

FTA Livelihood Systems, Theory of Change (incorporating science of delivery)

Sphere of control

Sphere of influence

Sphere of interest

Impact

Flagship research outputs

1

Better understanding of ecological processes and agronomy underpinning tree-crop-livestock productivity

Better understanding of farmer decision making about tree and forest utilisation and management

Better understanding of extension methods and market function related to tree and forest products

Better understanding of constraints to tree and forest utilisation by smallholders

Better understanding of how gender and social processes condition tree and forest utilisation and management

Better understanding about the effectiveness of policy instruments, certification and performance standards

Journal articles and popular science published and promoted

Demand-driven priorities for fundamental research to address knowledge gaps constraining development

Co-generated knowledge and application

2

Tree-crop-livestock interaction models

Methods and tools for trade-off analyses

Technology design principles and options to improve productivity

Structured stakeholder engagement methods

Principles for matching extension methods to audiences and message

Methods and tools to match options to context

Methods and tools to facilitate value chain innovation

Spatially explicit negotiation support tools

Knowledge acquisition methods and tools

Revised educational curricula and new teaching materials

Policy briefs

Methods and tools to design integrated options

Tools and methods co-developed with partners and used to catalyse co-learning through innovation platforms

Participatory technology development

Market and extension interventions

New knowledge, methods and tools promoted via social media

Capacity developed in NARES, NGO and private sector actors

Integrated options matched to contexts see box 3

Large scale adoption and use (beyond co-located site portfolio)

3

NARES and NGOs adopt FTA methods and tools, and promote diverse and inclusive agroforestry options matched to context

Private sector market actors engage in value chain innovation and embrace new relationships with producers

Smallholder farmers are reached by, adopt and adapt forestry and agroforestry options and market opportunities with appropriate enabling environments, including financing solutions

National and sub-national policy makers use FTA briefs in the design of policy reform across sectors

State, provincial and local government implement agroforestry and forest policy reforms (affecting regulations and incentives)

Universities, colleges and schools adopt curricula and use teaching materials

Public and private actors adopt FTA-informed certification approaches and performance standards

Public and private Investors provide patient capital to finance smallholder agroforestry initiatives against FTA-informed performance standards

Lessons and exemplars

Impact from wider use of outputs

Place-based 'research in development' in portfolio of key co-locations (see Figure 3)

4

RinD

Participatory technology development

Market and extension interventions

Policy engagement



Direct impact from RinD in co-located site portfolio

Improved food security and livelihood opportunities for 100 million people (20 M households) - includes more specific impacts below.

More productive and equitable management of natural resources over 50 Mha

More substantive representation of women in community natural resource management decisions

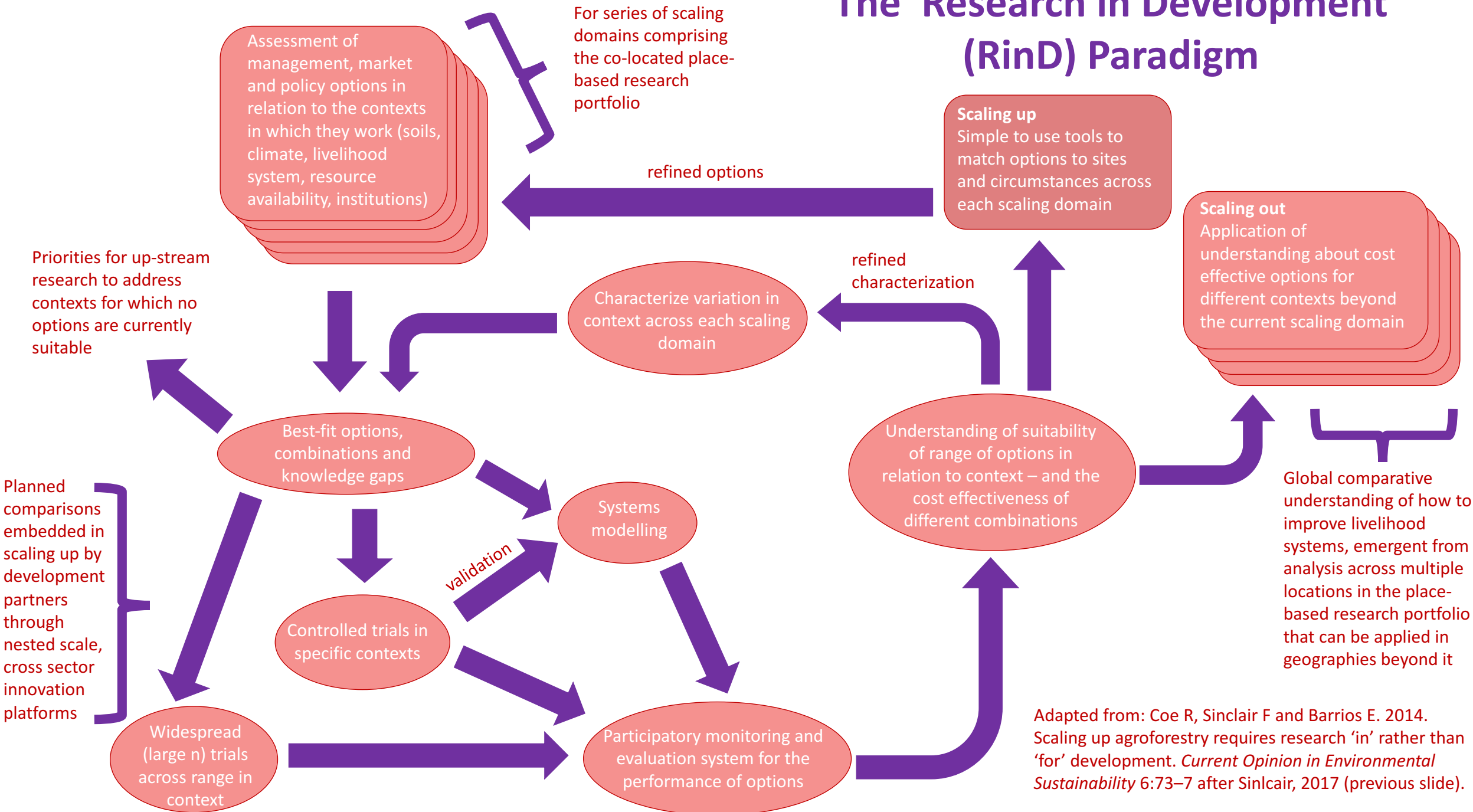
25% increase in income from tree and forest products for at least 5 M people (1.2 M households)

Improved diets and livelihood opportunities for 20M people (4 M households) from diversified tree-crop production systems

Increased access to diverse, nutrient rich food for 20 million people (4 million households) from trees supporting sustainable intensification / land restoration

Restoration of 5 Mha of land through silvopastoral systems

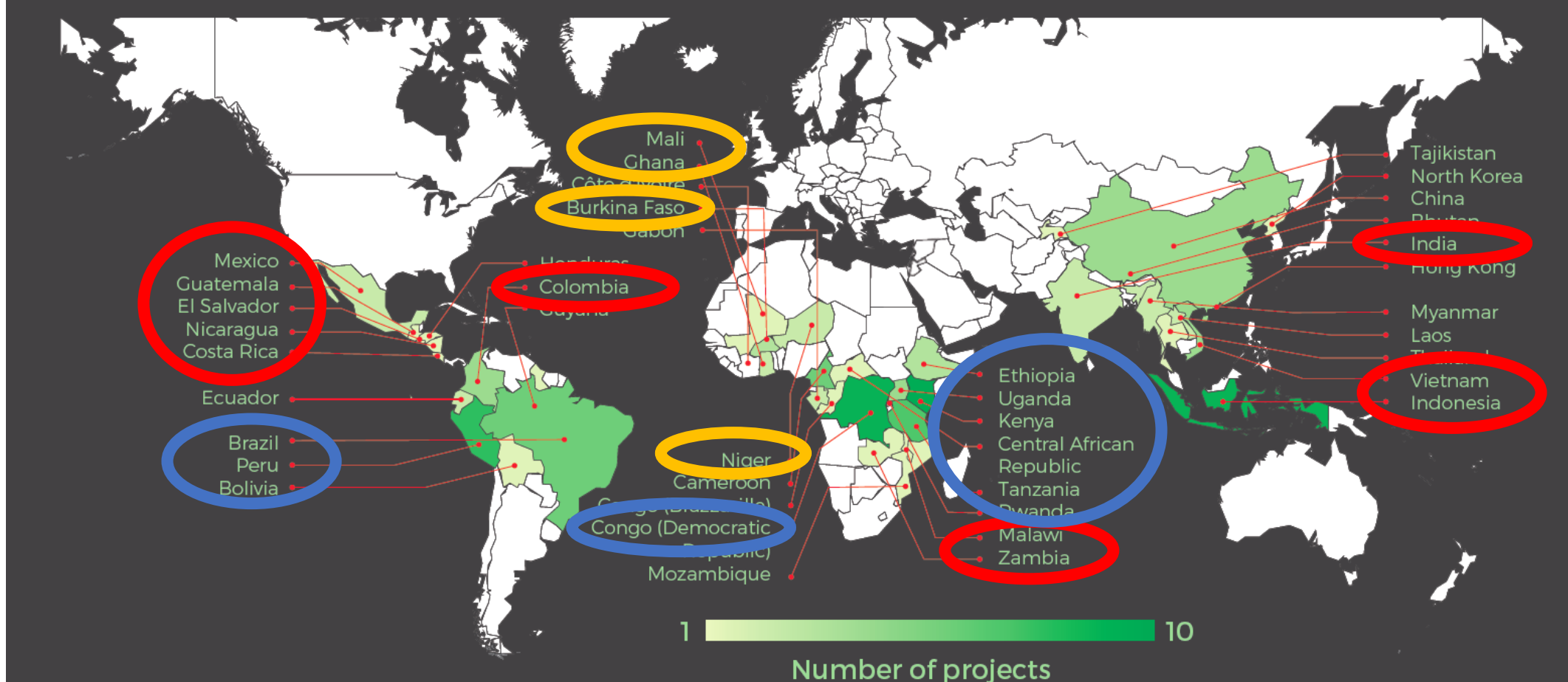
The Research in Development (RinD) Paradigm



Adapted from: Coe R, Sinclair F and Barrios E. 2014. Scaling up agroforestry requires research 'in' rather than 'for' development. *Current Opinion in Environmental Sustainability* 6:73–7 after Sinclair, 2017 (previous slide).

The CGIAR Research program on Forests, Trees and Agroforestry (FTA)

118 projects in 41 countries in 2017



Examples from our placed-based research portfolio - 1

Predicted uptake of from 125 to 250 thousand households from GIS analysis of areas suitable for different agroforestry options

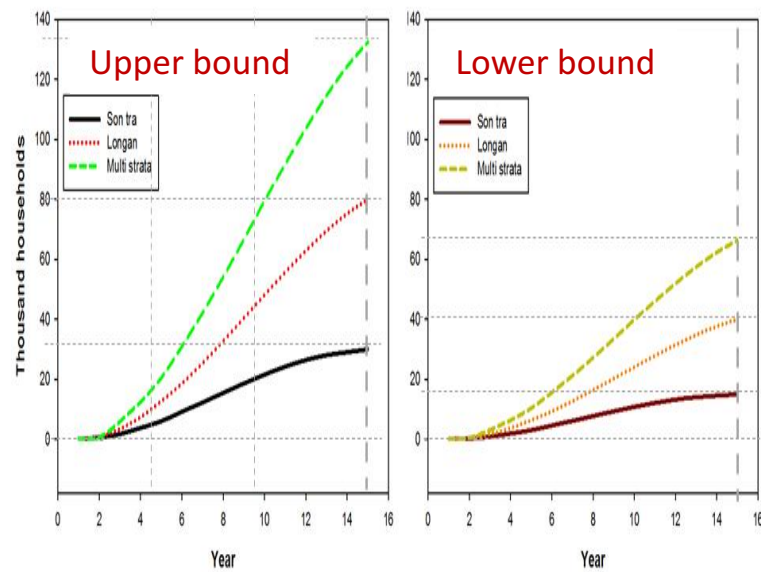


Photo: Cathy Watson

David shows the effectiveness of planting basins on maize yield on his farm in Machakos. The IFAD-EU Dryland Restoration project now has thousands of farmers in Kenya, Ethiopia, Mali and Niger co-learning about innovations through their involvement in planned comparisons (PCs) like this, that also generate IPGs from analysis of data collated across a wide range of contexts. Development partners in Government extension systems and NGOs are engaged and excited by the effectiveness of the approach.

ACIAR-funded AFLI



SAI (sustainable agricultural intensification) dashboards developed using the SHARED approach, coupled with PCs, bring evidence to bear on decision making about implementing SAI in Tanzania, Ethiopia and Zambia as part of the Dfid-funded SAIRLA (SAI research learning alliance). This looks explicitly at differential impact on women and men,

Exemplar landscapes in Vietnam where enough farmers in a series of target areas adopt agroforestry to create demonstrated transformation that engages national, provincial and district level policy makers and implementers. The '**paternoster principle**' couples this with participatory development and testing of novel, locally feasible agroforestry options. The result is mass transformation.

SUSTAINABLE AGRICULTURAL INTENSIFICATION (SAI) DASHBOARD - TANZANIA

SAIRLA Programme
 The Sustainable Intensification of Agricultural Research and Learning in Africa (SAIRLA) Programme is a UK Department for International Development funded initiative that seeks to generate evidence and design tools to enable governments, investors and other key actors to deliver more effective policies and investments in sustainable agricultural intensification that strengthen the capacity of poorer farmers, especially women and youth, to access and benefit from SAI in Burkina Faso, Ethiopia, Ghana, Malawi, Tanzania and Zambia.

The SAIRLA programme is funded by the UK Department for International Development and managed by WIG International Ltd and the Natural Resources Institute, University of Greenwich.

ICRAF-led SAIRLA Project, "Bringing evidence to bear on negotiating ecosystem service and livelihood trade-offs in sustainable agricultural intensification in Tanzania, Ethiopia and Zambia" aims to assess two primary research questions:

1. "How can the trade-offs between increased production and environmental impact be analysed and managed across different scales?" and
2. "How can engagement structures, tools, and metrics help decision makers create an enabling environment for resource-poor smallholders, especially women and young people, to sustainably intensify agricultural enterprises?"

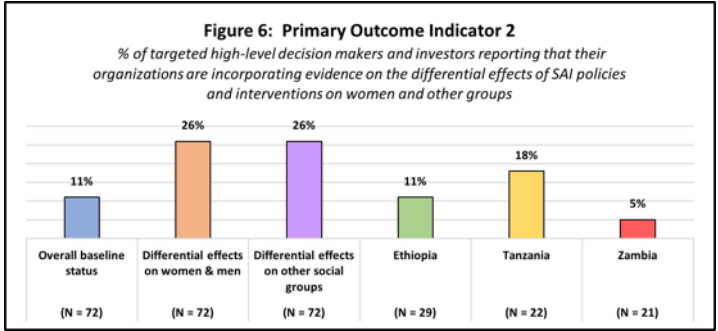
We aim to address these questions, by engaging stakeholders in an innovative and iterative co-learning processes that includes the collection and generation of new evidence and the interrogation of this evidence through this interactive SAI dashboard. We hope this dashboard will inform their decision-making and policy development.

Our Partners: SAIRLA, World Agroforestry Centre, and others.

Funded by: UKaid

Managed by: WIG and NRI

Find the project brief [here!](#)



STRUCTURED STAKEHOLDER ENGAGEMENT LEADS TO DEVELOPMENT OF MORE DIVERSE AND INCLUSIVE AGROFORESTRY OPTIONS

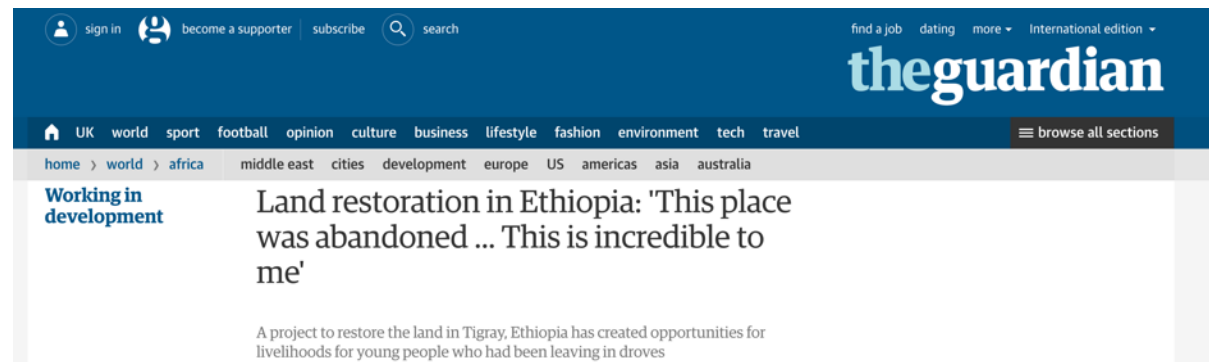
By EMILIE SMITH DUMONT†‡§, SUBIRA BONHOMME†, TIMOTHY F. PAGELLA† and FERGUS LLOYD SINCLAIR†‡

Knowledge, attitudes and behavior of development actors have changed as a result of stakeholder engagement structured on the basis of local knowledge acquisition and systems analysis, including consideration of natural vegetation cover and satellite image analysis of erosion prevalence in work with WWF in DRC. Over 2 million trees (including 16 native species never previously promoted) were raised and planted in 2012 in the Lake Tanganyika catchment while a profound shift from promoting only a few exotic species in woodlots to more than 70 species in 15 contrasting farm and landscape niches. Different people (women, indigenous group) prefer different options (enshrined in a practical guidebook). One Acre fund read about it and are now innovating in how they promote trees in Rwanda.



Photo: WWF

Examples from our placed-based research portfolio - 2



Our ACIAR-funded **Trees4FoodSecurity** project has spawned inter-ministerial national policy development and agroforestry scaling platforms in Ethiopia, Uganda and Rwanda

At the inception meeting for phase 2 of T4FS, the Minister of Agriculture in Ethiopia Eyasu Abraha invited ICRAF to partner in developing a national agroforestry scaling platform involving other ministries responsible for forests and livestock which has since been launched. He has pledged to convert 33,000 government nurseries over to the entrepreneurial Rural Resource Centre model pioneered in T4FS.



FAO have asked ICRAF together with CIRAD to set up a participatory process to develop recommendations for a national agroforestry policy and strategy in Rwanda. In Uganda ICRAF is involved with Vi-Agroforestry and the national farmers union in advising the parliamentary committee on food security in respect of developing an national agroforestry strategy and policy.



Available online at www.sciencedirect.com

ScienceDirect

Current Opinion in
Environmental
Sustainability

Scaling up agroforestry requires research 'in' rather than 'for' development[☆]

Richard Coe, Fergus Sinclair and Edmundo Barrios

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doi:[10.1017/S0014479716000181](https://doi.org/10.1017/S0014479716000181)

LOADING THE DICE IN FAVOUR OF THE FARMER: REDUCING THE RISK OF ADOPTING AGRONOMIC INNOVATIONS

By RIC COE^{†§}, JOYCE NJOLOMA[‡] and FERGUS SINCLAIR[†]

Expl Agric.: page 1 of 7 © Cambridge University Press 2017

doi:[10.1017/S0014479717000102](https://doi.org/10.1017/S0014479717000102)

TO CONTROL OR NOT TO CONTROL: HOW DO WE LEARN MORE ABOUT HOW AGRONOMIC INNOVATIONS PERFORM ON FARMS?

By RIC COE^{†§}, JOYCE NJOLOMA[‡] and FERGUS SINCLAIR[†]

[†]World Agroforestry Centre (ICRAF), Nairobi, Kenya and [‡]World Agroforestry Centre, Lilongwe, Malawi

3 Systems science at the scale of impact

Reconciling bottom up participation with the production of widely applicable research outputs

Fergus L. Sinclair

Introduction

This chapter is about conducting agricultural systems research at the scale needed to address the aspirations of the first two Sustainable Development Goals (SDGs) to end world poverty and hunger (United Nations, 2015). There are

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doi:[10.1017/S0014479716000788](https://doi.org/10.1017/S0014479716000788)

STRUCTURED STAKEHOLDER ENGAGEMENT LEADS TO DEVELOPMENT OF MORE DIVERSE AND INCLUSIVE AGROFORESTRY OPTIONS

By EMILIE SMITH DUMONT^{†‡§}, SUBIRA BONHOMME[†],
TIMOTHY F. PAGELLA[‡] and FERGUS LLOYD SINCLAIR^{†‡}



World Development Perspectives

Volume 3, September 2016, Pages 42-46



Case report

Restoration through formalization? Assessing the potential of Peru's Agroforestry Concessions scheme to contribute to restoration in agricultural frontiers in the Amazon region

Valentina Robiglio , Martin Reyes

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<https://doi.org/10.1016/j.wdp.2016.11.013>

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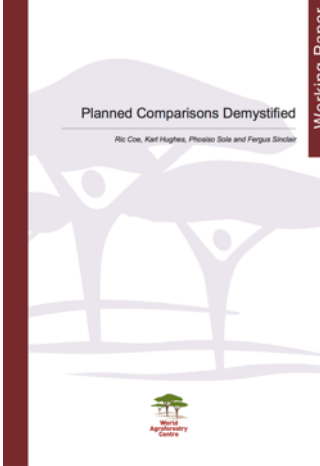
Earth and Agriculture

ScienceDirect

Edited by Ingrid Oborn, Bernard Vanlauwe, Michael Phillips, Richard Thomas, Willemien Brooijmans and Kwesi Atta-Krah

Sustainable
Intensification in
Smallholder Agriculture

An integrated systems research approach



Planned Comparisons Demystified

Ric Coe, Karl Hughes, Phisoa Sola and Fergus Sinclair



World
Agroforestry
Centre

GUIA TÉCNICO



Restauração ecológica com
SISTEMAS AGROFLORESTAIS

COMO CONCILIAR CONSERVAÇÃO COM PRODUÇÃO
Opções para Cerrado e Caatinga

Andréa Ricelli,
Flávia Regina de Moraes,
Fernanda Rodrigues Marques,
Daniel Lourenço Viana,
Marcelo Moraes dos Reis,
Mauro Aguiar de Moraes,
Sílvia de Sá,
Adriana Cristina de Moraes



Centro Internacional
de Pesquisa
Agroflorestal

Working Paper

The cutting edge



Livelihood trajectories

Answering the Malu question. How will these innovations transform poor people's livelihoods? We explore this by defining thresholds for food security and steps along a trajectory out of poverty and then modelling impact of innovations (and combinations of them) on total factor productivity of smallholder livelihoods, using integrated systems dynamics and object based modelling, incorporating data from PCs.



Behavior theory

Through collaboration with behavior theorists (spearheaded by Karl Hughes) we are incorporating these perspectives in larger scale PCs (augmenting the focus on the efficacy of technologies for farmers to exploring costs and benefits of market, extension and policy options to effect large scale change). ACIAR-funded VIP4FS (value chain innovation platforms) – fodder in Uganda; village chickens in Zambia



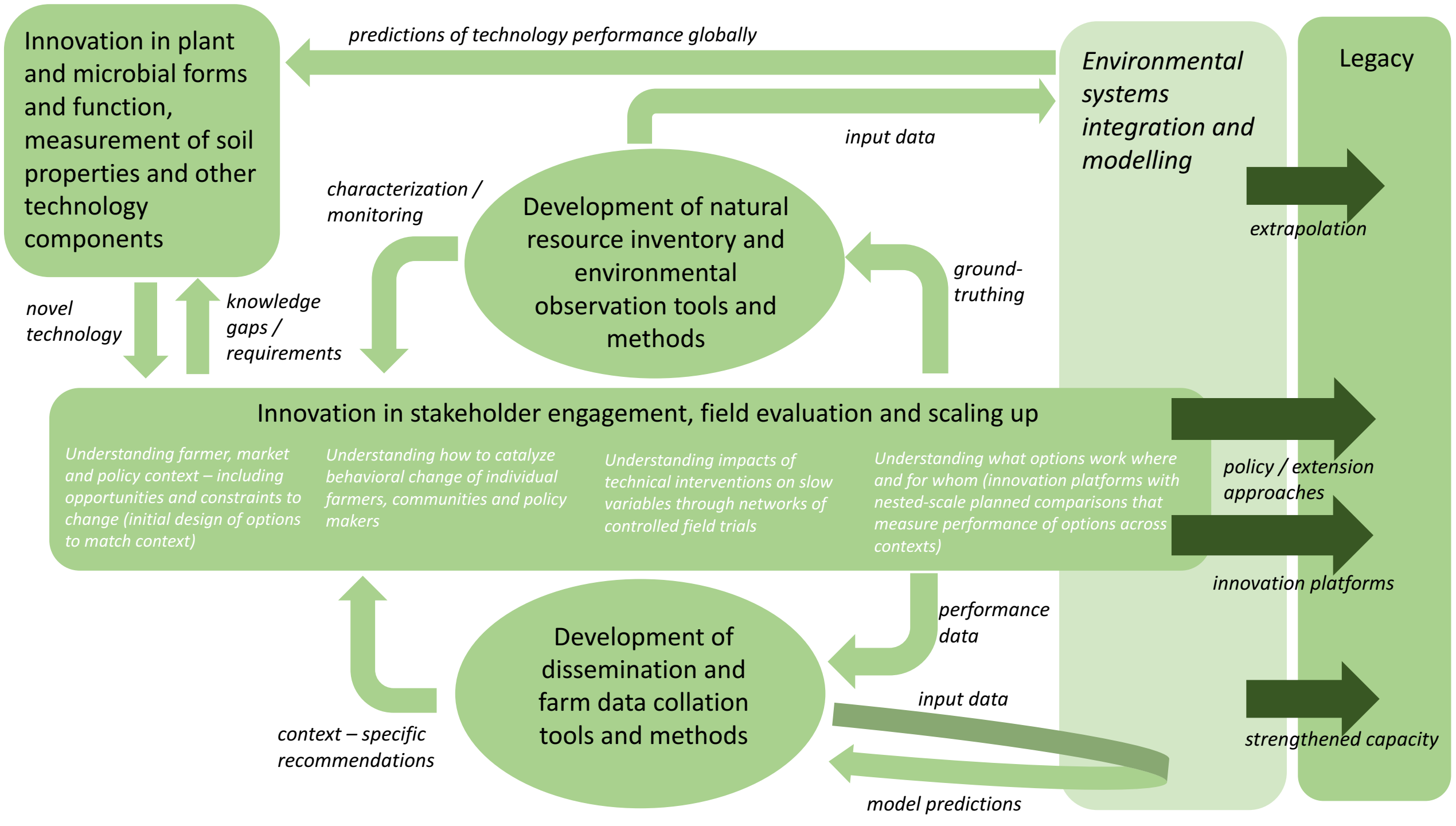
Coupling SHARED (policy process focus) with structured stakeholder engagement (farmer focus)



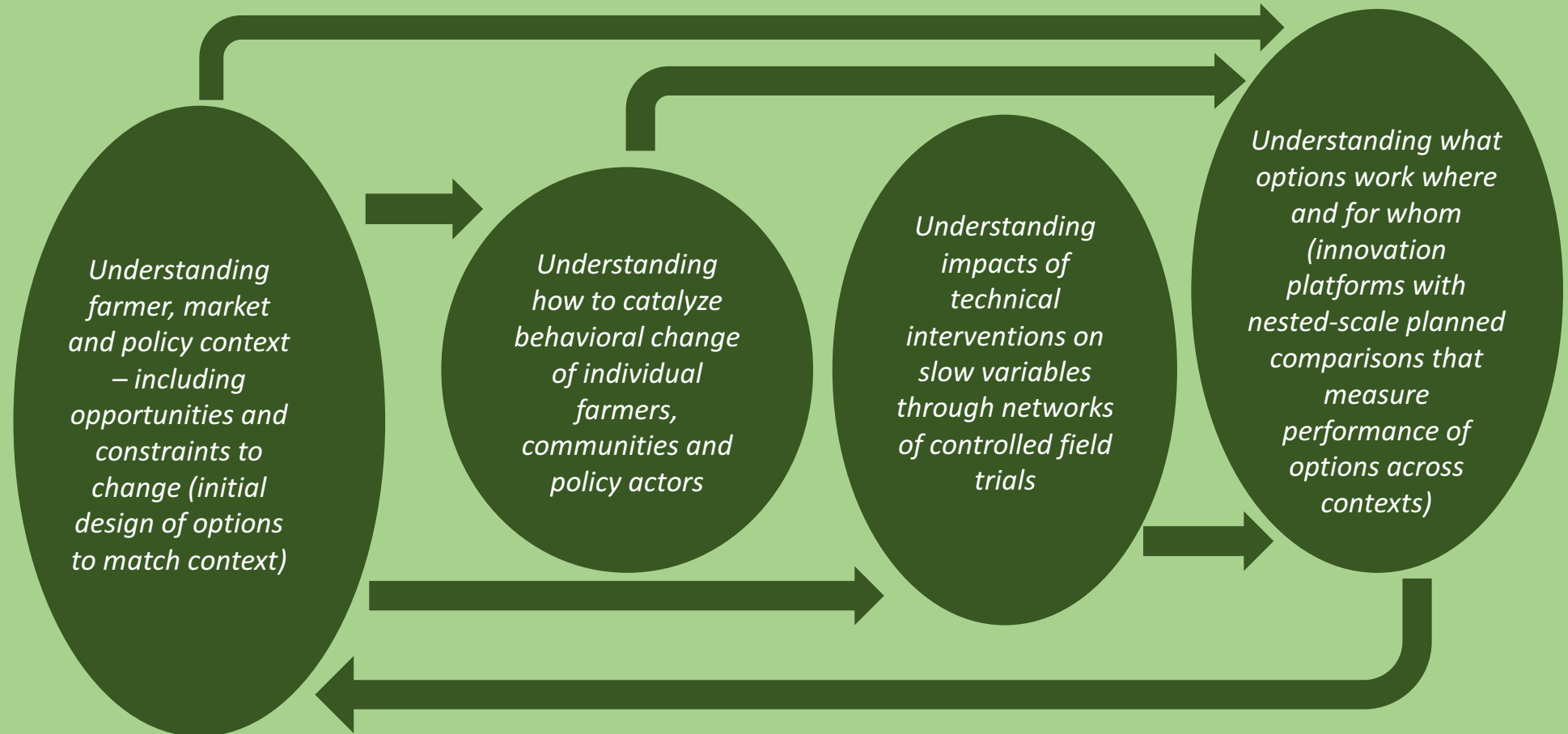
Process tracing (solid evidence for understanding how research has contributed to policy change)



Farmer field scaling and the paternoster principle (consolidation of practical guidelines for coupling bottom-up and top down approaches to scaling-up and scaling-out through applying the science of scaling within development practice)



Innovation in stakeholder engagement, field evaluation and scaling up



economy

well-being of different people

human health

forests

agriculture

soil

water

well-being of different people

economy

human health

forests

agriculture

water

soil



well-being of different people

economy

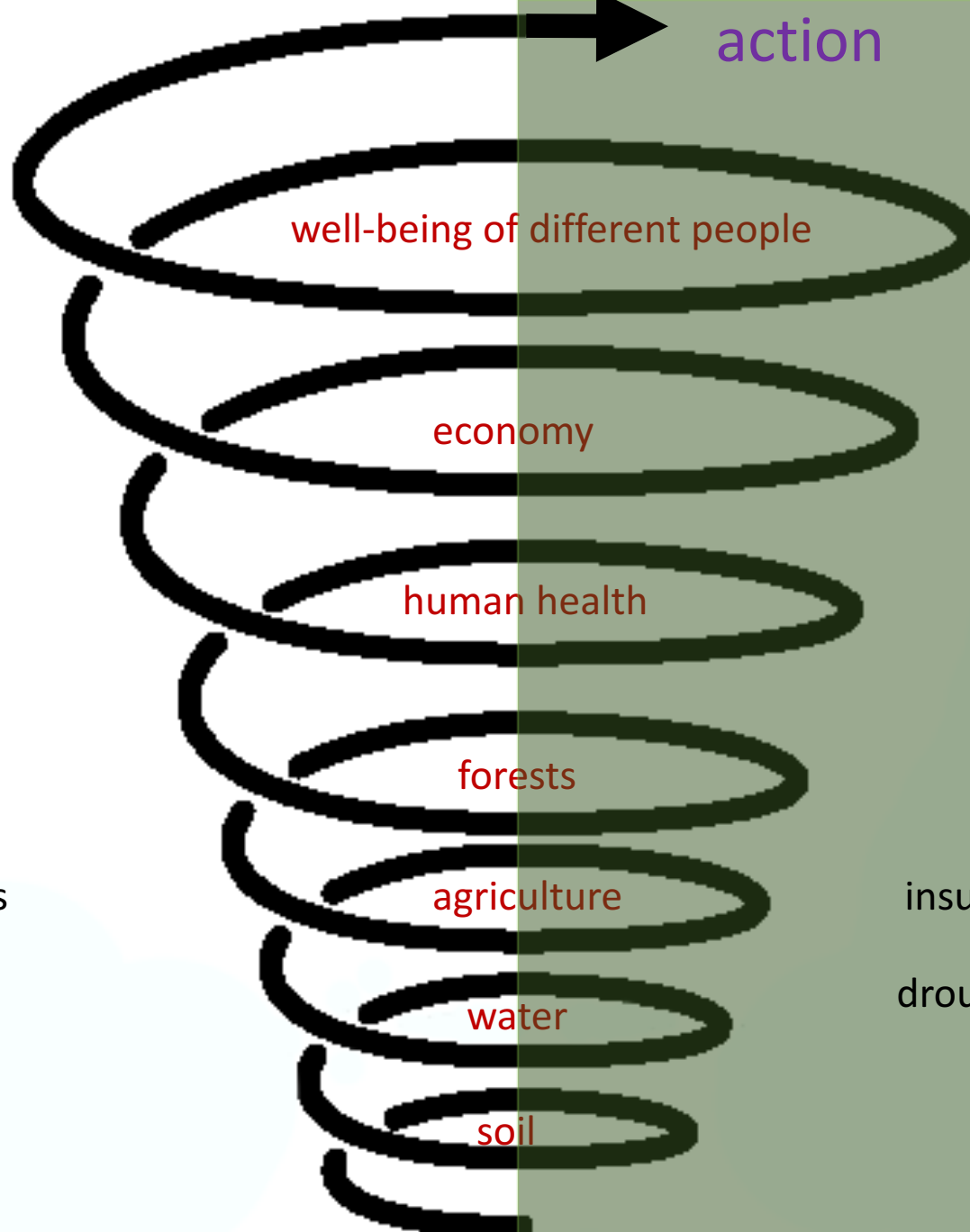
human health

forests

agriculture

water

soil



action

well-being of different people

economy

human health

forests

agriculture

water

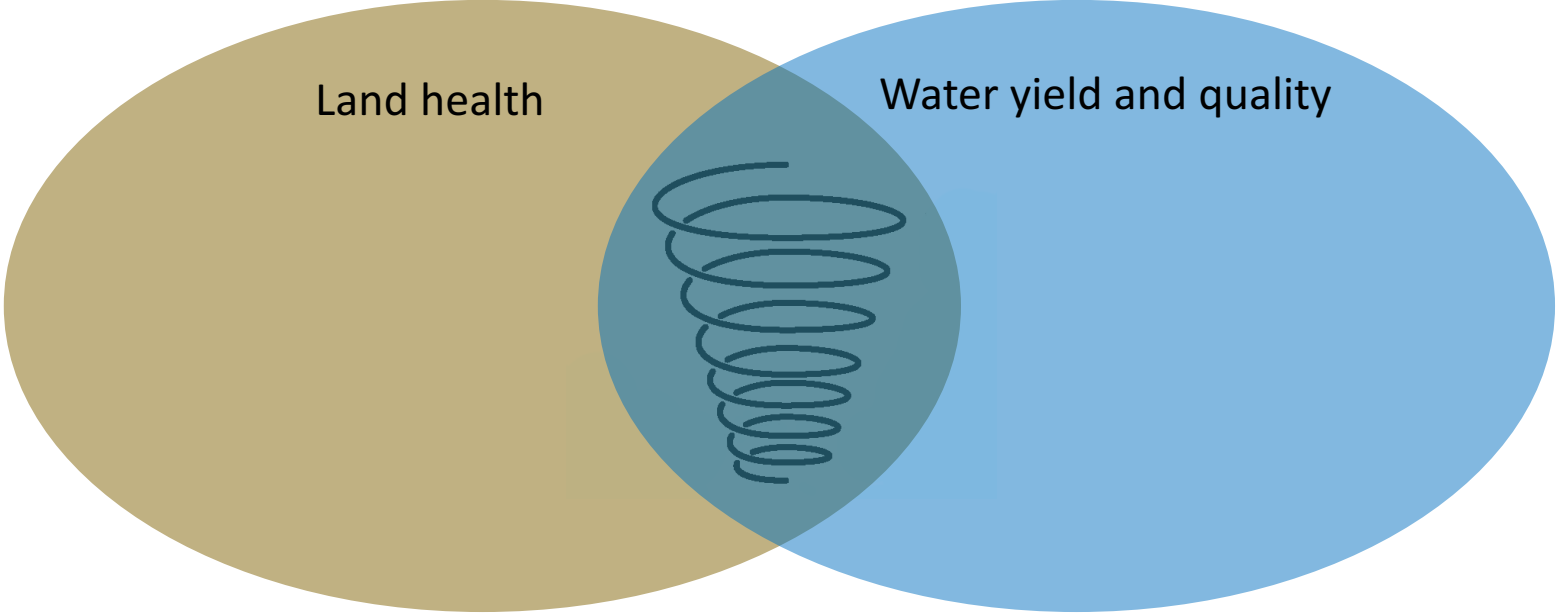
soil

excess application of agrochemicals

floods

insufficient access to inputs

droughts



status ↓

2002



2012



Legend

○ Population points

SOC (g/kg)

≤5

10

20

40

≥80

0 100 200 km



status



2002

2012

status




Legend

- Population points
- Erosion prevalence (%)
 - <50 (low)
 - 50
 - 75
 - 100

0 100 200 km



Legend

 Area of interest (AOI)

 Population points

Fractional vegetation cover

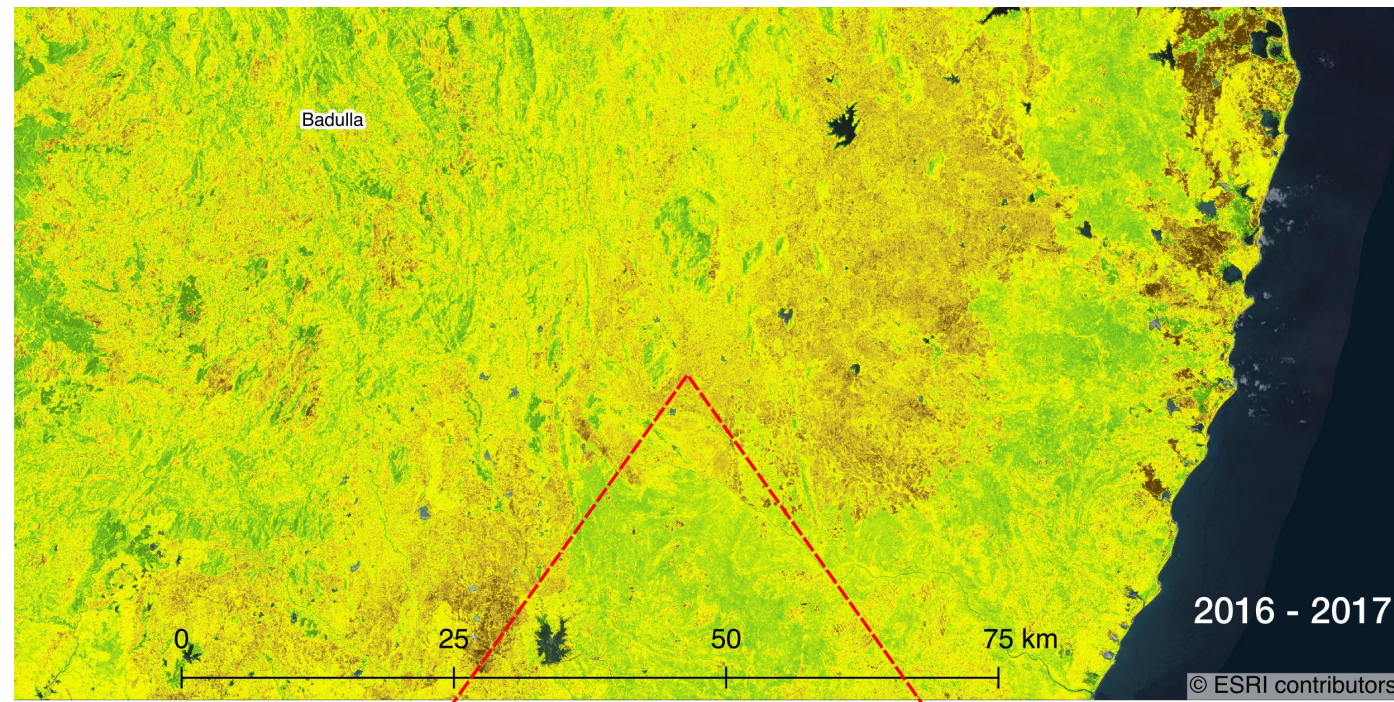
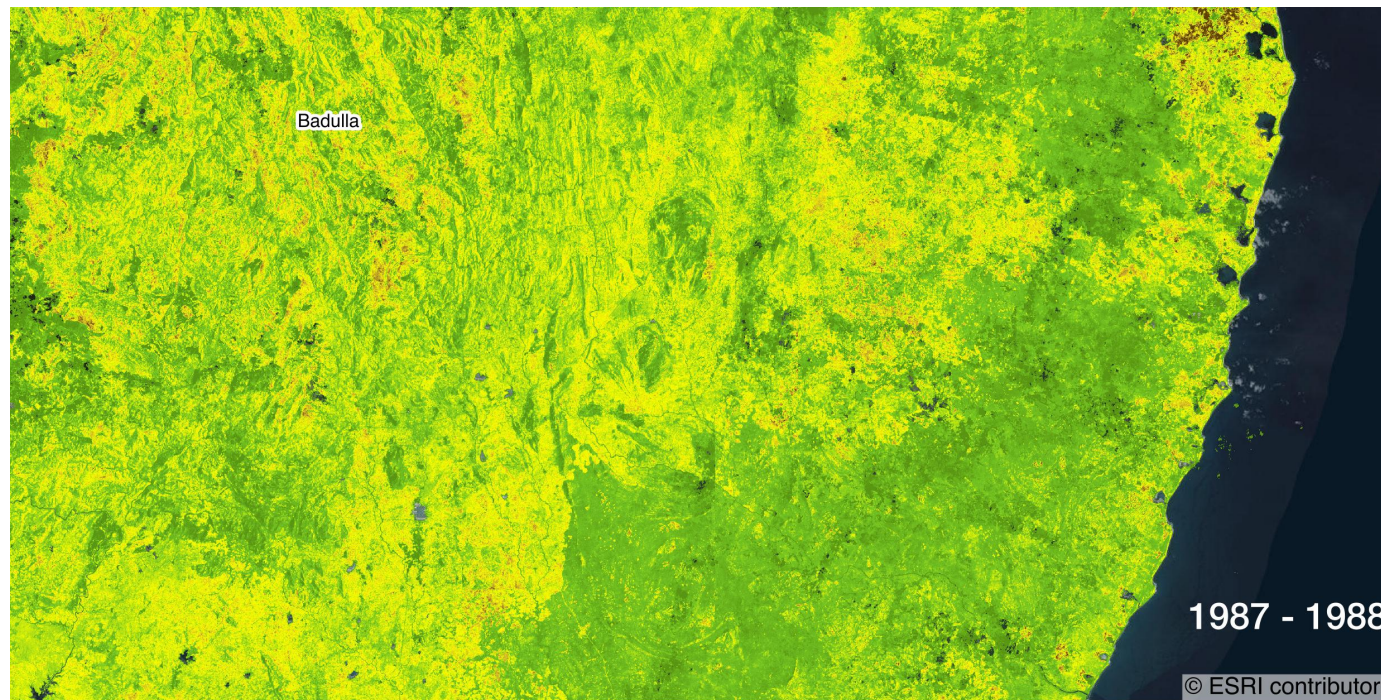
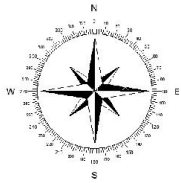
 Bare

 Low

 Moderate / senescent

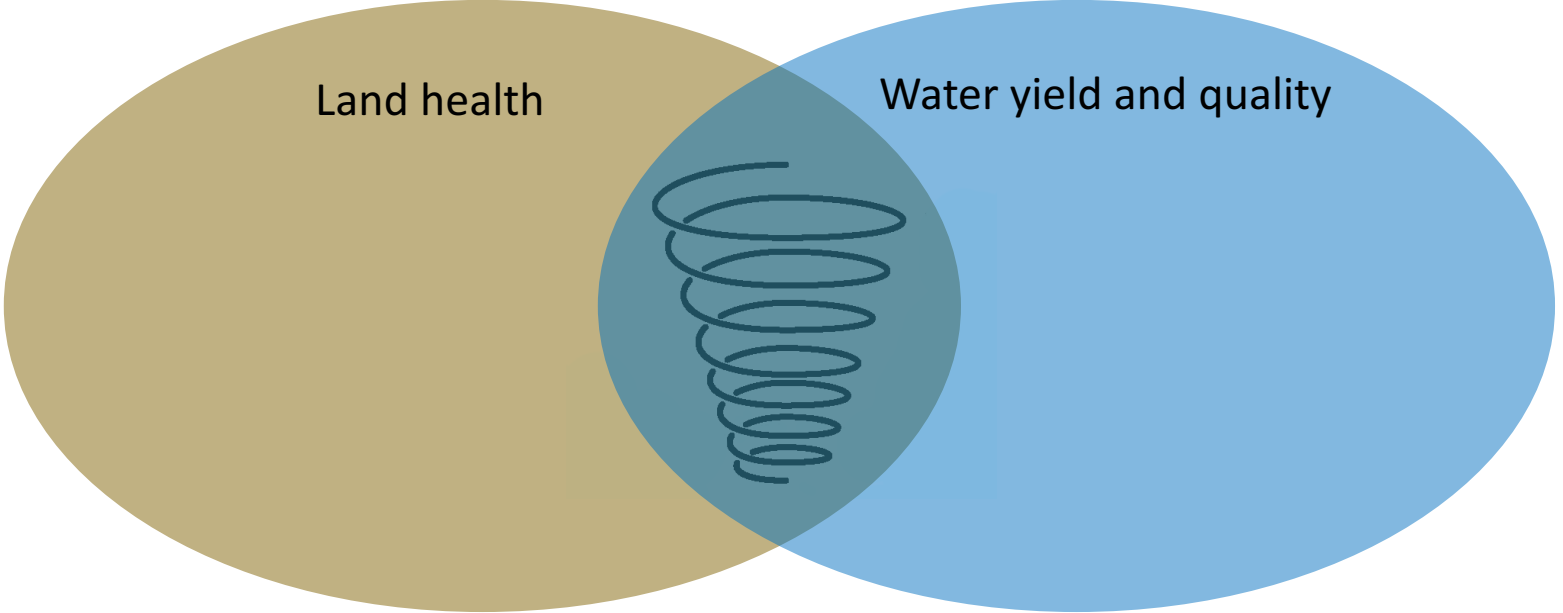
 High

 Very high



status





status ↓

climate change

population

urbanisation

economic growth

Drivers

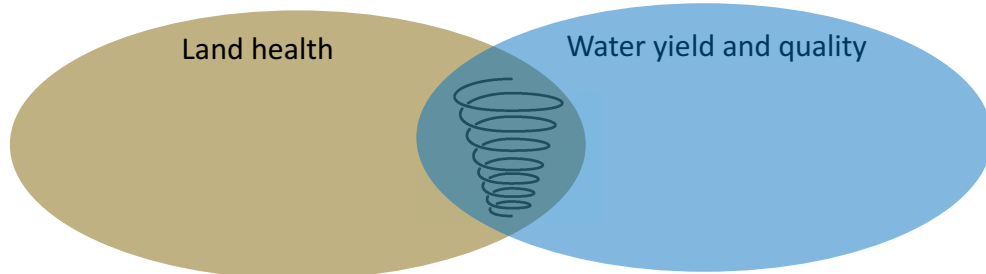
agricultural methods

land tenure

land allocation & fragmentation

markets

agrochemical use



Status

land degradation

drought

flood risk

agricultural productivity

biodiversity

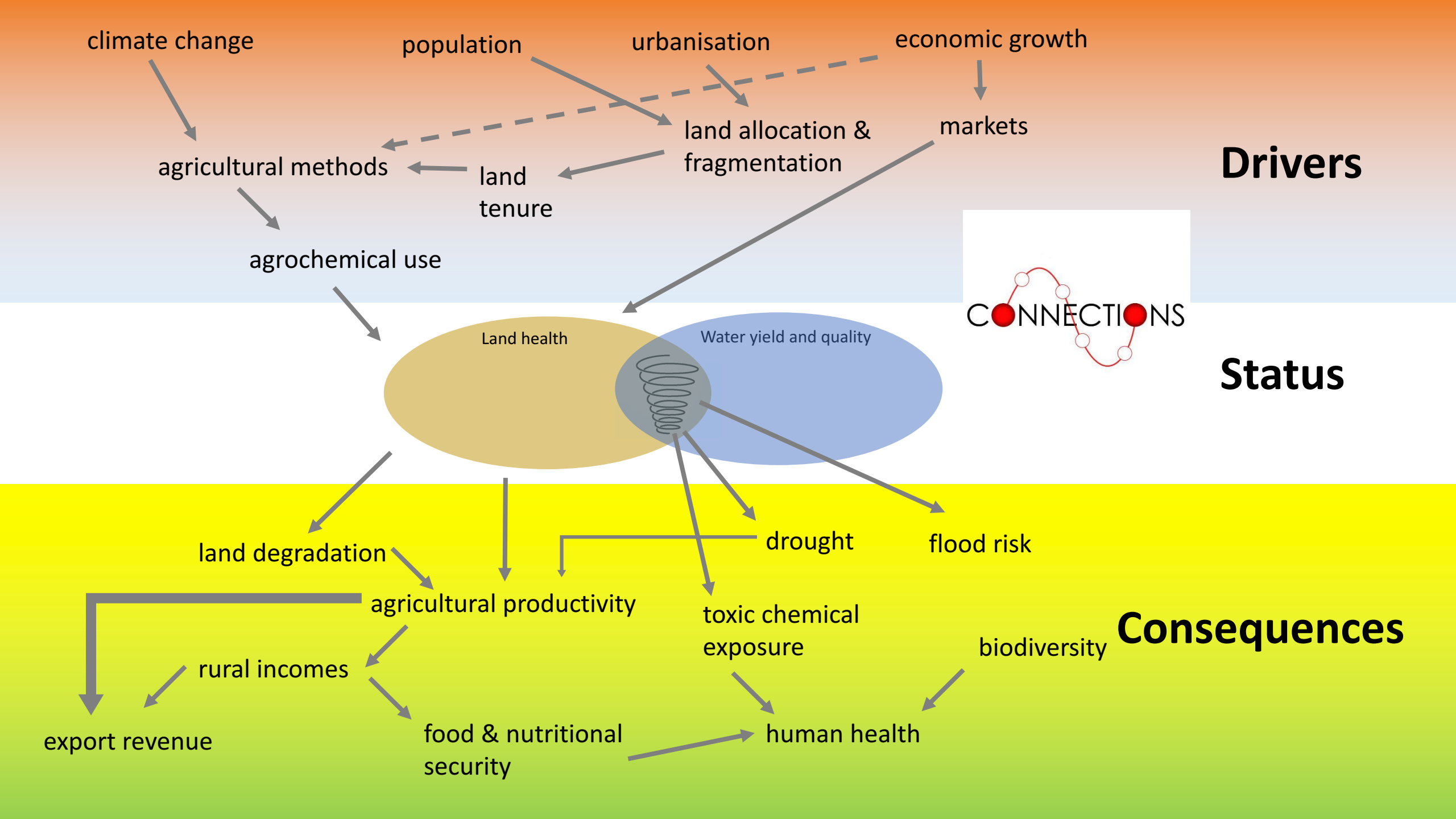
Consequences

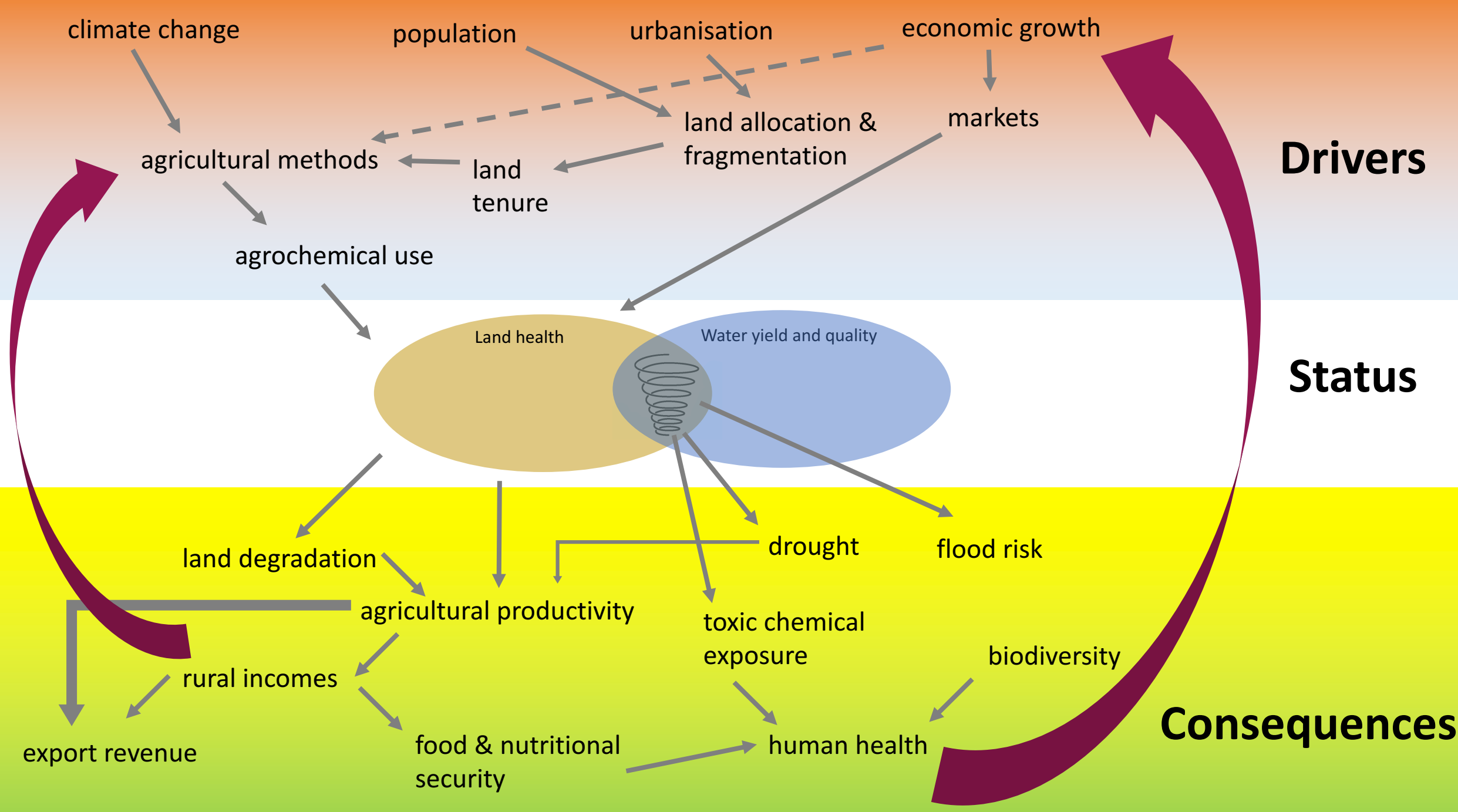
rural incomes

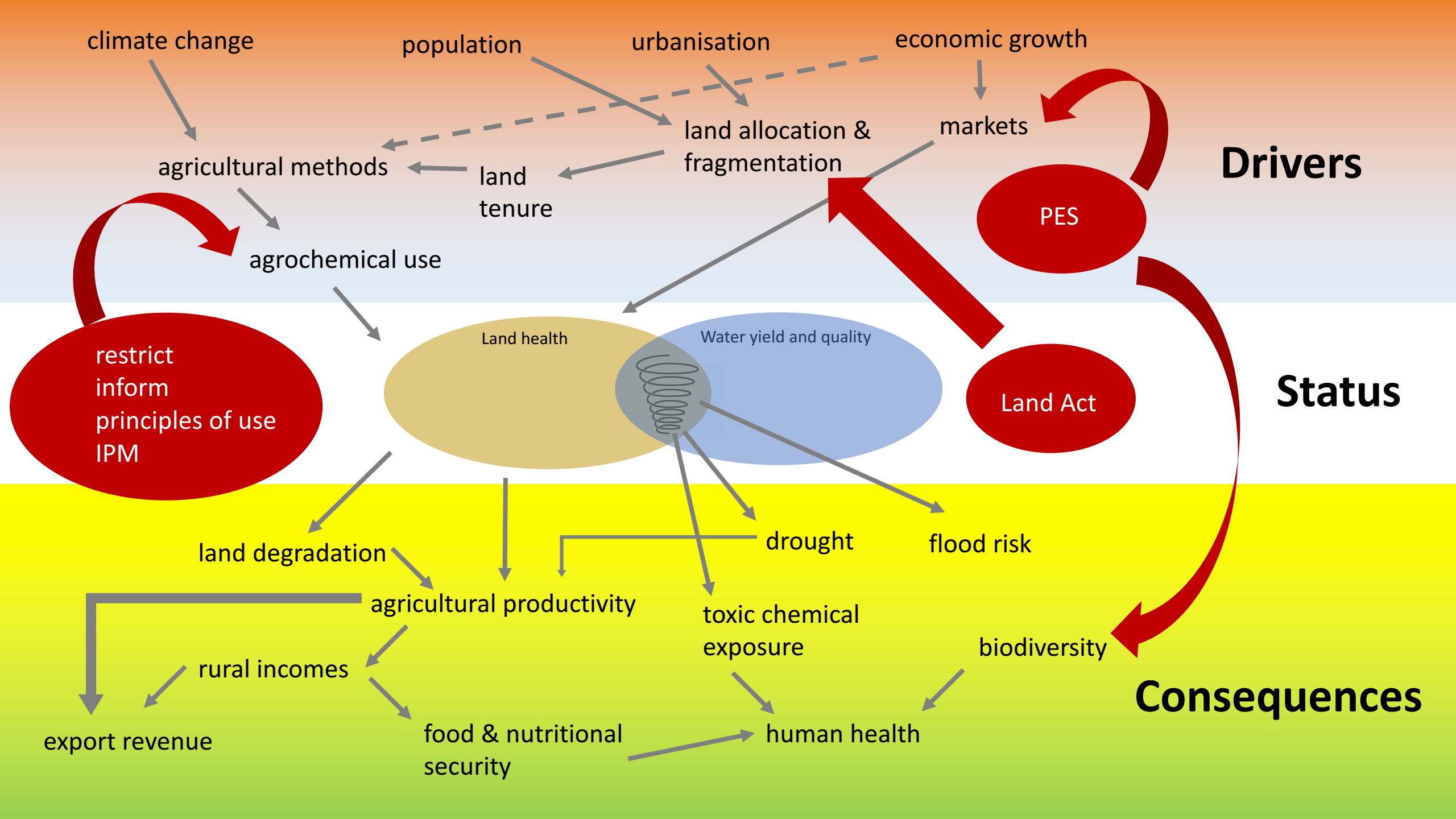
export revenue

food & nutritional security

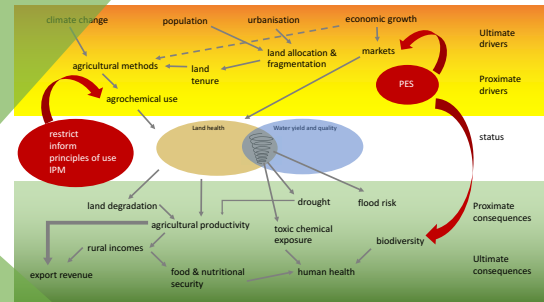
human health







Sri Lankan Green Economy



Road map to land health for national wealth

- Consolidate dimensions of land health
 - Pin down scope
 - Specify status indicators to monitor
- Consolidate key **drivers** of land health and how are they connected to one another
- Consolidate **consequences** of change in land health and how they feed back to drivers
- Use **levers** to affect drivers requiring decisions and action
 - Integrated national policy forum / commission
 - Exemplar landscape(s) to demonstrate integrated land use that delivers land health and wealth
 - Enabling 'Land Act'



Innovation at scale = harnessing technology to meet local needs within an appropriate enabling environment

Look at what is there, local knowledge

Engage with stakeholders to develop diverse and inclusive options and an appropriate enabling environment

Adapt options [technologies, market interventions, policies] to context

Refine what works where and for whom

Nurture innovation platforms



Letay Gebresilasie with USAID