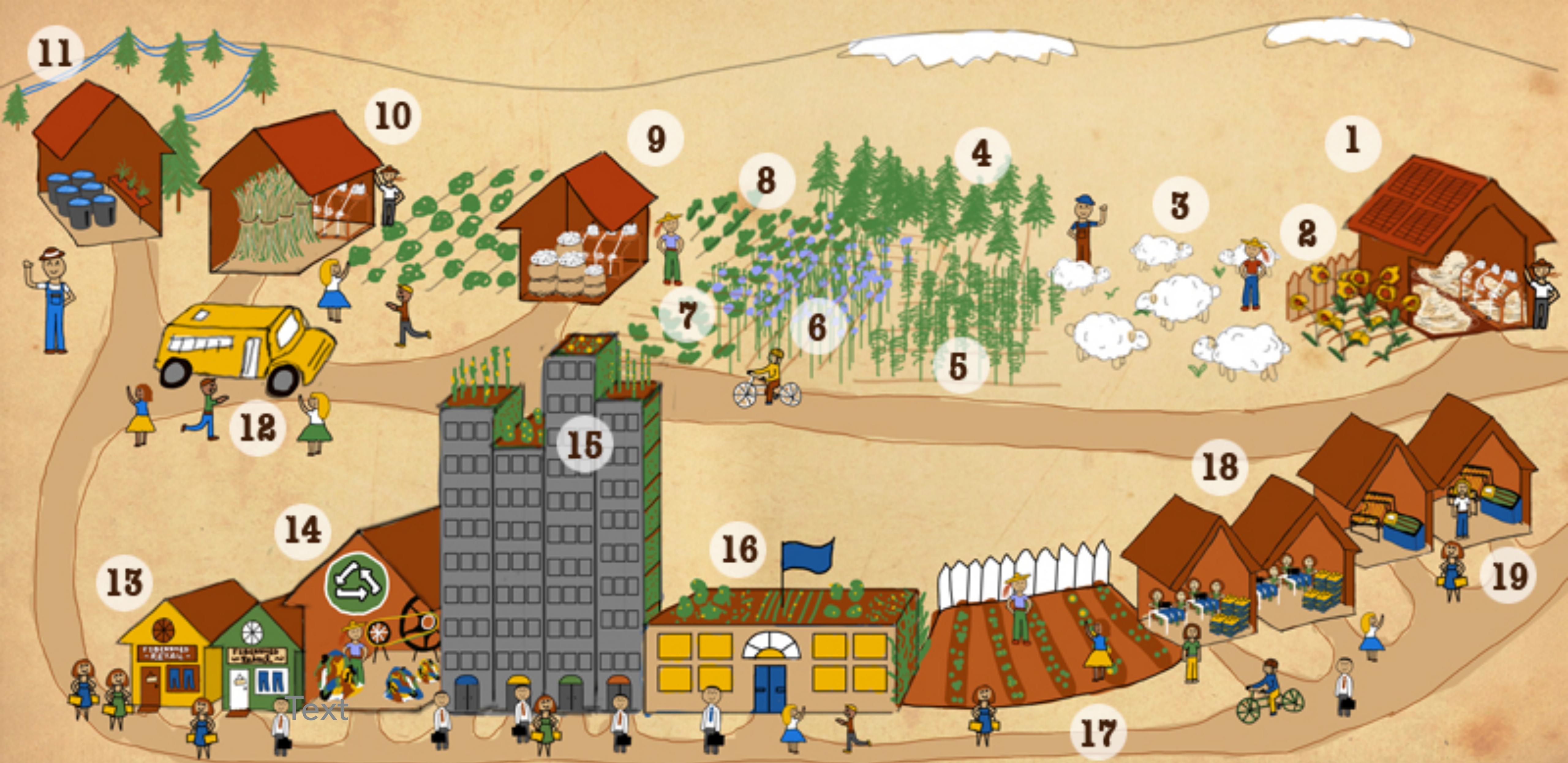
‘All living beings are members of
ecological communities bound together
in a network of interdependencies’

Frijol Capra



Microbiome-Inspired Green Infrastructure (MIGI)

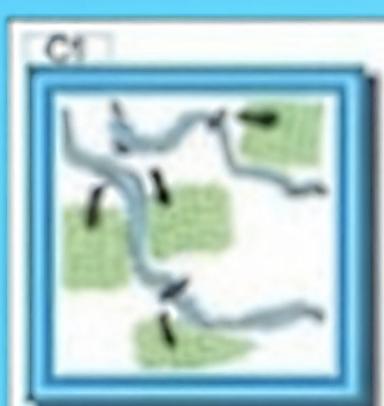




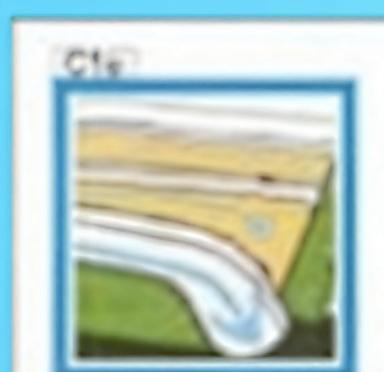
Fibershed: “a landscape that defines and gives boundaries to a natural textile resource”

Connecting
fiber farmer
knitter
weaver
designer
seamstress
felter
spinner
cotton farmer
natural dyer
mill owner
shop keeper

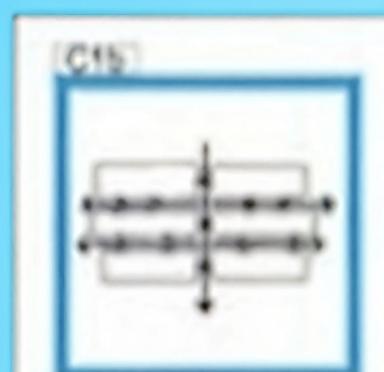




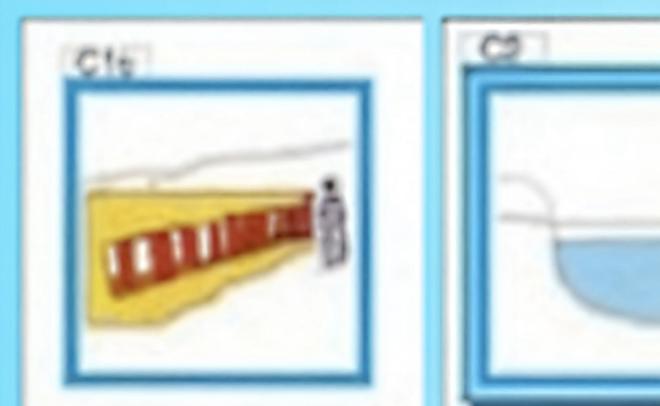
DIVERSION SYSTEMS ON A LARGE SCALE AND USE OF FLOODS



SYSTEMS OF COMMUNICATING BASINS FOR SHARING THE FLOODS



TORRENT STREETS



WIDE COMB SHARING SYSTEMS



WATER HARVESTING IN POOLS AND CISTERNS



THOLOS-CISTERNS, BELL-CISTERNS AND PIT-CISTERNS



ROOFED CISTERNS



LARGE OPEN-AIR CISTERNS



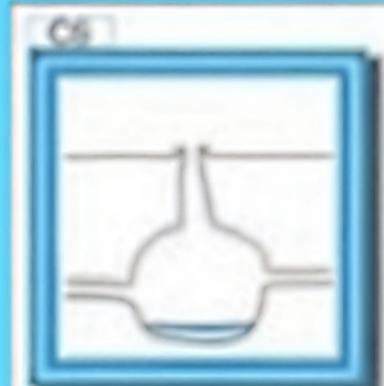
CONNECTED CISTERNS



CHANNELING AND CONCENTRATION OF RAIN ALONG THE SLOPES



CREATION OF GARDENS ON THE SIDES OF THE RIVERBED



COMBINED USE FOR CATCHMENT, DISTILLATION, AND CONDENSATION



INTEGRATED USE OF WATER CATCHMENT, HARVESTING AND DISTRIBUTION



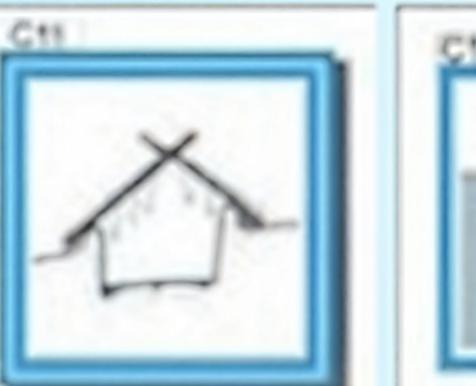
DRIPPING OF WATER AND PERCOLATION IN THE CAVE-DWELLINGS



STONE AND OTHER MATERIALS DAMS



DIKE OF WATER DIVERSION FROM PERPETUAL SNOWS (MISSE)



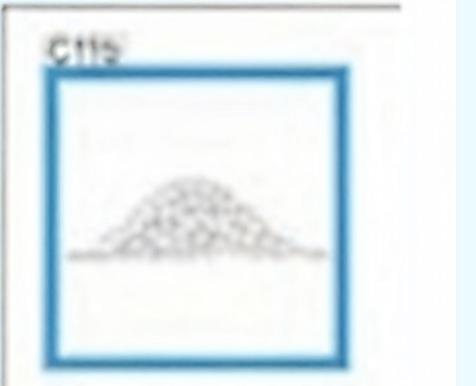
HYDROGENESIS AND HIDDEN PRECIPITATIONS



HUMIDITY CONDENSATION TECHNIQUES



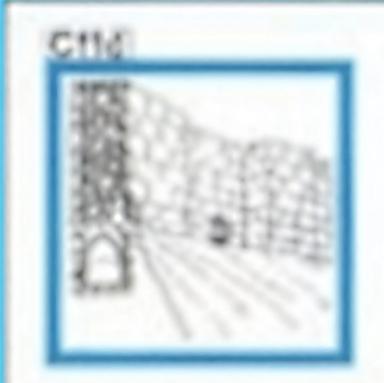
WATER STORAGE IN CISTERN-JAKS



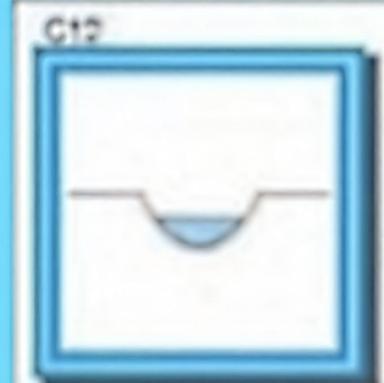
STONE BARROWS



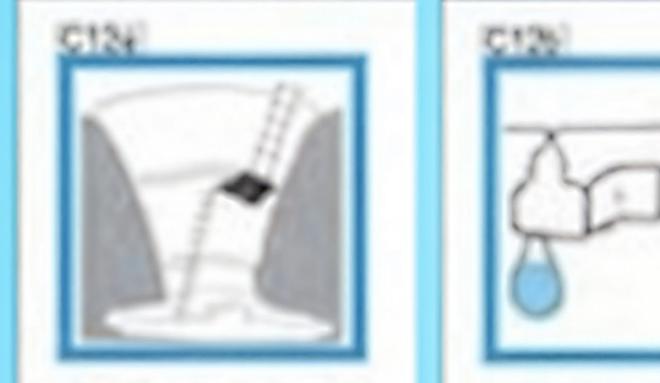
STONE ARRANGEMENT AND USE OF SURFACES FOR CATCHMENT



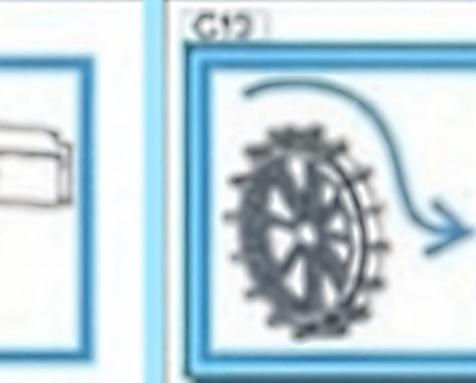
MASONRY FOR HUMIDITY CATCHMENT



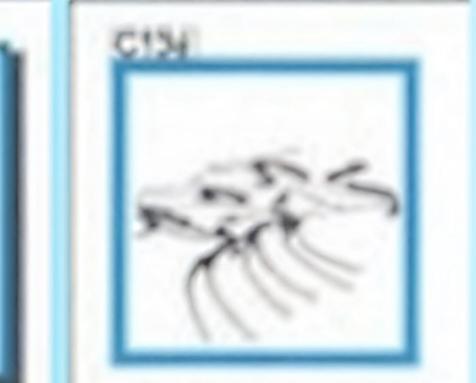
EXCAVATIONS AND DRAINAGE SYSTEMS



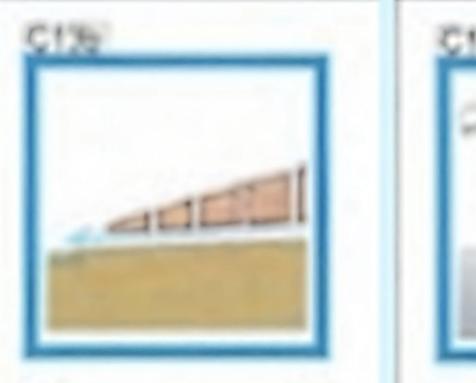
EXCAVATION AND DRAINAGE SYSTEM USED IN MINES



DIGGING CAVES TO CATCH WATER



HYDRAULIC DEVICES



SUNKEN DAMS



UNDERGROUND CATCHMENT TUNNELS



ROCKER ARMS WELLS



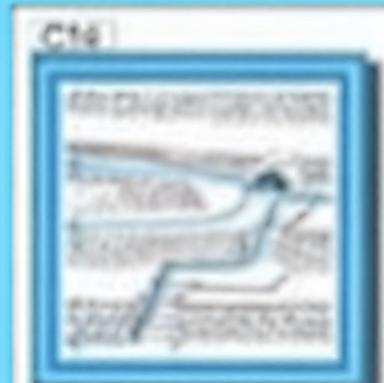
WELLS PULLED BY ANIMALS



BIG LIFTING DEVICES (NORIAS)



WATER-MILL



WATER MANAGEMENT ON TERRACED FIELDS

Artificial Oyster Reef Project, Product Service System Design

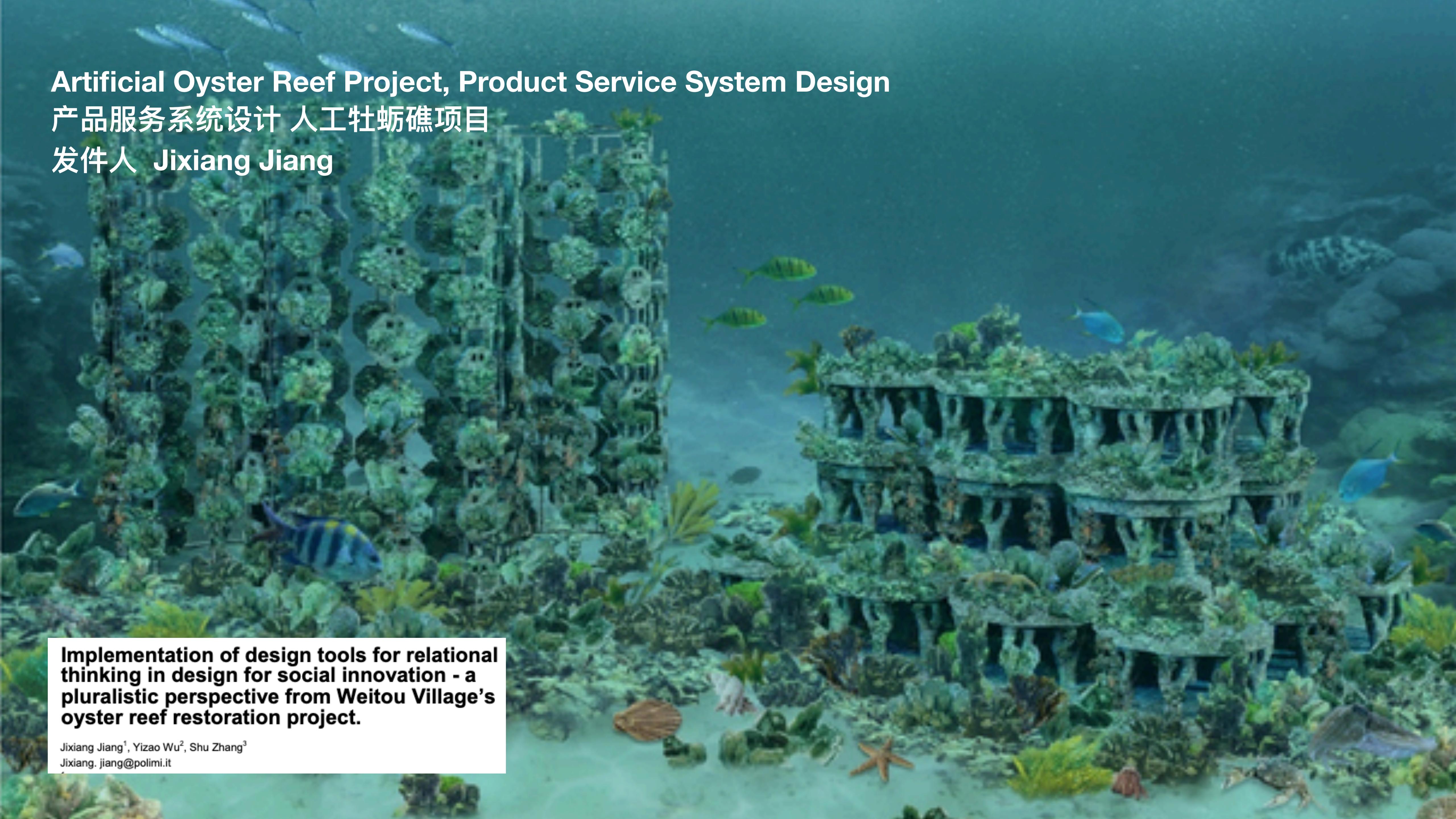
产品服务系统设计 人工牡蛎礁项目

发件人 Jixiang Jiang

Implementation of design tools for relational thinking in design for social innovation - a pluralistic perspective from Weitou Village's oyster reef restoration project.

Jixiang Jiang¹, Yizao Wu², Shu Zhang³

Jixiang.jiang@polimi.it



Oyster Reef Restoration

Social:

practical, local, participatory

Ecological

reef ecology & human ecology

Cultural:

Five Elements

local religious beliefs

Physical:

3D printing of reef modules

recycled oyster shells

temples & public spaces

Economic

services, experiences, jobs

Concept Storyboard

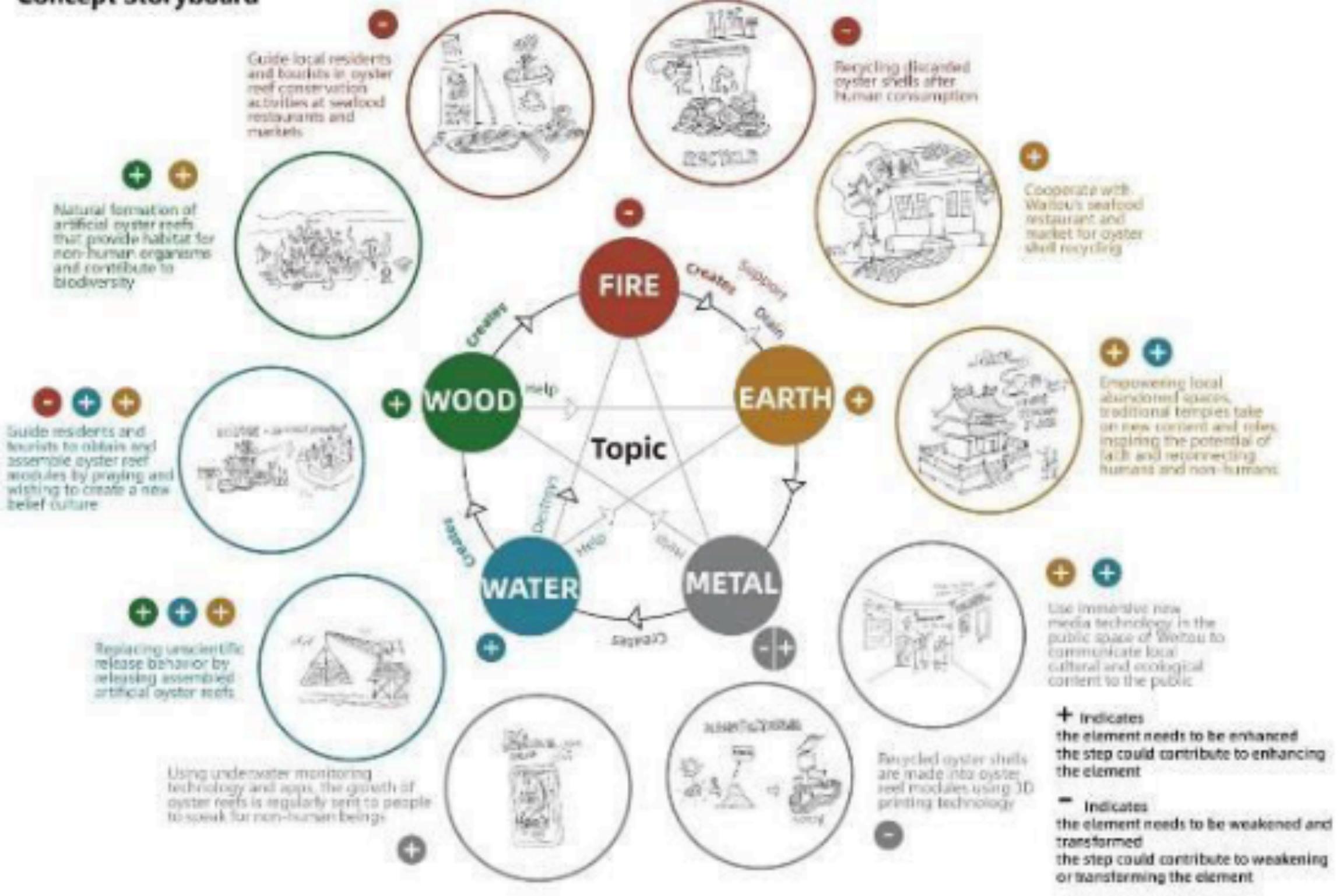


Figure 17. Weitou Village Five Elements Design Intervention Draft

Five Elements: humans and nature as one system

五行 将人类和自然统一在一个系统中



The work of a village host is *connective*.
It enables stakeholders to work together in diverse ways.

storying of place

explore and map resources (projects, places, individuals)

showcase projects (to each other, to citizens, to business)

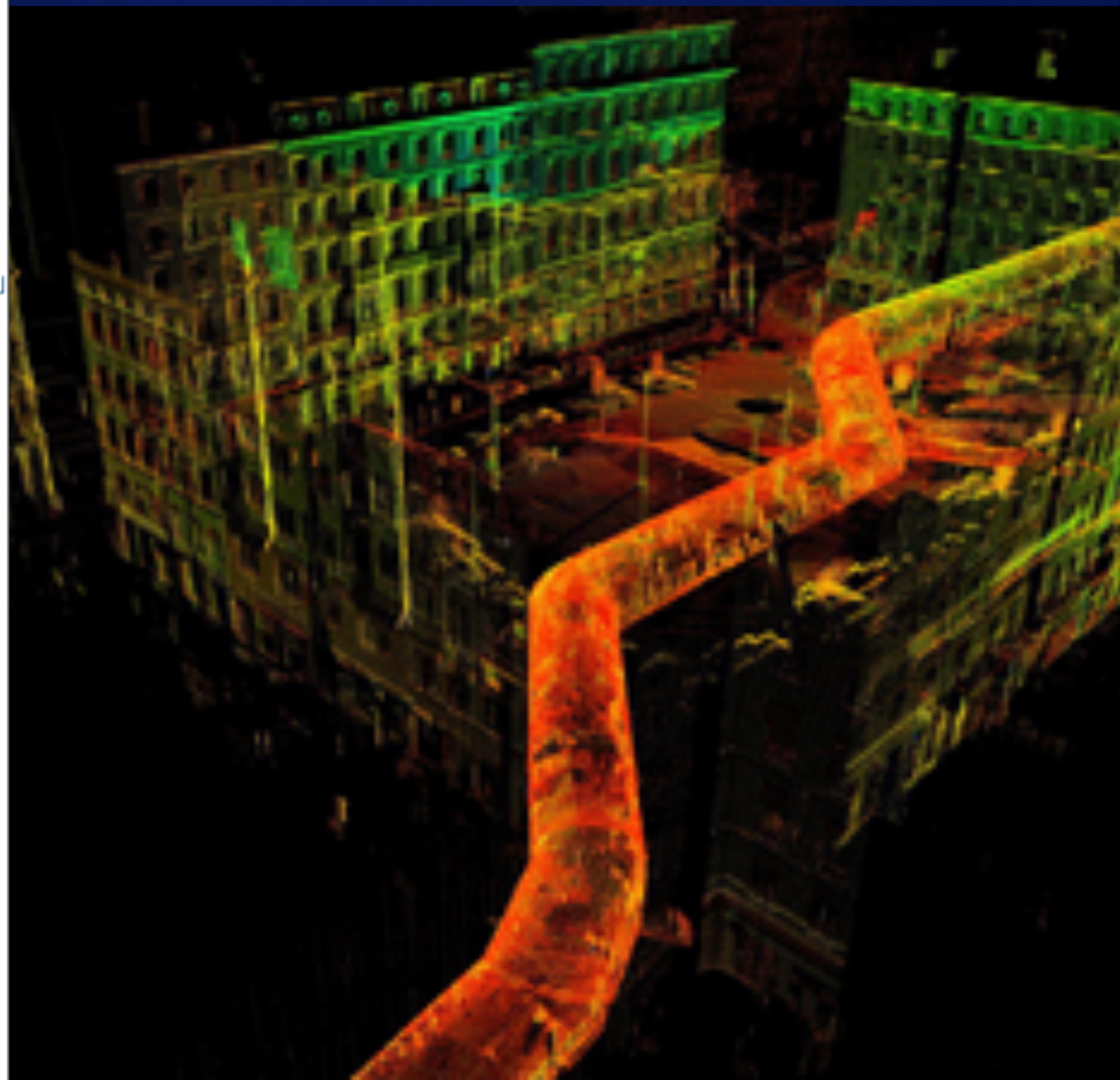
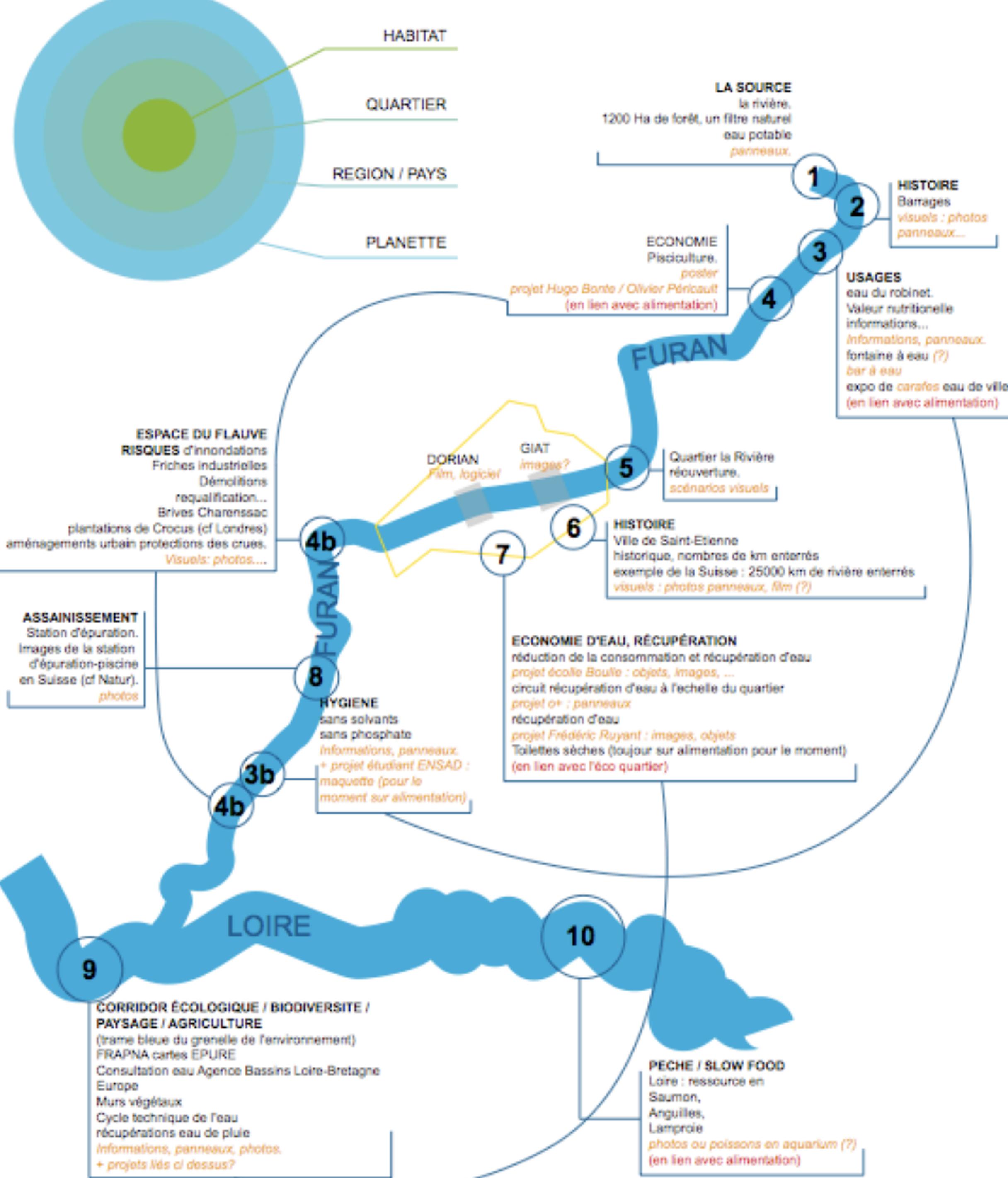
curate activities and outcomes

make and test service prototypes

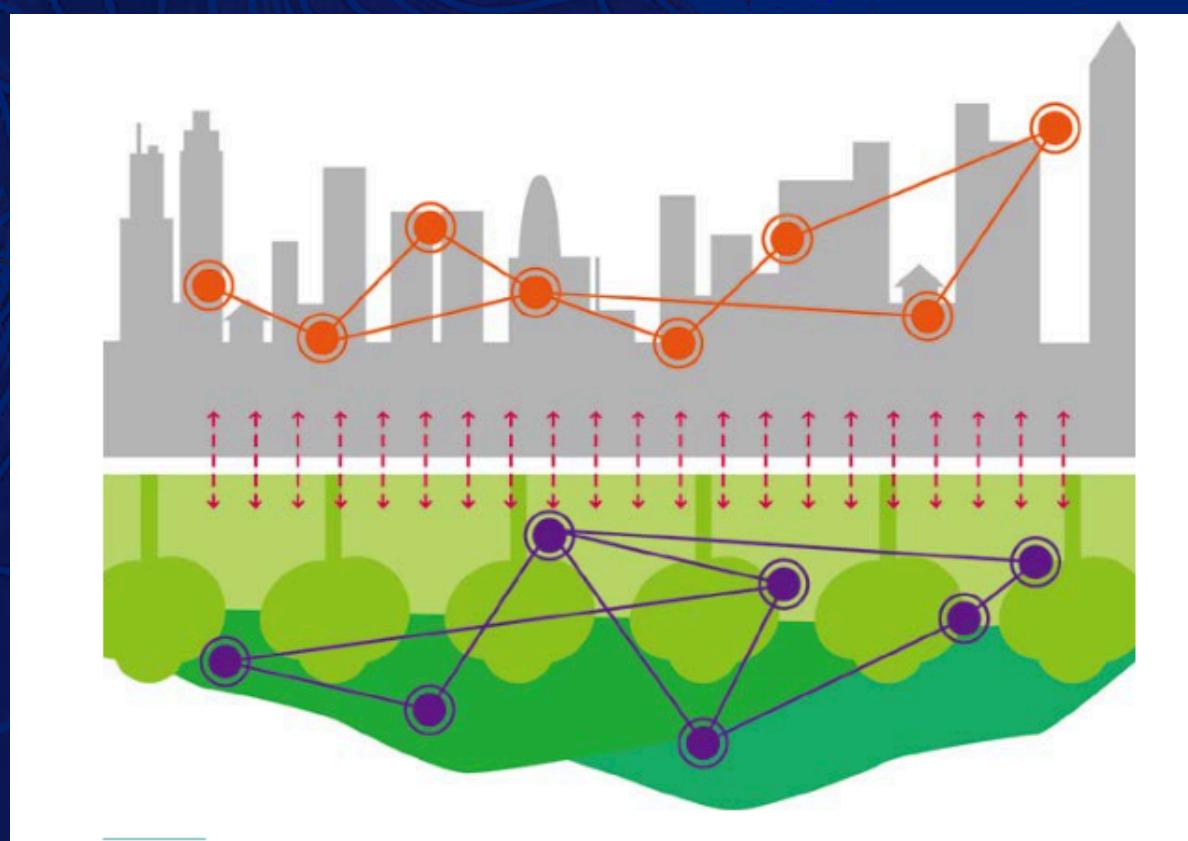
test new business models

establish a learning and cooperation platform (hub, lab)

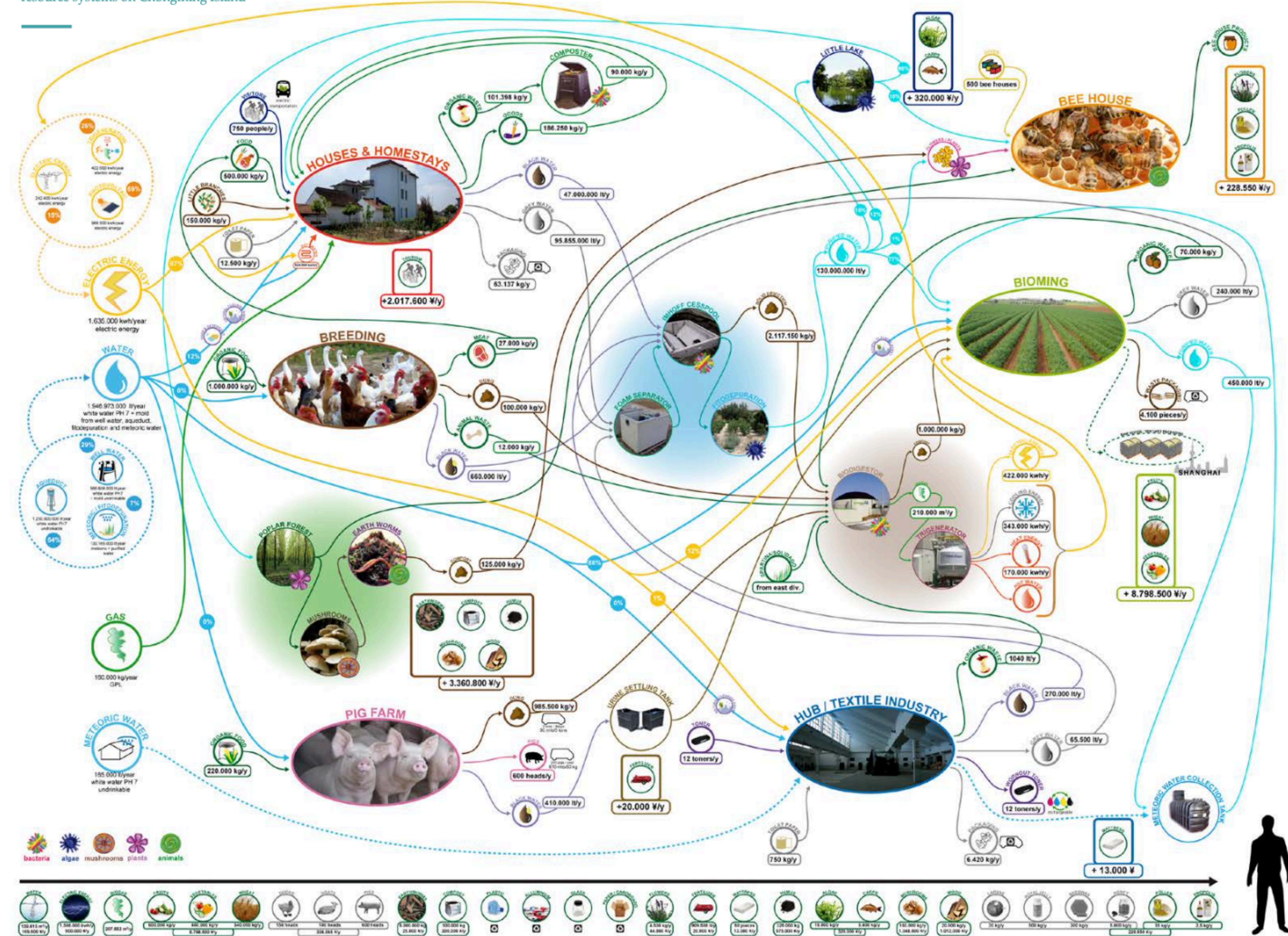
Explore potential for river restoration

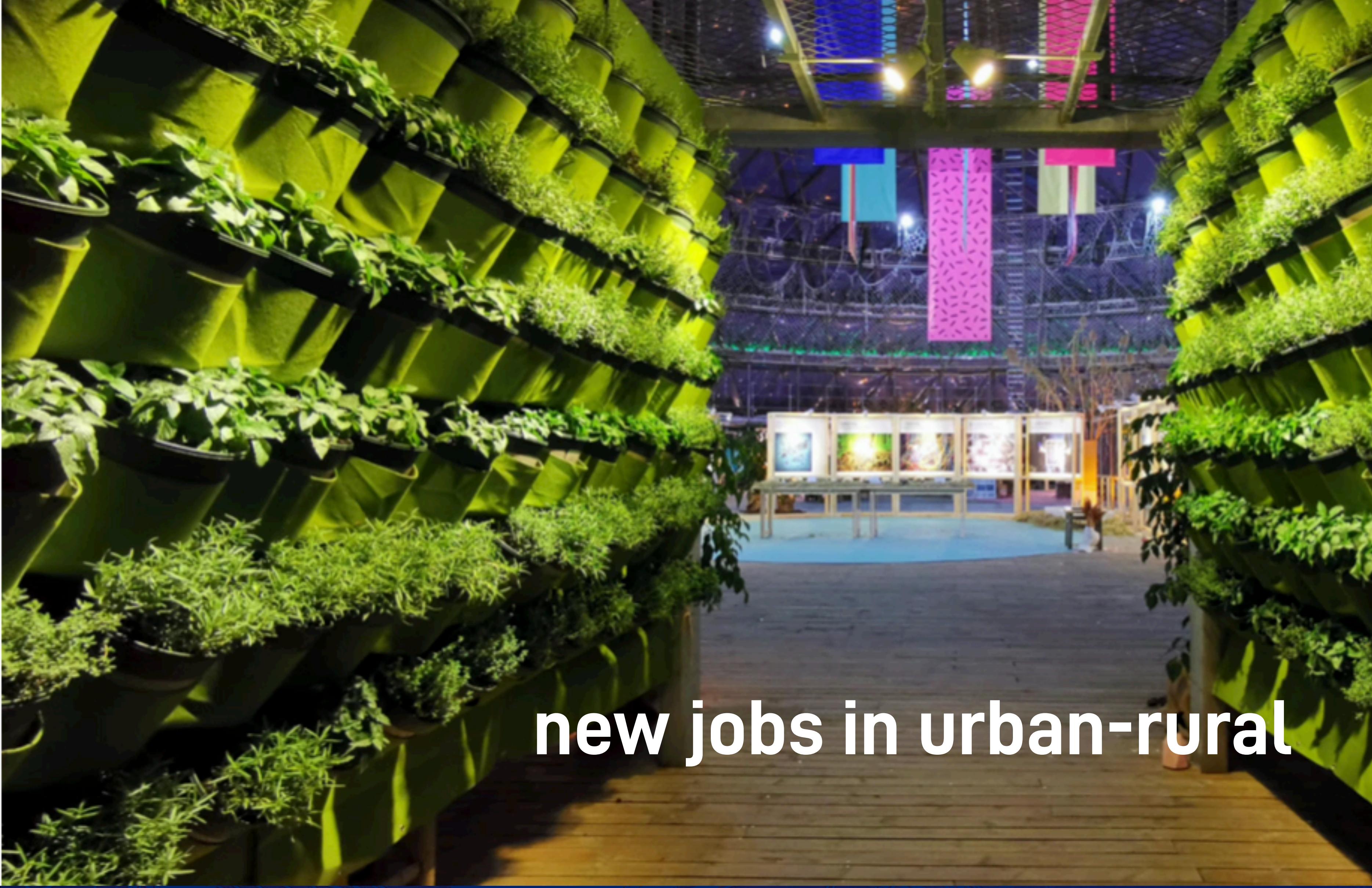


bioregion as campus



General overview map and details of natural resource systems on Chongming Island





new jobs in urban-rural

ecological restoration
agro-ecological farming
bioregioning
watersheds & wetlands
civic ecology
farmer-city live-streaming
grainsheds, fibersheds
rural oases
maker networks
code clubs
ecotourism
learning journeys
rural hubs & platforms

thackara.com/about/urbanruralprojects

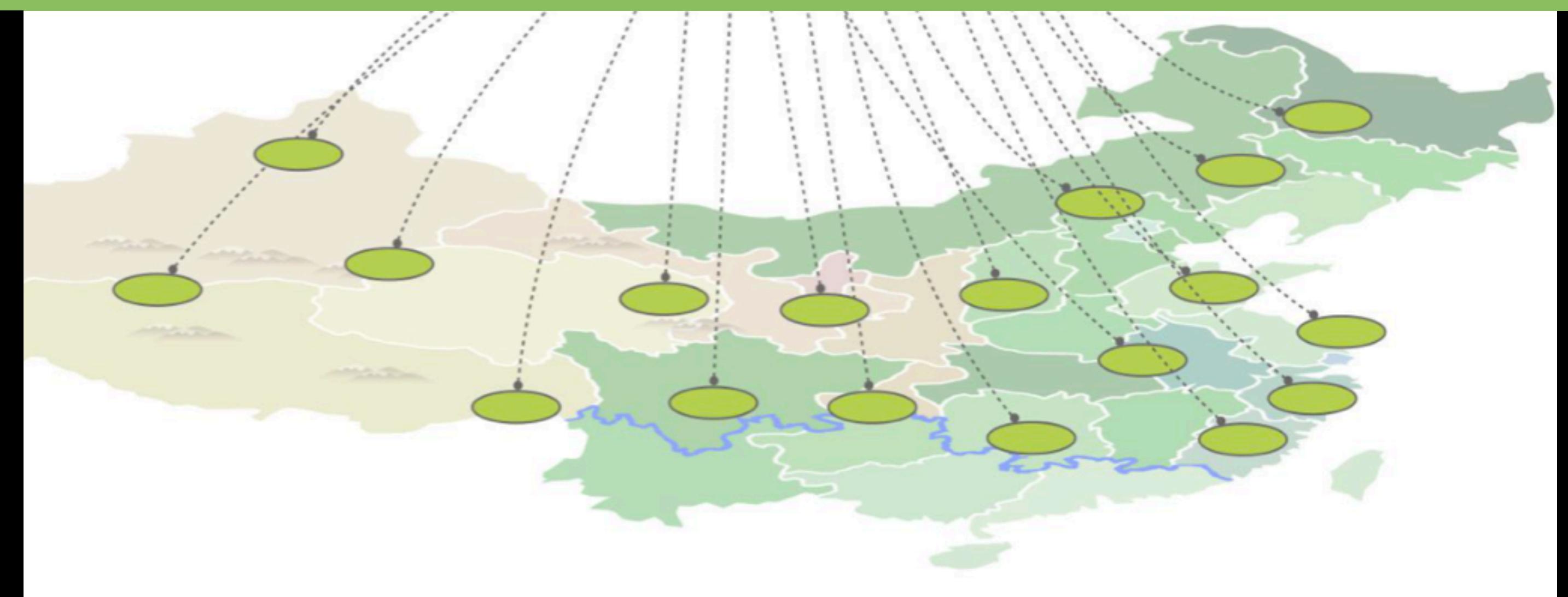
现场教室：基于地方型学习的萌芽

LIVING CLASSROOMS: THESE ARE THE GREEN SHOOTS OF PLACE-BASED LEARNING

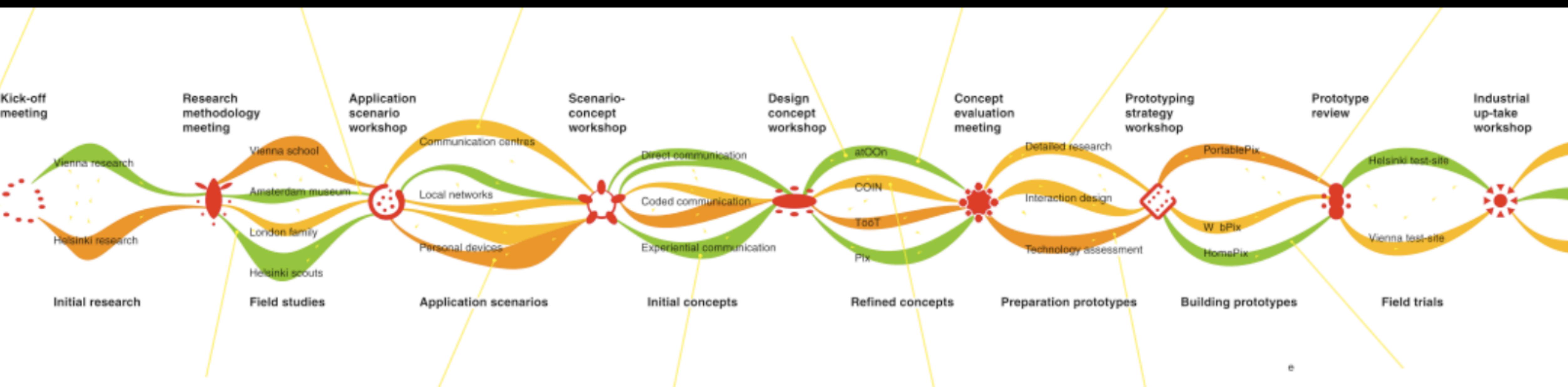
中国与亚洲 · China and Asia



令人欣慰的是，为设计师提供在地学习的例子开始涌现



a flow of activities and outcomes

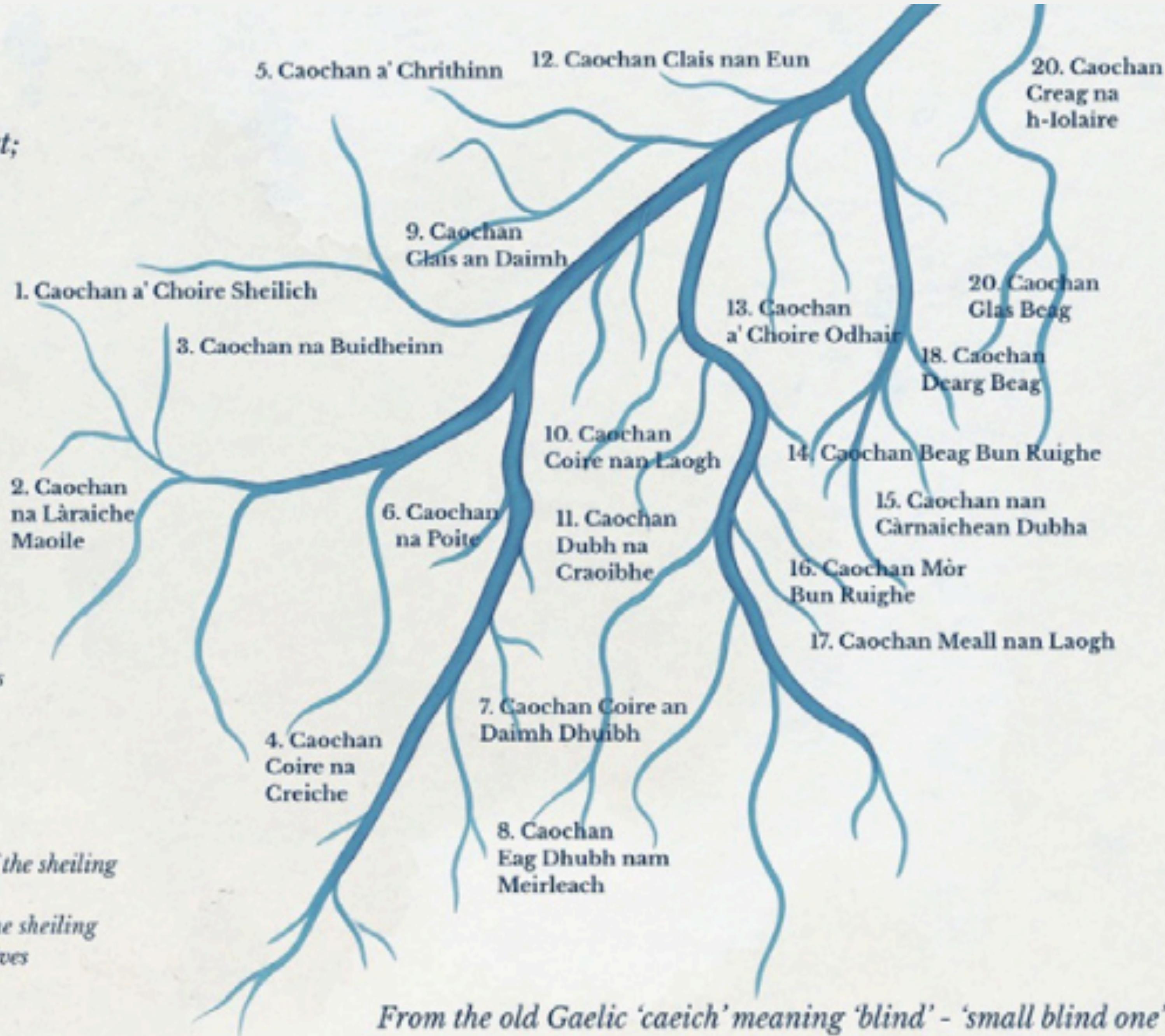


maps of actors and resources
service prototypes
system architectures
new business models
stories

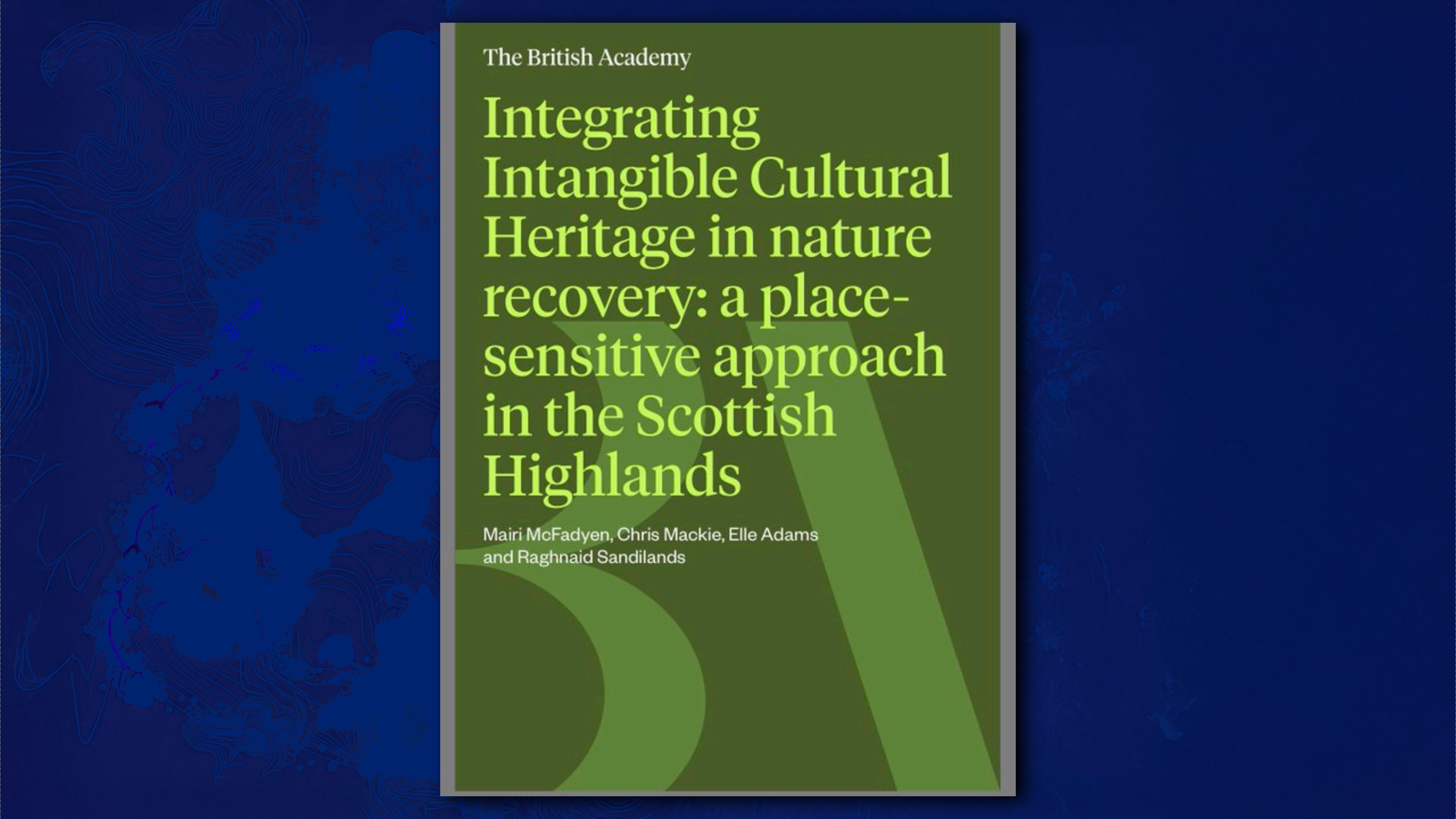
Caochan

*a fine moorland rivulet;
a purling rill.*

1. *of the willow corrie*
2. *of the base ruins*
3. *of the party*
4. *of the corrie of the raid*
5. *of the aspen*
6. *of the pot*
7. *of the corrie of the black stag*
8. *of the black gap of the thieves*
9. *of the hollow of the stag*
10. *of the corrie of the calves*
11. *black caochan of the tree*
12. *of the hollow of the birds*
13. *of the dun coloured corrie*
14. *small caochan of the base of the sheiling*
15. *of the black cairns*
16. *big caochan of the base of the sheiling*
17. *of the rounded hill of the calves*
18. *little red caochan*
19. *little grey caochan*
20. *of the rock of the eagle*



*From the old Gaelic 'caeich' meaning 'blind' - 'small blind one'
- a stream so obscured by vegetation it cannot see out of its own bed.*



The British Academy

Integrating Intangible Cultural Heritage in nature recovery: a place- sensitive approach in the Scottish Highlands

Mairi McFadyen, Chris Mackie, Elle Adams
and Raghnaid Sandilands