



# Land Use Intensification

**Land-use intensification in forest-agriculture frontier landscapes: effects on ecosystem services and poverty alleviation (ESPA-Frontiers)**

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# Team

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# Chapter Rationale

## Problem

Competing & intensifying demands (food, energy, urban, conservation etc.)

Constraints/nexus (CC, water etc.)

Options (reduce demand, reduce waste, distribute, increase production)

## Policy Assumptions

Sustainable Intensification' as strategy to

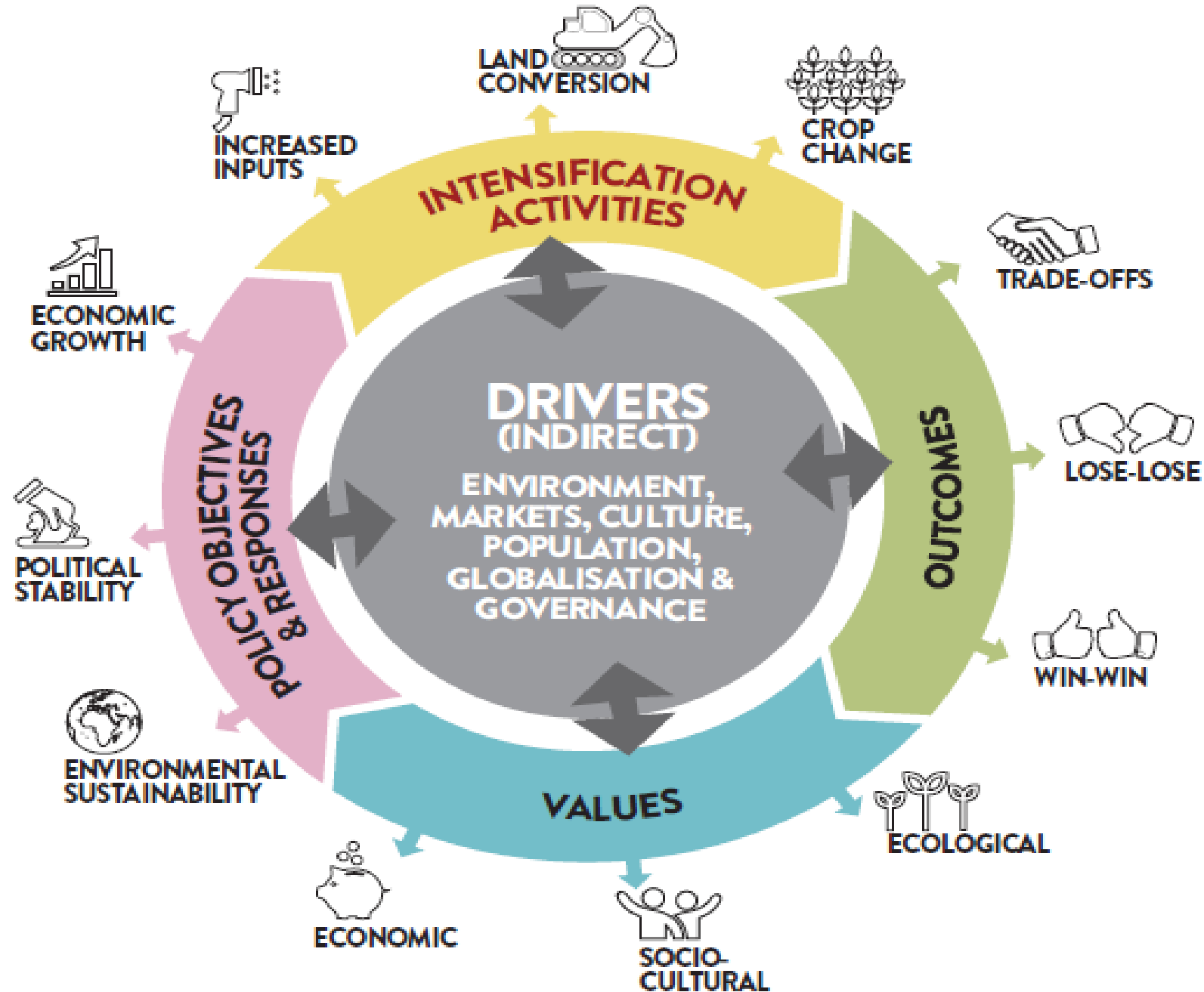
- a) end hunger
- b) alleviate poverty
- c) 'spare' land

**assumptions that 'win-win' ES & HWB outcomes can be the norm**

**BUT few studies look at both ES & HWB outcomes**

# Our Approach

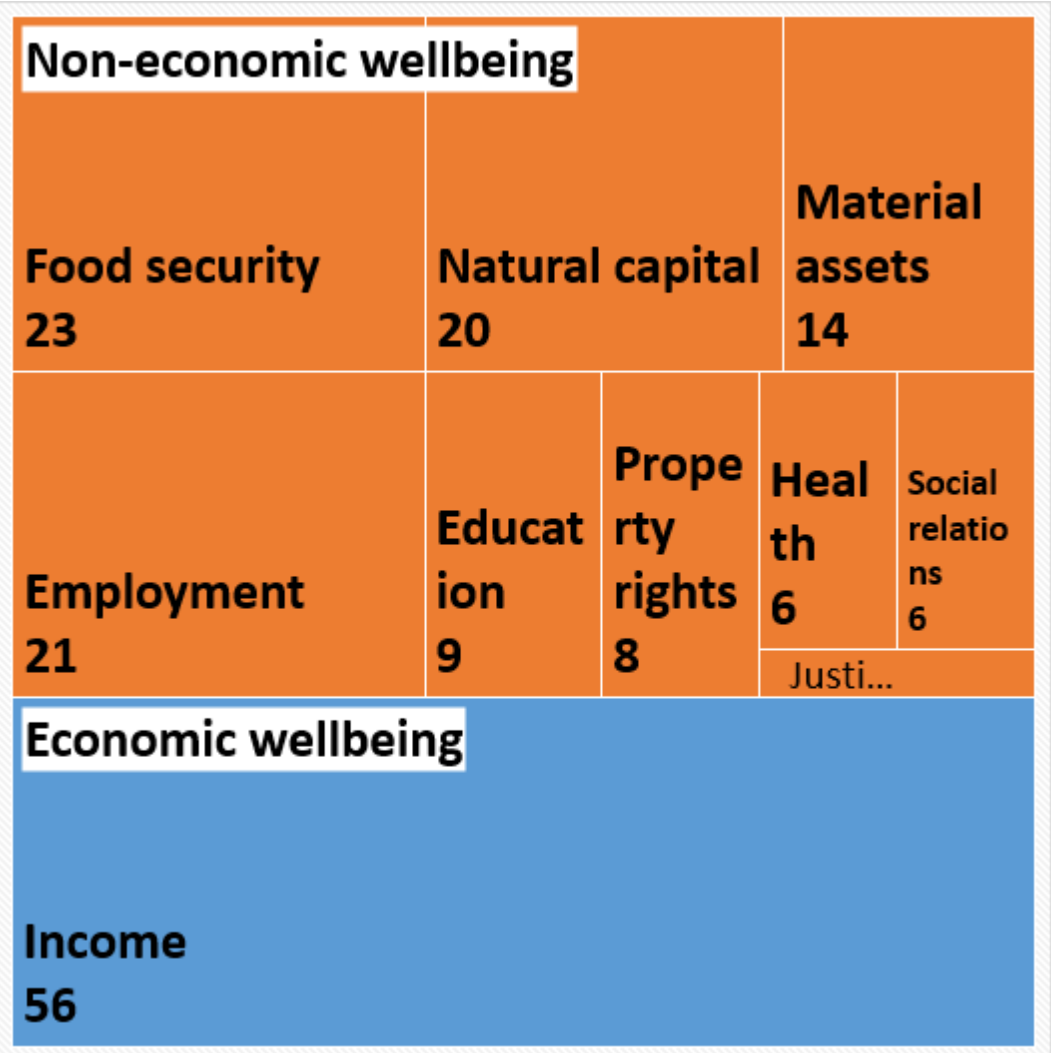
- Review recent research that investigates both ES&HWB outcomes in low & middle income countries.
- Summary analysis of 61 cases in 53 papers.
- Review selected ESPA cases (Mozambique – ACES, Laos – ESWJ, Bangladesh – DELTAS, China – E&P, Rwanda).



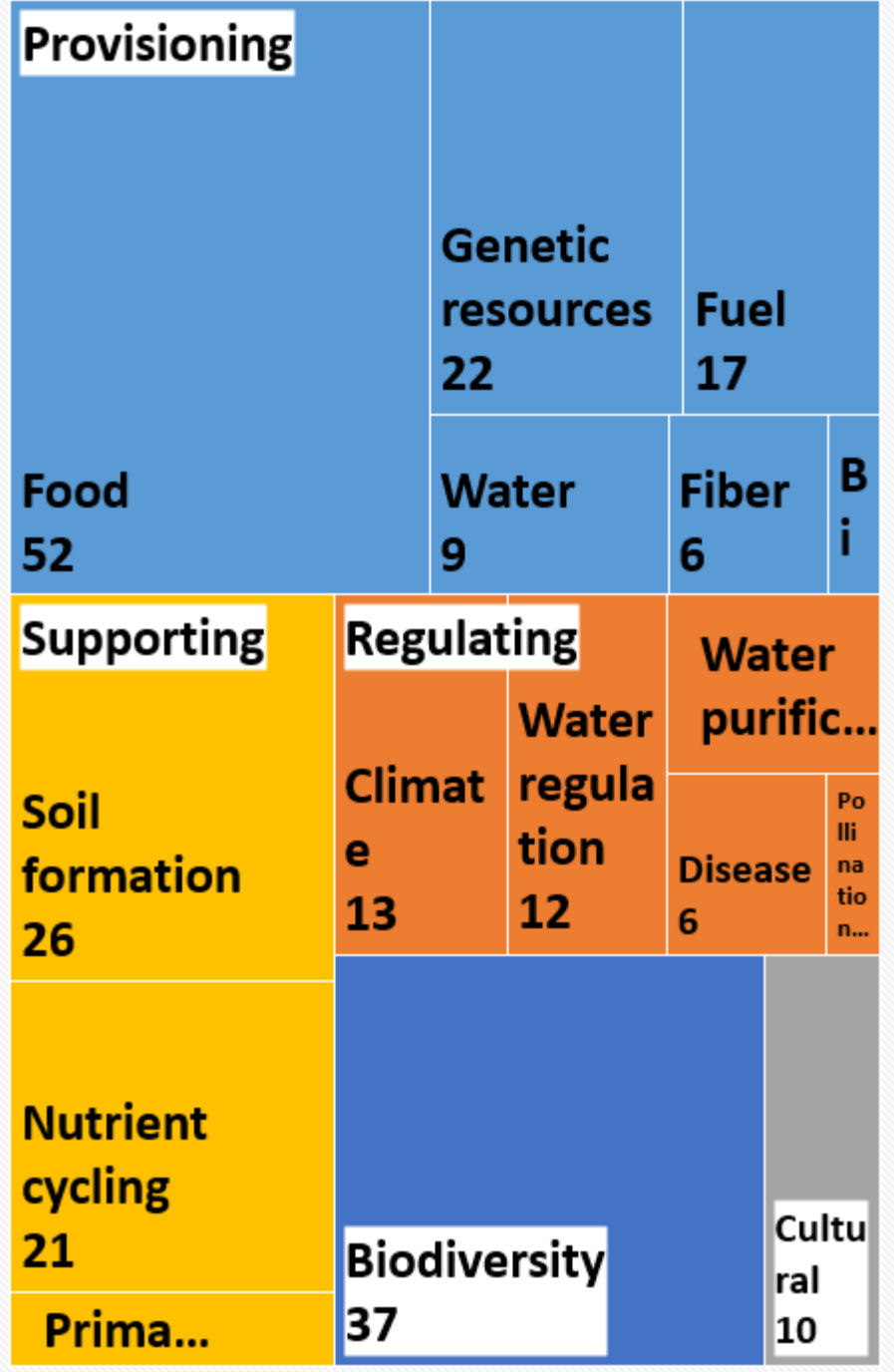
# Findings:

## What is Measured? (n=61)

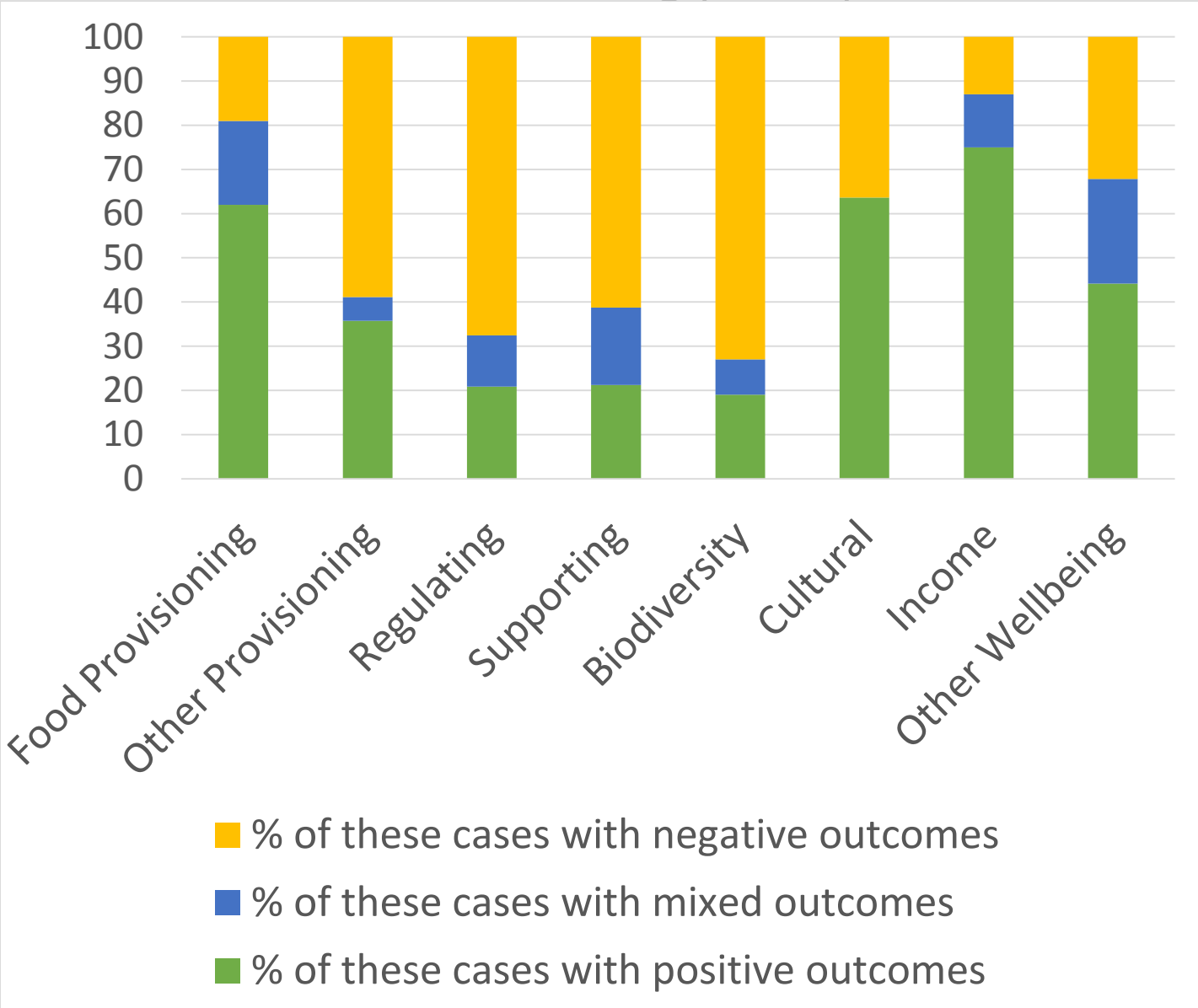
HUMAN WELLBEING



ECOSYSTEM SERVICES



# Proportion of studies reporting positive and negative outcomes for different categories of ecosystem services and human wellbeing (n = 61)



## Case Study Evidence:

Multidimensional measures of wellbeing add important understanding of outcome pathways – e.g. ACES Mozambique find that only some elements of HWB are responsive to the first order outcomes of LUI .

## GENERALISED FINDING:

the logic and discourse that supports mainstream **land use intensification policies is not currently subject to adequate scientific scrutiny**

# Findings: Trade-offs

	Positive outcomes	Mixed outcomes	Negative Outcomes
Non-food provisioning	6	1	4
Regulating	2	1	10
Cultural	3	0	2
Supporting/ Biodiversity	7	7	11

**How increased food production trades off with ecosystem services. This table reports only on cases that find positive benefits for food provisioning services (n=31)**

## Case Study Evidence

e.g. Impacts on regulating services may involve long lag-times, non-linearity, tipping points (e.g. Zhang et al, 2015).

e.g. food production can also trade-off with food security (Broegaard et al. 2017)

## Generalised Findings:

**win-win outcomes are rarely observed**

# Findings: Disaggregation

Only 11/61 cases reported socially disaggregated outcomes

Where done (esp ESPA cases), confirms importance of disaggregation:

1. Needed to understand HWB outcomes
2. Needed to understand ES outcomes

(Equity/justice issues are part of the HWB-ES connectivity)



# Tentative generalisations about outcome pathways

**Context specific pathways** to e.g. 'lose-lose' for poor.

But also (anecdotally) **regularities**

- Input intensification leads to more positive outcomes
- Crop change/ expansion less likely to have positive outcomes (crop specialisation, monoculture, cash cropping)
- Limited choice for poor (e.g. transferred costs)

# Conclusions

1. Few cases support the assumption that land use intensification has win-win outcomes.
2. We will learn most about SI from studies that a) go beyond measures of income and productivity, b) monitor dynamics across scales, c) disaggregate across social groups.

Thank You