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Values in the landscape

Outline: Value in the landscapes

1. **What is a landscape?**
2. **Value of ecosystem services in the landscape**
3. **Value creation, extraction and destruction in the landscape**
4. **Global goals for landscapes**
5. *Case study:* **Restoration cost-benefit analysis for 42 African countries**
6. *Case study:* **Uganda wildlife tourism sector**
7. *Case study:* **Agricultural externalities in Malaysia (TEEB)**
8. **Tools and resources**
9. **Conclusions**
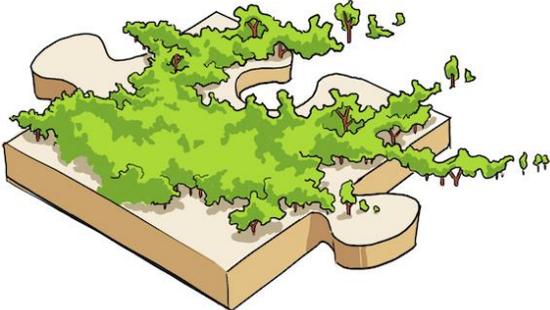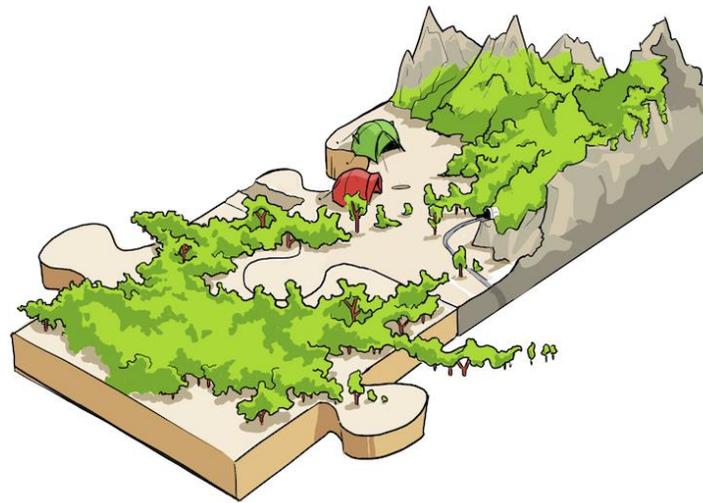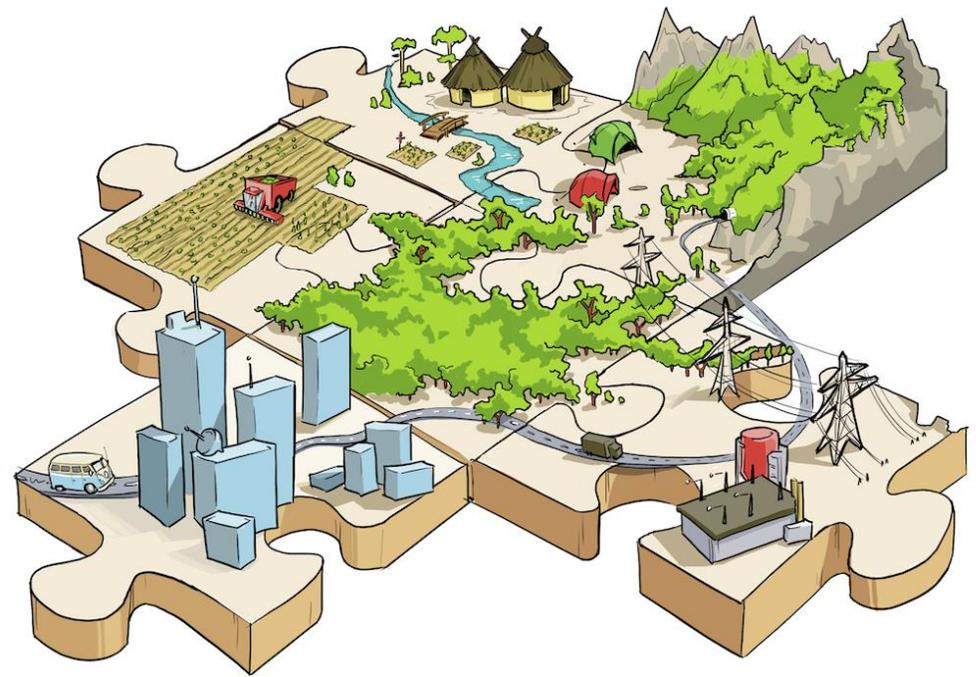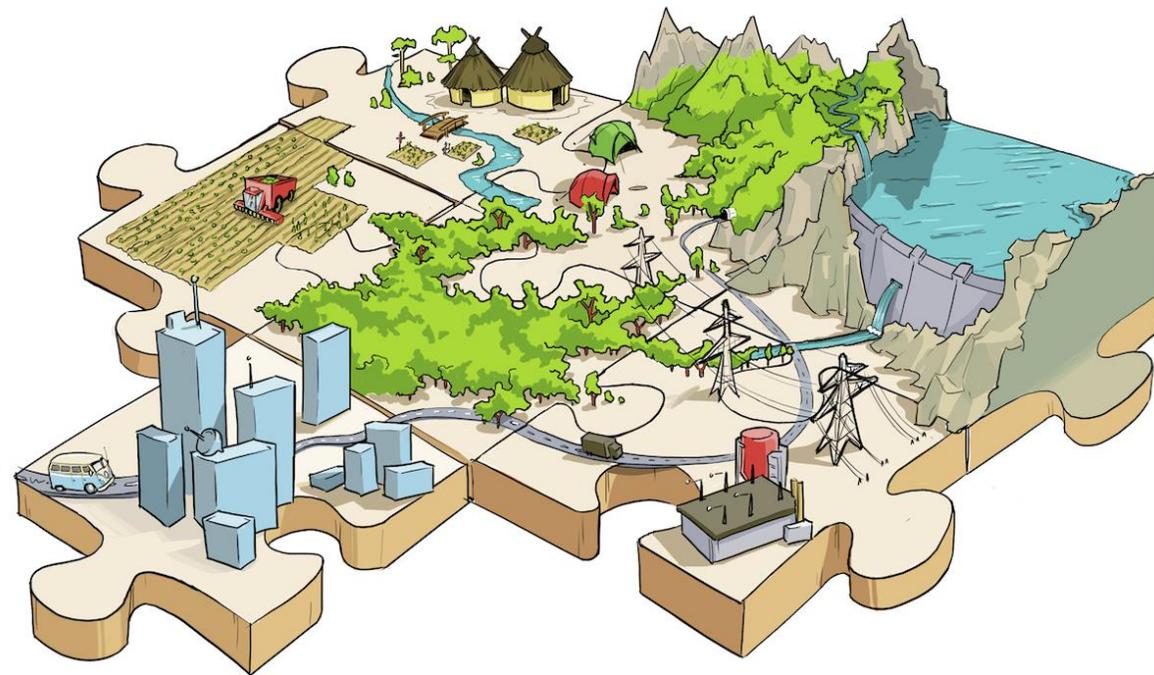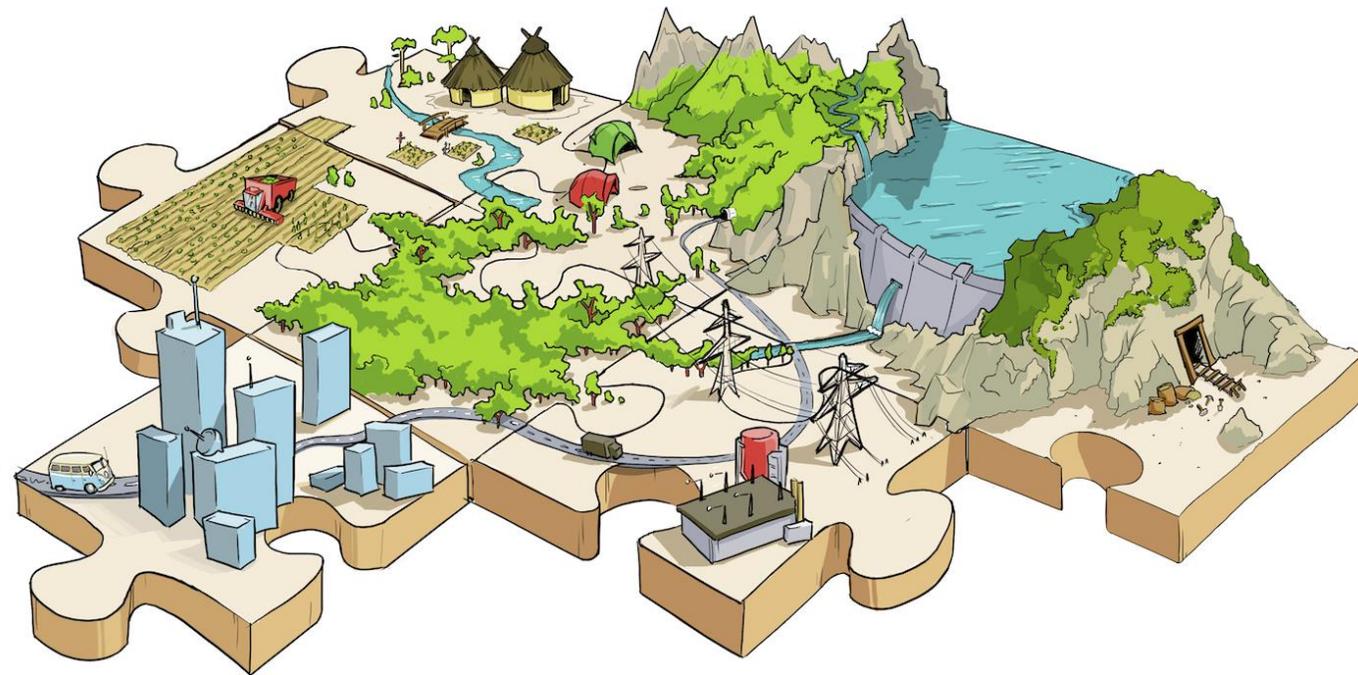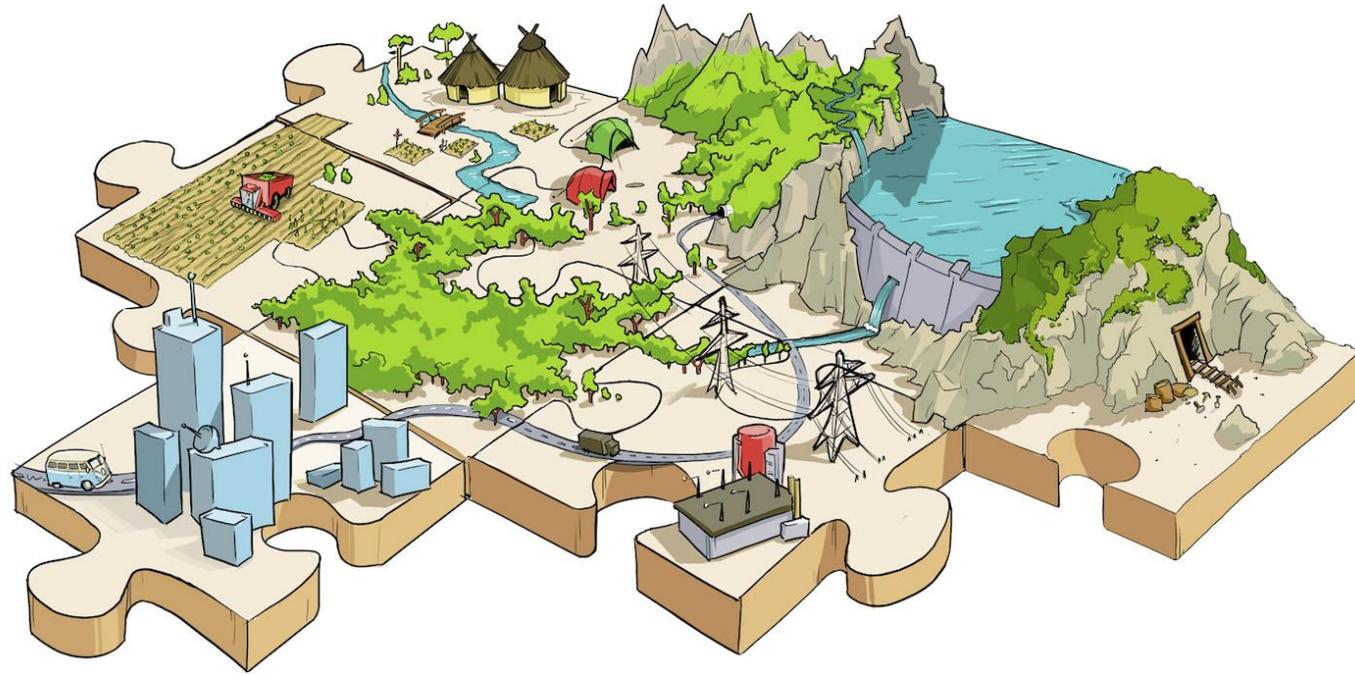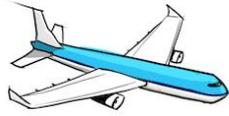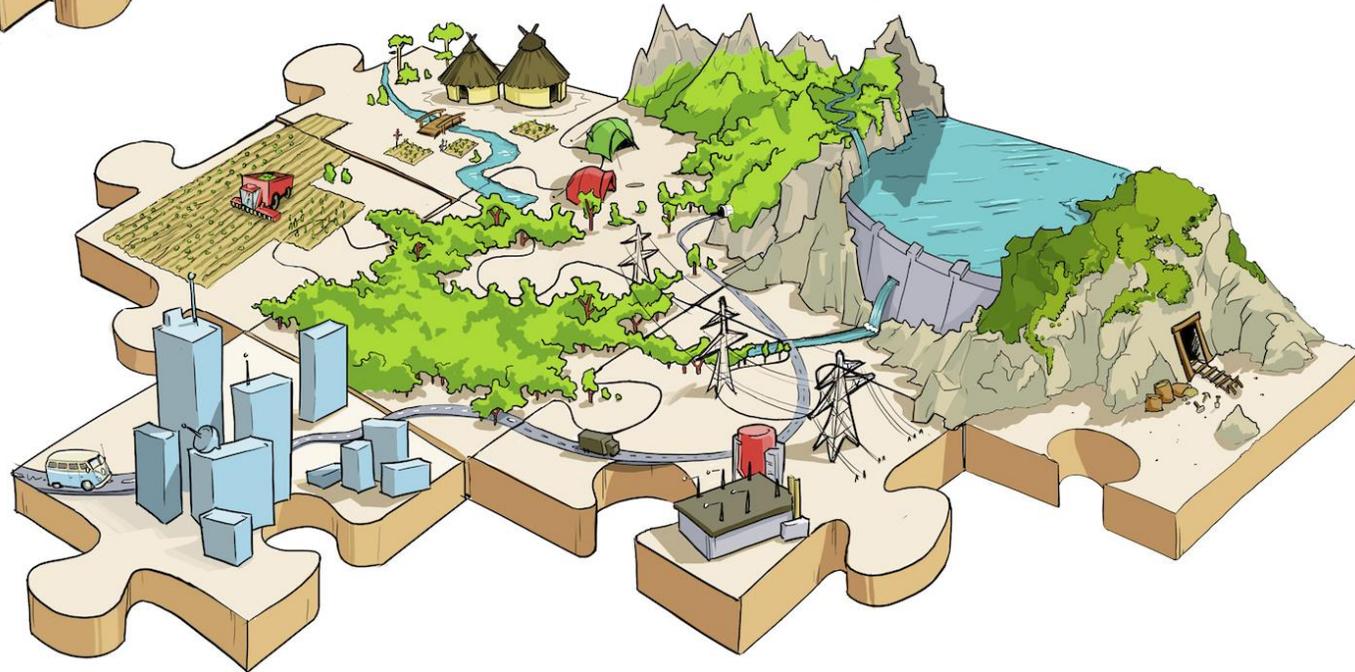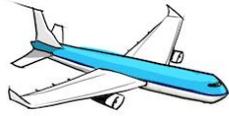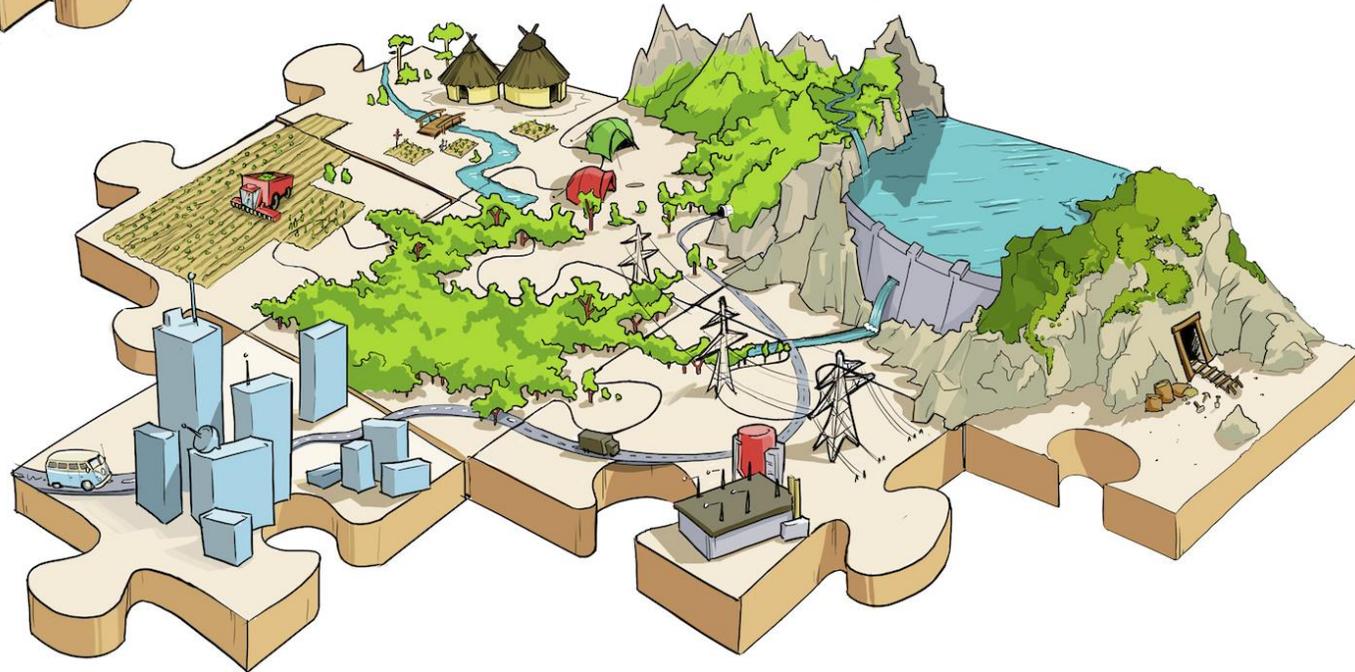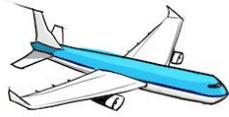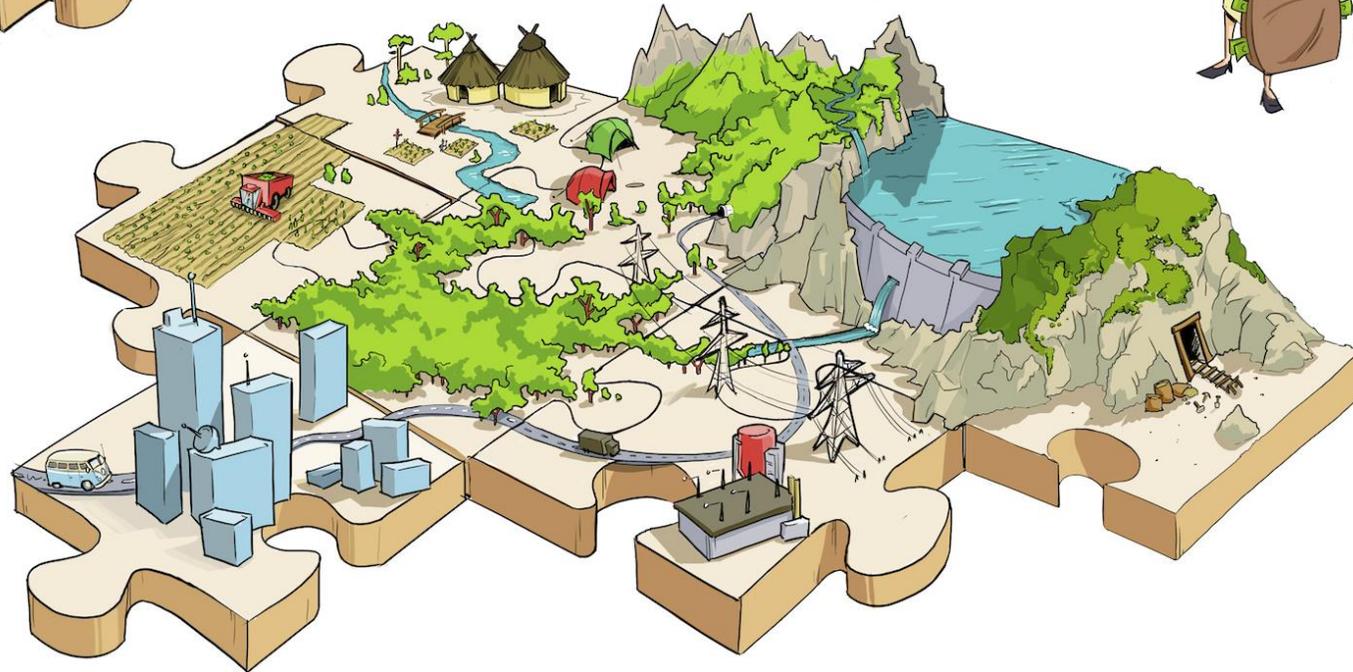
The 10 Principles of a Landscape Approach

SEEA Provides integrated information
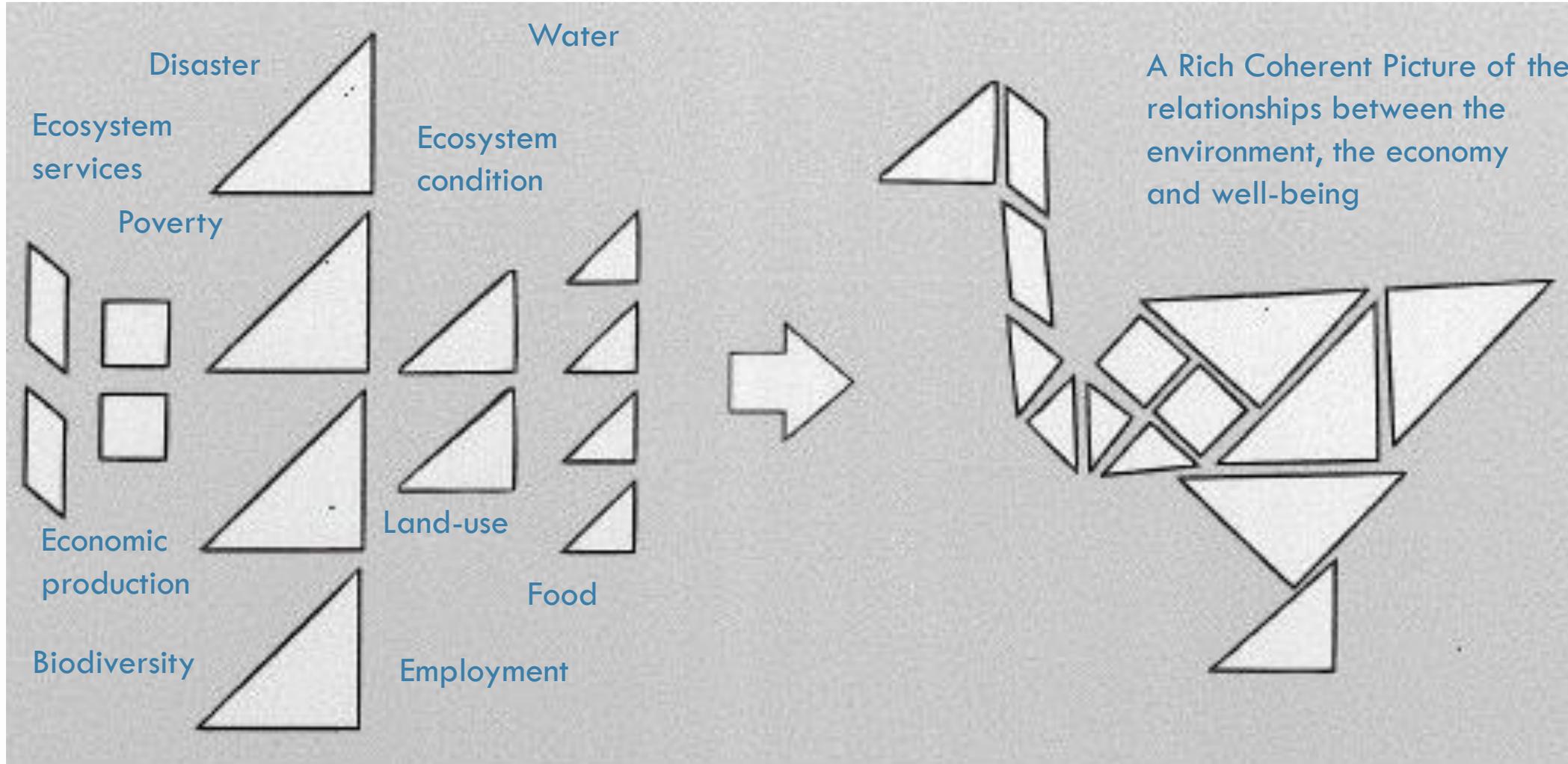
Statistics → Integrated information

2

Value from the landscape: Ecosystem services

Examples of ecosystem services for production sectors

Production sectors: Fisheries   Wood production   Agriculture

Genetic sources

Fish

Wood

Food

Recreation

Carbon storage

Pollination

Pest control

Fresh water

Fresh water

Soil formation

Primary production

Nutrient cycle

Cultural history

Water regulation

Purifying ability

pbl.nl

○ Provisioning services   ○ Cultural services

○ Regulating services   ○ Supporting services

Source: PBL

Solution: business *unusual* balancing economic, social and environmental SDG targets

- **Emissions**: 24% AFOLU / Paris
- **Conservation**: CBD Aichi targets ⬇
- **Restoration**: 350m ha by 2030 (Bonn Challenge), UN Decade

- **Population**: 9 billion (2050)
- **Food production**: ⬆ 60% (2050)
- **Food insecurity** (800+m hungry)

Business as usual won't work!
Need to better balance economic development, poverty alleviation, conservation and climate goals in the landscape

1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY	**8 DECENT WORK AND ECONOMIC GROWTH**	**9 INDUSTRY, INNOVATION AND INFRASTRUCTURE**	**10 REDUCED INEQUALITIES**	**11 SUSTAINABLE CITIES AND COMMUNITIES**	**12 RESPONSIBLE CONSUMPTION AND PRODUCTION**
13 CLIMATE ACTION	**14 LIFE BELOW WATER**	**15 LIFE ON LAND**	**16 PEACE, JUSTICE AND STRONG INSTITUTIONS**	**17 PARTNERSHIPS FOR THE GOALS**	**SUSTAINABLE DEVELOPMENT GOALS**

3 Value creation, extraction and destruction in the landscape

3 Value creation, value extraction and value destruction in the landscape

Activity in the landscape	Short-term gain	Long-term costs	Main indicators
Industrial agriculture	High agricultural yields (with high inputs)	• Nutrient runoff (eutrophication; coral reef dieback/bleaching) • High GHG emissions: climate change • Depletion and pollution of freshwater • Loss of biodiversity	➢ **Soil organic carbon** ➢ **Biodiversity** ➢ **Freshwater quantity and quality** ➢ **Nutrient runoff into marine ecosystems**
Organic Agriculture	None (lower yields)	• Higher farmer income • Farmer and consumer health • Biodiversity • Lower climate impact	
Regenerative Agriculture	Negative (upfront investment)	• Higher farmer income • CC Mitigation and adaptation • Farmer and consumer health • Biodiversity • Lower climate impact	
Ecosystem Restoration	Negative (upfront investment)	• Carbon capture (CC mitigation) • CC Adaptation	

Response options based on land management		Mitigation	Adaptation	Desertification	Land Degradation	Food Security	Cost
Agriculture	Increased food productivity	L	M	L	M	H	—
	Agro-forestry	M	M	M	M	L	●
	Improved cropland management	M	L	L	L	L	●●
	Improved livestock management	M	L	L	L	L	●●●
	Agricultural diversification	L	L	L	M	L	●
	Improved grazing land management	M	L	L	L	L	—
	Integrated water management	L	L	L	L	L	●●
	Reduced grassland conversion to cropland	L	—	L	L	- L	●
Forests	Forest management	M	L	L	L	L	●●
	Reduced deforestation and forest degradation	H	L	L	L	L	●●
Soils	Increased soil organic carbon content	H	L	M	M	L	●●
	Reduced soil erosion	←→ L	L	M	M	L	●●
	Reduced soil salinization	—	L	L	L	L	●●
	Reduced soil compaction	—	L	—	L	L	●
Other ecosystems	Fire management	M	M	M	M	L	●
	Reduced landslides and natural hazards	L	L	L	L	L	—
	Reduced pollution including acidification	←→ M	M	L	L	L	—
	Restoration & reduced conversion of coastal wetlands	M	L	M	M	←→ L	—
	Restoration & reduced conversion of peatlands	M	—	na	M	- L	●

Estimated 25 million ha of degraded land in the Cerrado/Brazil alone; about 2 billion ha world-wide, about half of all agricultural land.

4 Global goals for landscapes

Main international policy goals for landscapes

1

Sustainable Development Goals: contribute directly & indirectly
to several SDG goals and targets in a holistic way by balancing the
need to enhance food production and support to smallholder farmers
with better forest protection, climate mitigation, water management

2

Climate Change: mitigate emissions to ensure the global community
meet the Paris Climate Agreement to limit temperate rise to 1.5-2C

3

Restoration: contribute to rehabilitation of degraded land (there
is more than 2 billion ha of degraded land at present). UN Decade on Ecosystem
Restoration 2021-2030 will focus on restoring degraded ecosystems worldwide

4

Halting (tropical) deforestation: The New York Declaration on Forests
aims to half deforestation by 2020 and end it by 2030

5

Biodiversity and ecosystems: contribute to reduce loss of
natural habitats, and protect biodiversity through
Aichi Biodiversity Targets (new post-2020 framework COP15 in 2020)

United Nations Decade on Ecosystem Restoration 2021-2030

The need for action

Land Degradation:

Negatively affecting well-being of **3.2 billion people**

Loss of biodiversity and ecosystem services = **10% of global GDP**

**Forests:
70 M ha lost
since 2000**

**Wetlands:
70% lost in
last century**

**Drastic decline
of coral reefs and
seagrass beds**

Current situation

- **Energy**: investment renewables now higher than fossil fuels (inflection point?)
- **Land use**: investment in 'unsustainable' land use orders of magnitude larger

USD 1.7 trillion

Global investment in fossil fuel:

$130 billion

Investments in soft commodity production

Annual export trade soft commodities

Vs

Global investment in renewables:

$286 billion

land use-related finance (2014)

Data: Frankfurt School / UNEP Centre
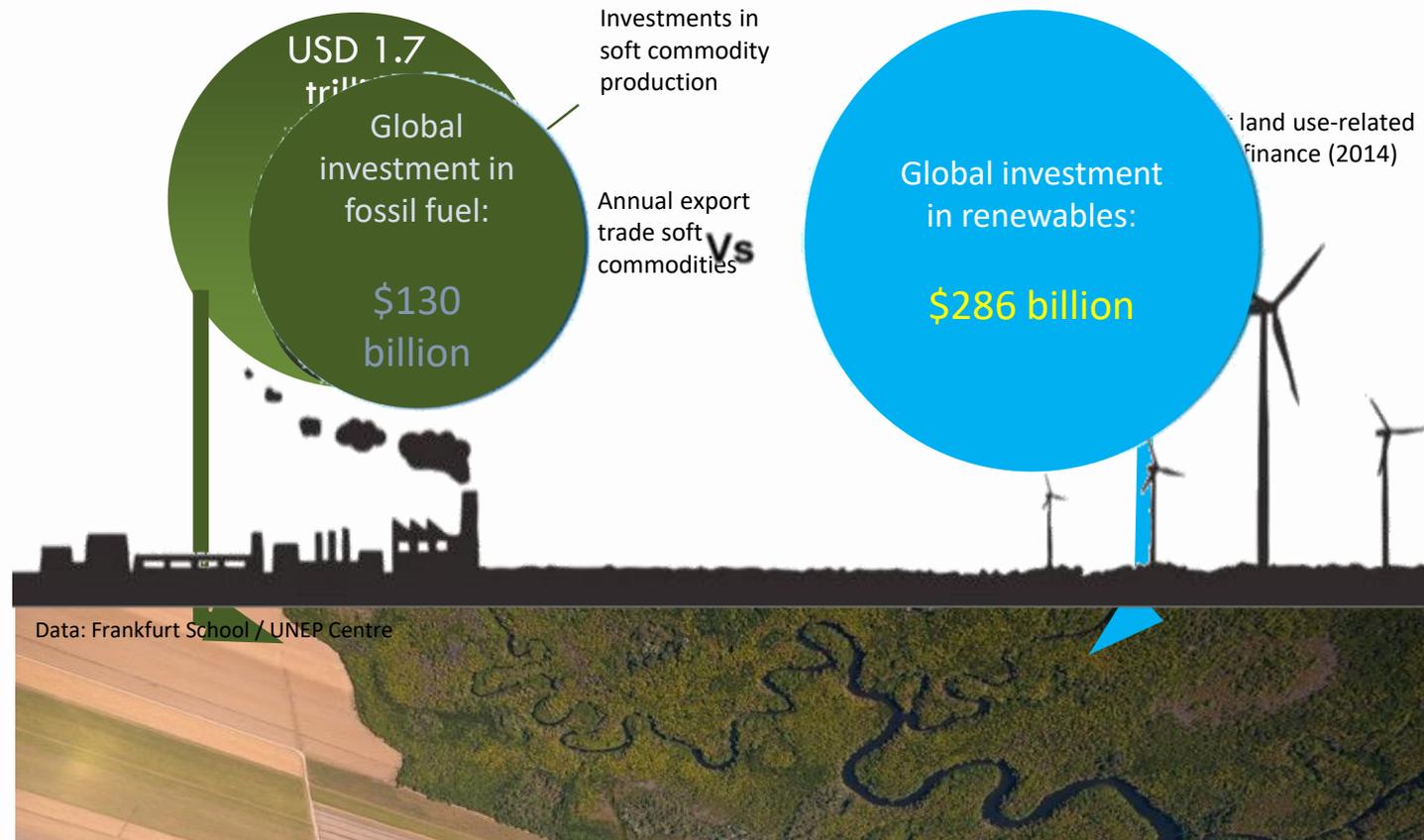
5

Case study: Benefit-Cost Ratio of restoration in Africa and Asia

Economic Efficiency of Restoration in Africa (42 Countries)
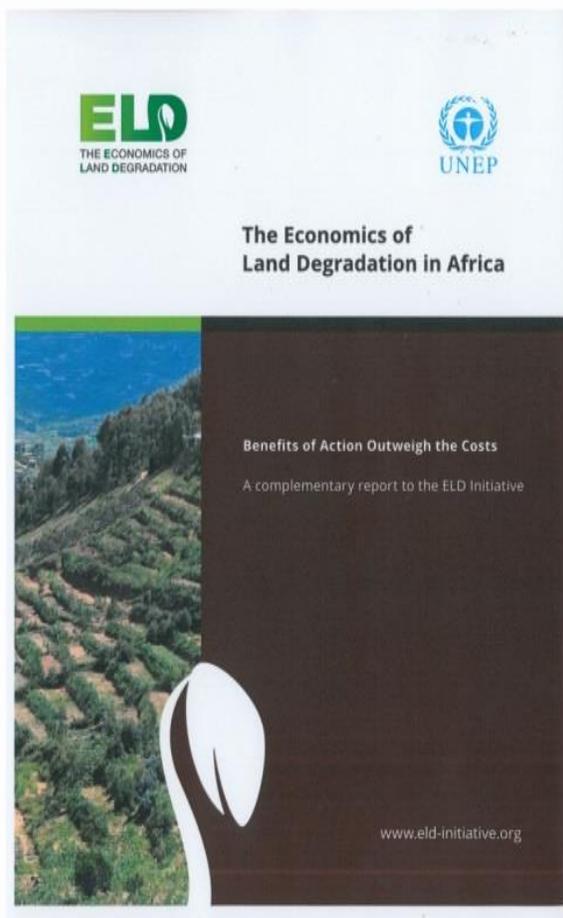
	Benefit Cost ratio over 20 years
Region	**BCR**
East Africa	4.00
Central Africa	4.62
North Africa	26.35
South Africa	3.16
West Africa	5.45

The Economics of Land Degradation in Africa

Benefits of Action Outweigh the Costs

A complementary report to the ELD Initiative

www.eld-initiative.org

21.11.2019

Investment in LDN in Asia (46 Countries)

UN environment

Present values of costs, benefits , net present values and benefit cost ratios of achieving agricultural land degradation neutrality in Asia and sub-regions (period 2018-2030, average discount rate of 5.67%)
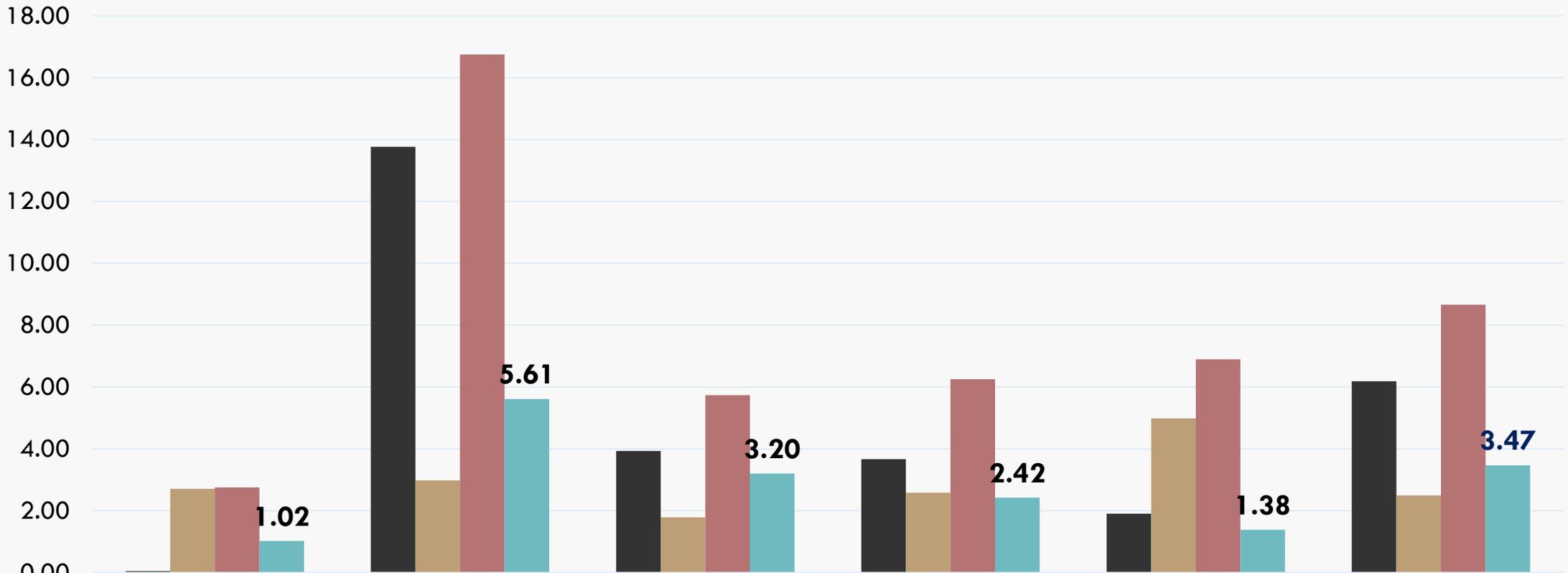
	Central Asia	East Asia	Southern Asia	South East Asia	West Asia	ASIA
NPV in 1000s USD/ha	0.05	13.77	3.93	3.67	1.91	6.18
PVTC_SLM in 1000s USD/ha	2.71	2.98	1.79	2.59	4.99	2.49
PVB in 1000s USD/ha	2.75	16.75	5.74	6.25	6.90	8.66
BCR	1.02	5.61	3.20	2.42	1.38	3.47

6 *Case study:* **Wildlife tourism in Uganda**

Policy Entry Point: Uganda Green Growth Development Strategy (UGGDS)

- Tourism sector contributes 7.3% of GDP and employing 6% of labour force in Uganda.

- UGGDS targets the tourism and wildlife sector:
  - Quadruple the value of foreign tourism by 2030.
  - Create jobs and boost incomes
  - Protect natural capital

- Environmental-economic accounts are needed to provide key data and statistics for supporting green growth policy actions (UGGDS, Section 4.10)

Map of National Parks in Uganda (2019)

0   50   100 km

This map presents the location and extent of Uganda's 10 National Parks (from the World Database on Protected Areas). Forest Reserves and other Conservaion Areas are omitted. Printed on: 14.10.2019

N

UN environment 40 years WCMC

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Kidepo Valley

Murchison Falls

Mount Elgon

Semuliki

Kibale

Rwenzori Mountains

Queen Elizabeth

Lake Mburo

Bwindi Impenetrable

Mgahinga Gorilla
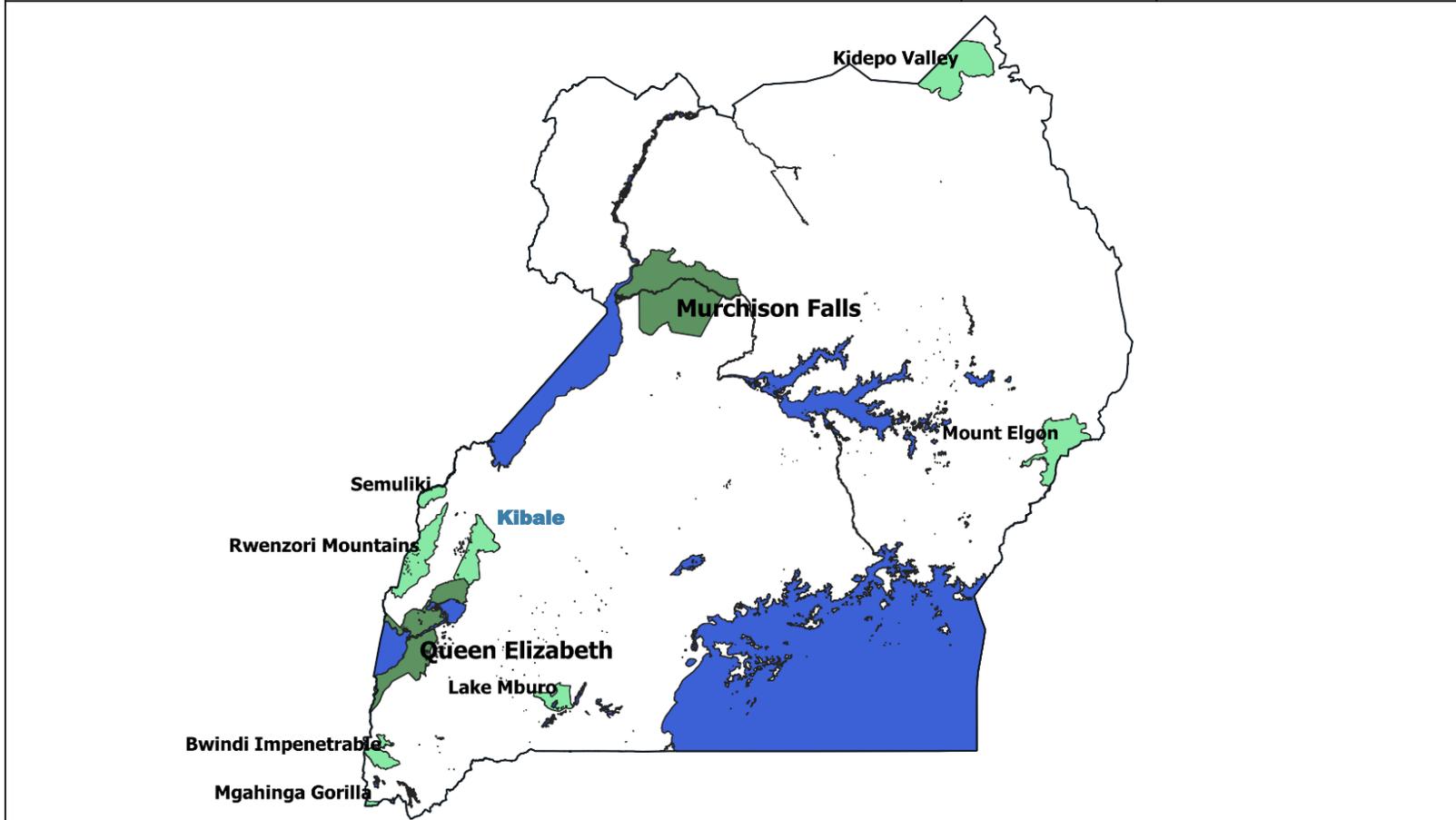
Policy Insights for Green Growth

- Understand direct and indirect expenditure associated with the wildlife tourism sector (identify highest multipliers for green growth)

- Reveal trends in the condition of ecosystems and species and where these are a risk to tourism revenues (protect natural capital)

- Identify opportunities for developing wildlife watching packages for different tourists (increase export revenue)

- Link wildlife tourism development to job creation and poverty alleviation (integrate with local employment and poverty statistics)

- Inform macroeconomic analysis for Green Economy policy planning (by linking ecosystem services to standard economic units)

Ecosystem accounting in Uganda

Work with partners to design accounts targeting key policy entry points

a. NBSAP (II) – Achieve Aichi Targets

b. NDP (II) – Implements SDGs
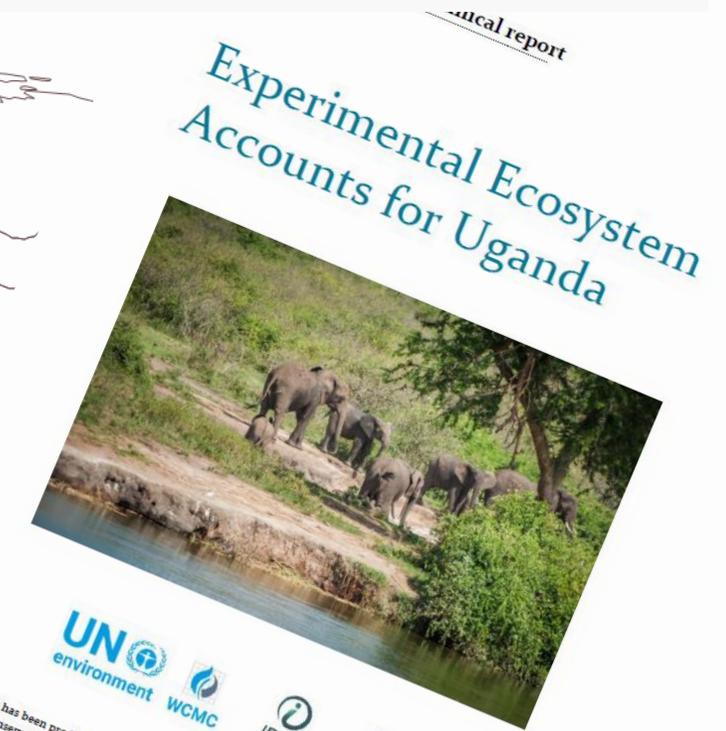
Experimental Ecosystem Accounts for Uganda

The report has been produced jointly by UNEP-WCMC and IDEEA Group in collaboration with the Wildlife Conservation Society (WCS), National Planning Authority (NPA) of Uganda, National Environmental Management Authority (NEMA) of Uganda, and National Biodiversity Databank of Makerere University. The project was funded by the Swedish International Development Cooperation Agency (SIDA).

www.wcmc.io/0524

21/11/2019

More Accounts!

- Land

- Ecosystem Extent

- Species

- Policy applications
  www.wcmc.io/0524

UNEP-WCMC & IDEEA **Technical report**

Experimental Ecosystem Accounts for Uganda

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7 *Case study*: **Agricultural externalities**

Agro-forestry versus monoculture: *current assumption*
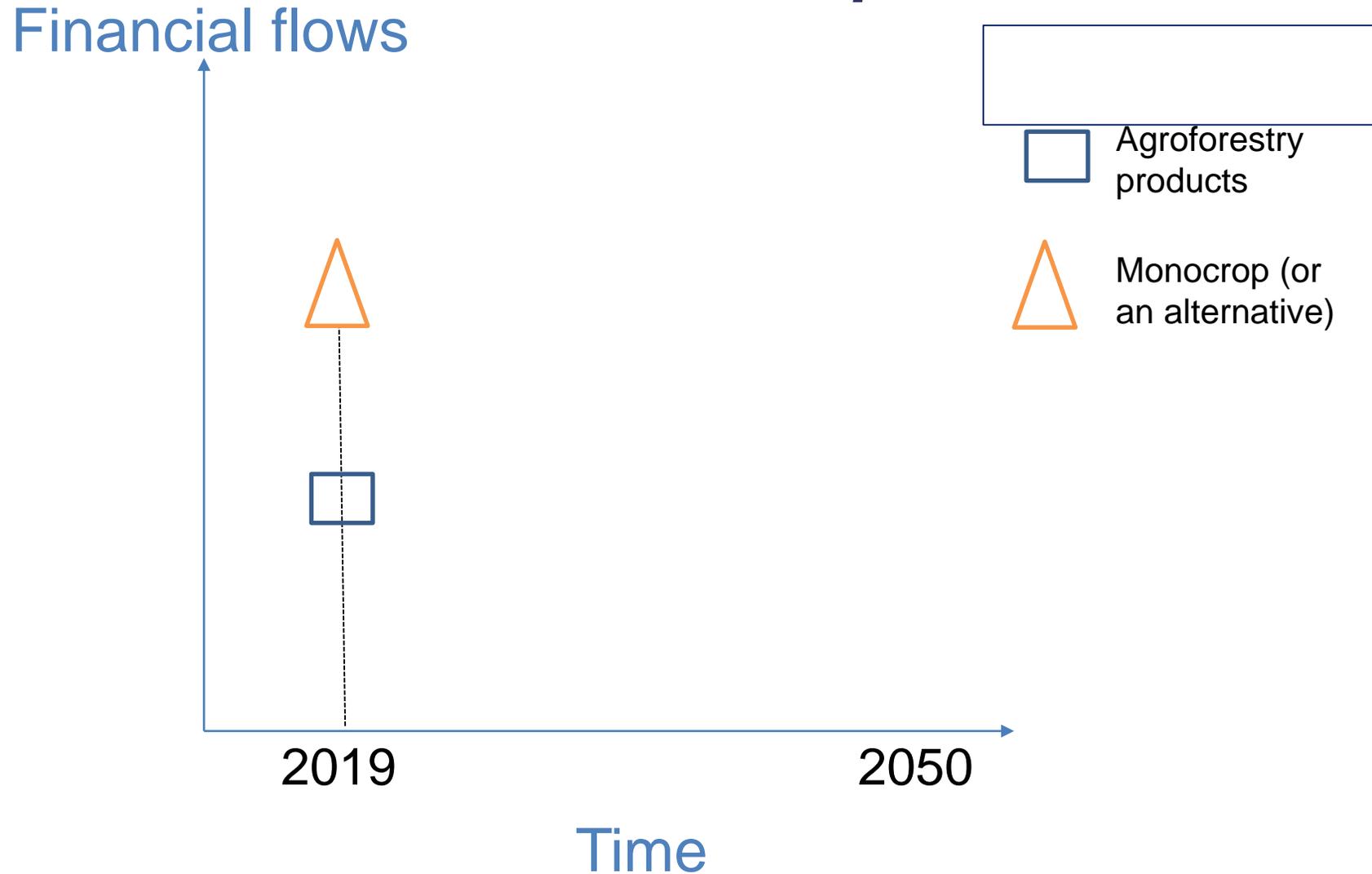
Financial flows

Agroforestry products

Monocrop (or an alternative)

2019

2050

Time
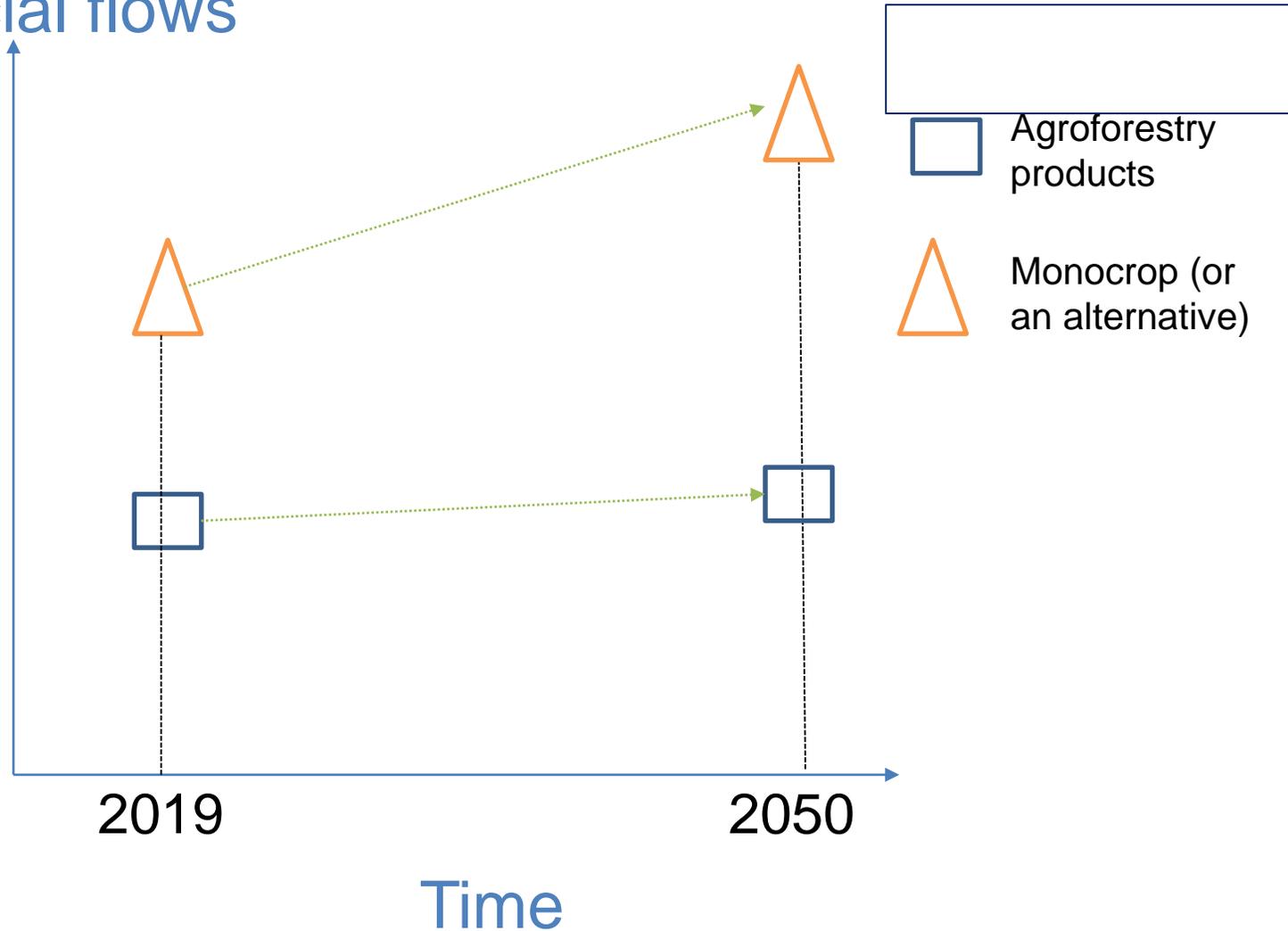
Agro-forestry versus monocrop:
2019 including externalities

Financial/Economic flows

Agroforestry products

Monocrop (or an alternative)

Agroforestry including externalities

Monocrop including externalities
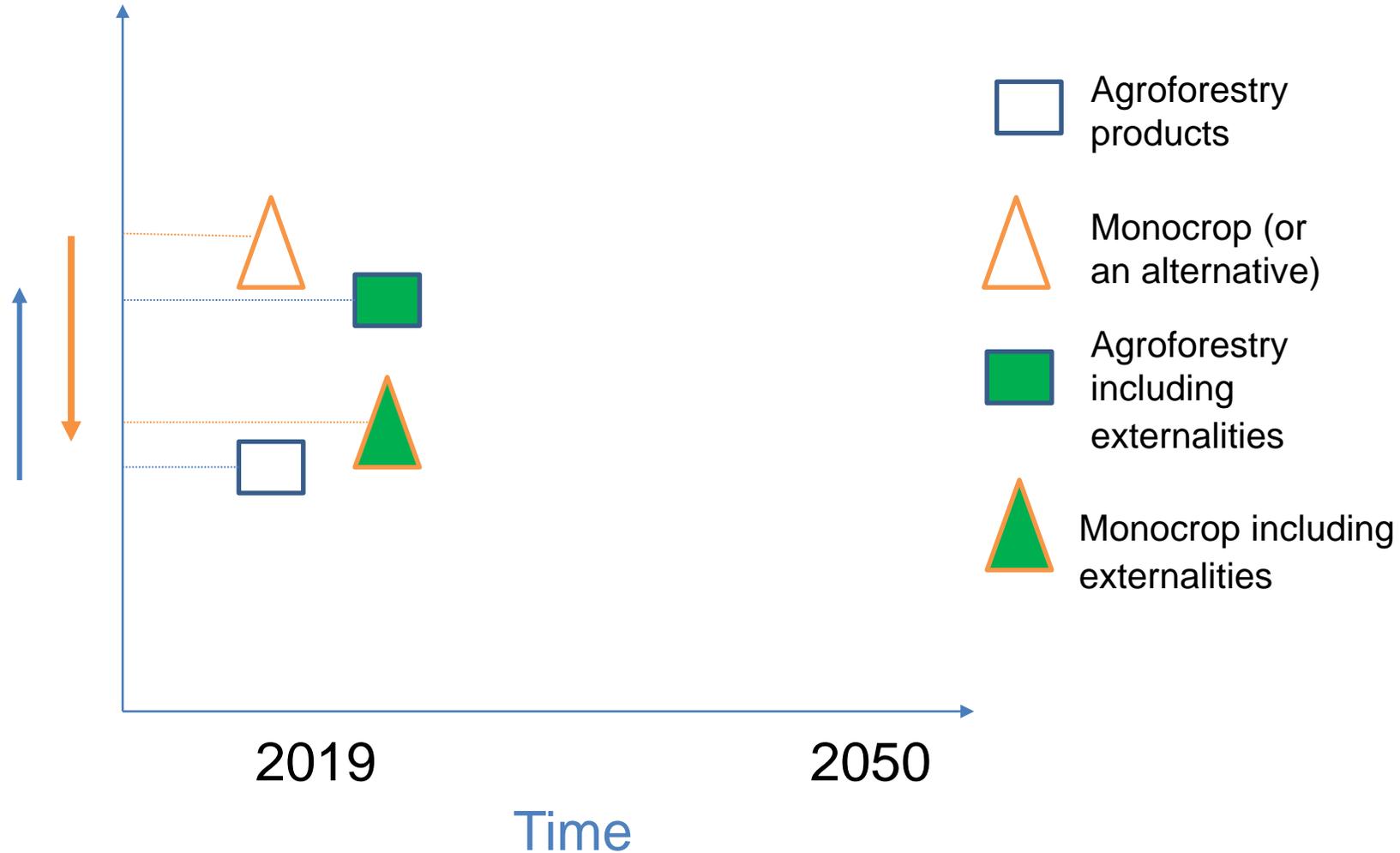
2019

2050

Time

Agro-forestry versus monocrop:
current assumption

Economic/financial flows

2019

2050

Time

Agroforestry products

Monocrop (or an alternative)

Agroforestry including externalities

Monocrop including externalities

teebweb.org
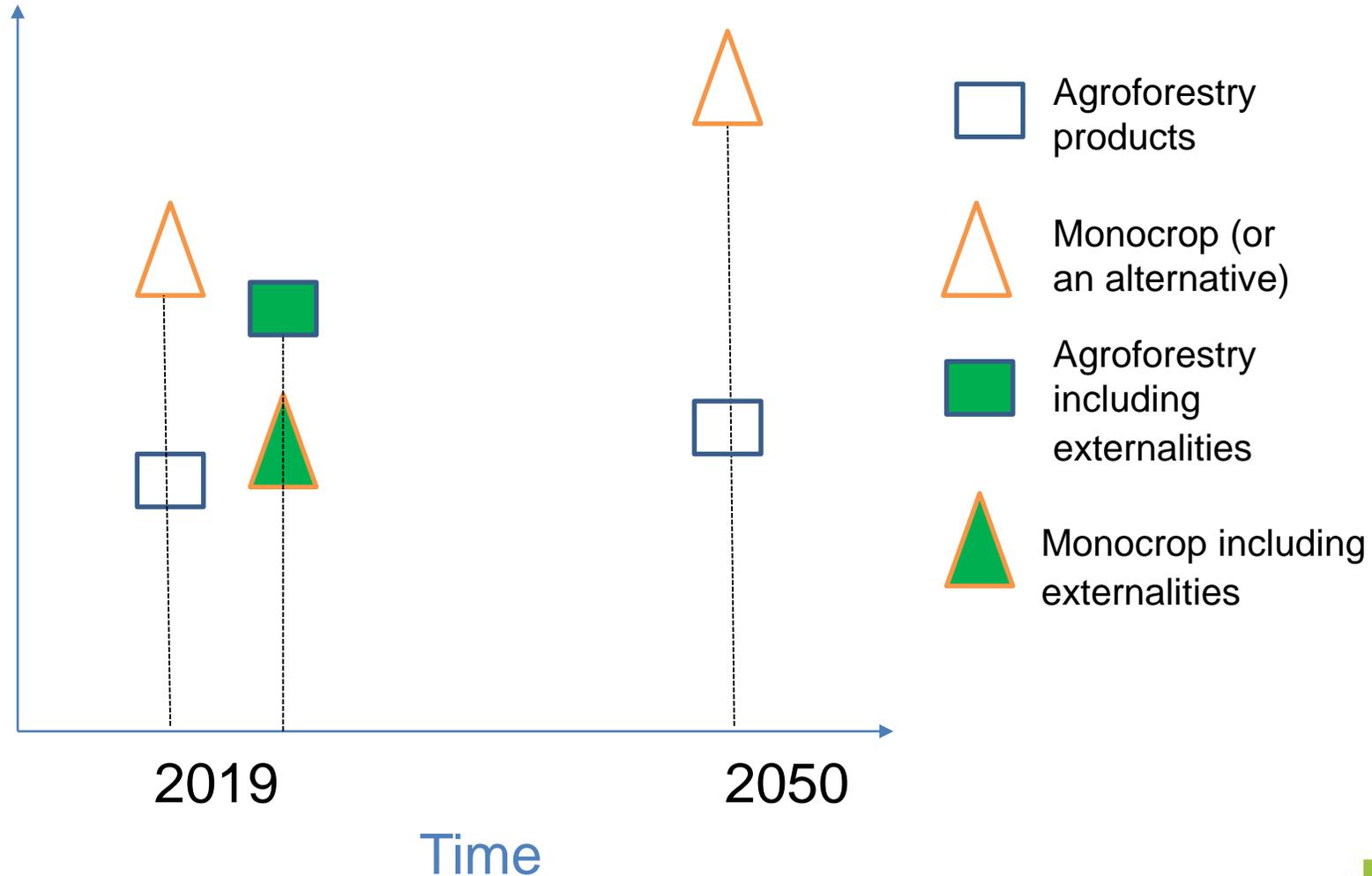
Agro-forestry versus monocrop: 2019/2050

The Economics of Ecosystems & Biodiversity

Agro-forestry versus monocrop:
Situation worsens for monocrop over time

Economic flows (including externalities)

Legend:
- Agroforestry products
- Monocrop (or an alternative)
- Agroforestry including externalities
- Monocrop including externalities

2019   2050

Time

teebweb.org
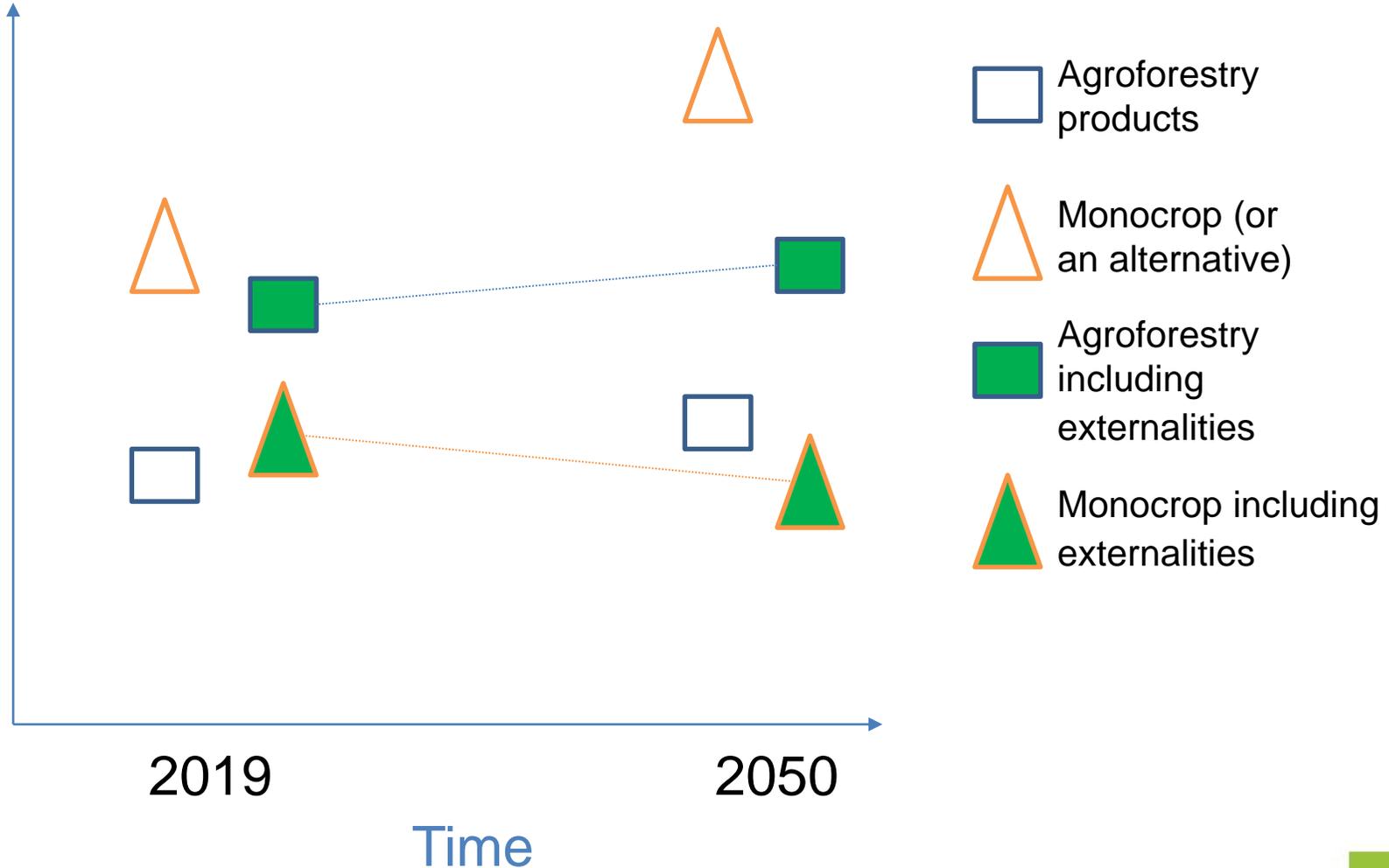
Agro-forestry versus monocrop:
2050 for agro-forestry

Financial/Economic flows

Agroforestry products

Monocrop (or an alternative)

Agroforestry including externalities

Monocrop including externalities

2019

2050

Time

teebweb.org
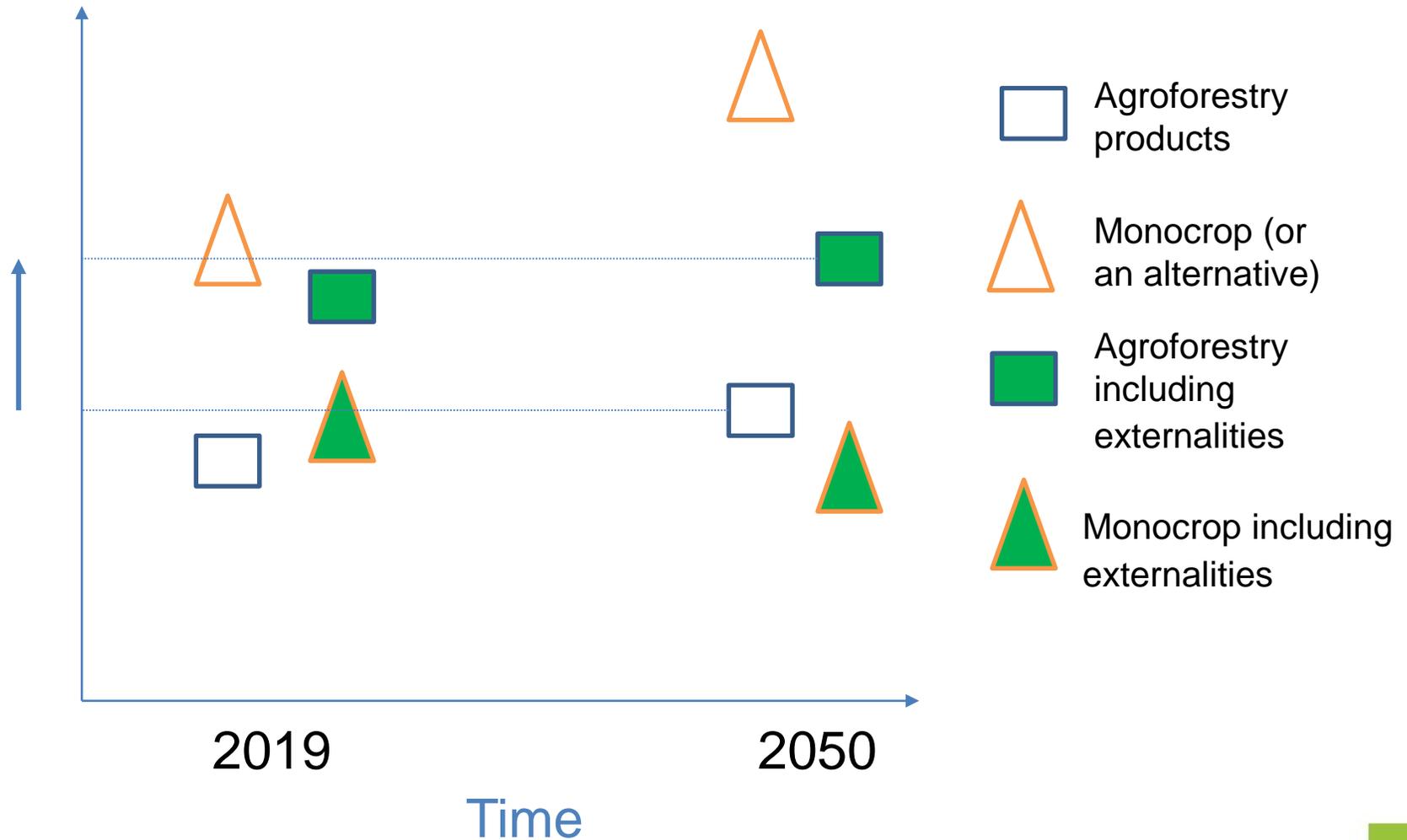
Agro-forestry versus monocrops:
2050 for the monocrop

Financial/Economic flows

Agroforestry products

Monocrop (or an alternative)

Agroforestry including externalities

Monocrop including externalities

2019

2050

Time

teebweb.org
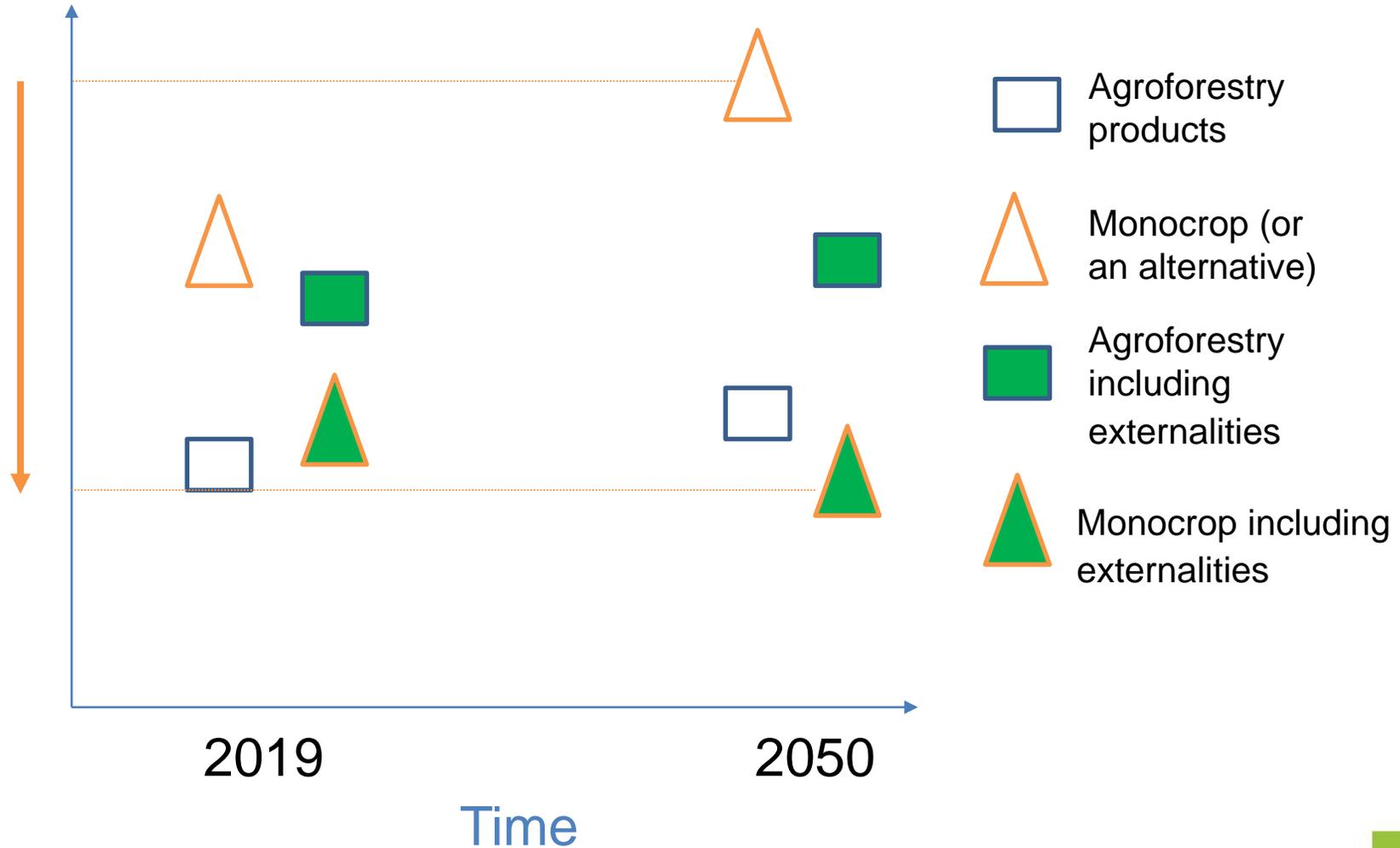
Figure 2.1 Capital stocks and value flows in eco-agri-food systems (Source: Hussain and Vause 2018)

HUMAN CAPITAL

- Labour
- Knowledge

- Wages
- Working conditions
- Nutritious food

SOCIAL CAPITAL

- Social networks
- Land access /tenure
- Cultural knowledge

- Food security
- Opportunities for co-operation and community activities

PRODUCED CAPITAL

- Machinery and infrastructure
- Energy, fuel, fertilizers and pesticides
- Research and Development; IT
- Finance

- Income
- Profits and rents
- Taxes

AGRICULTURE & FOOD VALUE CHAIN

Agricultural Production → Manufacturing and Processing → Distribution, Marketing and Retail → Household Consumption

- Biomass growth
- Fresh water
- Pollination
- Pest control
- Nutrient cycling

- Ecosystem restoration
- Deforesation and habitat loss
- Greenhouse Gas Emissions
- Pollution

NATURAL CAPITAL

8

Tools and resources

UN Environment - Financing Sustainable Land Use - Ivo Mulder

Tools and Resources

1. **TEEB Agri-Food:** http://teebweb.org/agrifood/
2. **IBAT – Integrated Biodiversity Assessment Tool:**

www.ibatforbusiness.org

3. **Global Partnership on Forest and Landscape Restoration:** www.forestlandscaperestoration.org
4. **UN Decade on Ecosystem Restoration 2021-2030:** www.decadeonrestoration.org
5. **The Economics of Land Degradation:** www.eld-initiative.org

UNEP LAND USE FINANCE PROGRAMME

HOW DO WE FEED A GROWING WORLD POPULATION WITHOUT HARMING THE PLANET?

AGRICULTURE | DEFORESTATION | CLIMATE CHANGE

IT IS NECESSARY TO TRANSITION TO SUSTAINABLE AGRICULTURE

IMPROVED LIVELIHOODS | INCREASED RESILIENCE | FOREST PROTECTION | BETTER YIELDS

BUT THIS REQUIRES CONSIDERABLE FUNDING

FINANCIERS
- Perceive sustainable agriculture as a high-risk endeavour

NOT LENDING

FARMERS
- Need technical support, access to affordable capital

Creating structure & alignment across several facilities through UNEP Land Use Finance Programme
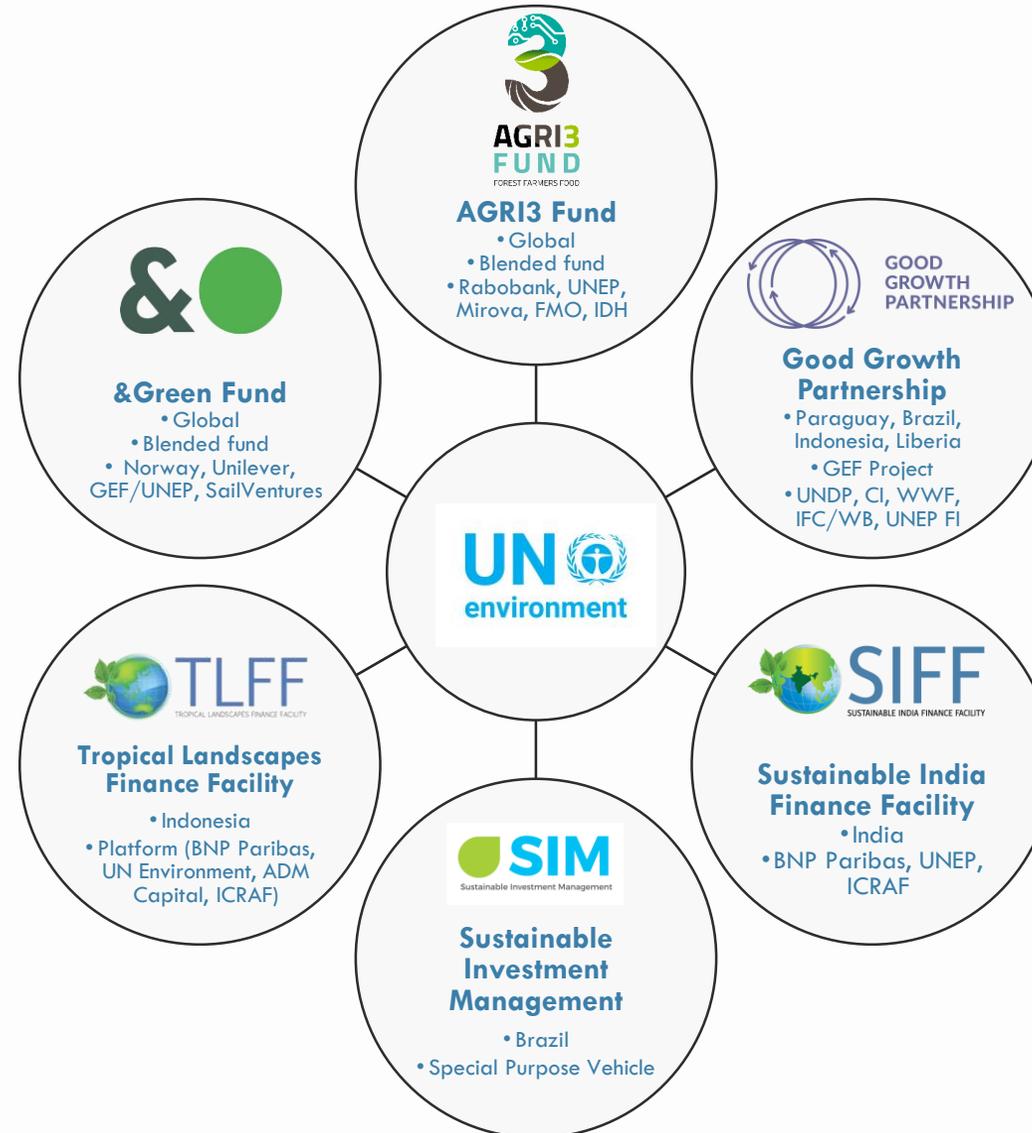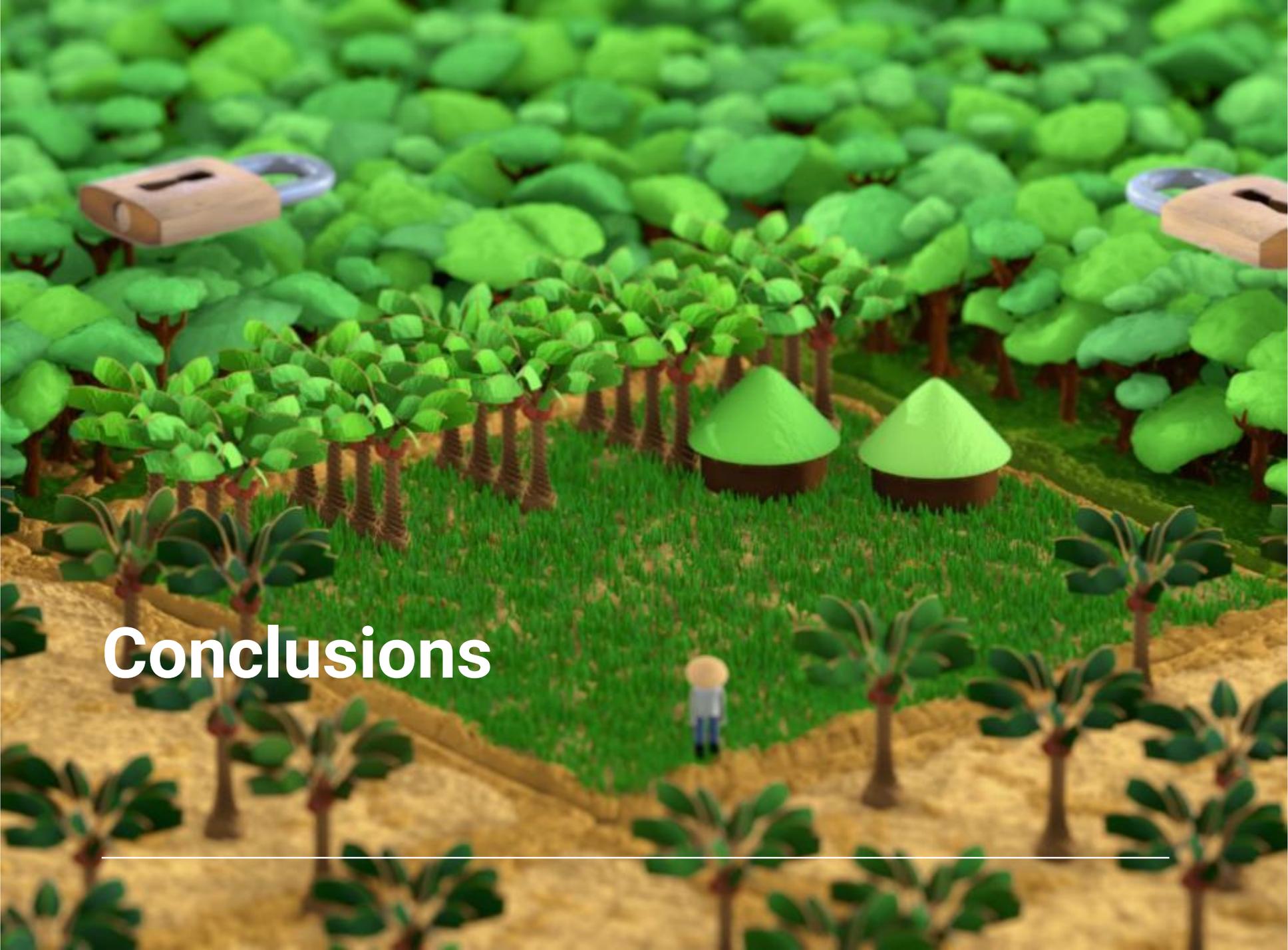
Conclusions

How to achieve transformation? (1)

- Focus on **long-term societal gain instead of short-term private profits**

- Reflect this better in **national accounting and fiscal policies**

- Ensure **monitoring of key indicators for success in the landscape:** 1. soil organic carbon; 2. farmer income and health; 3. biodiversity; 4. water quantity and quality

- **Channel public and private funds into regenerative agriculture and ecosystem restoration**

Our values are based on our stories

'If a man walks in the woods for love of them half of each day, he is in danger of being regarded as a loafer; but if he spends his whole day as a speculator, shearing off those woods and making earth bald before her time, he is esteemed an industrious and enterprising citizen.'

Henry David Thoreau (1817-1862): Life Without Principle

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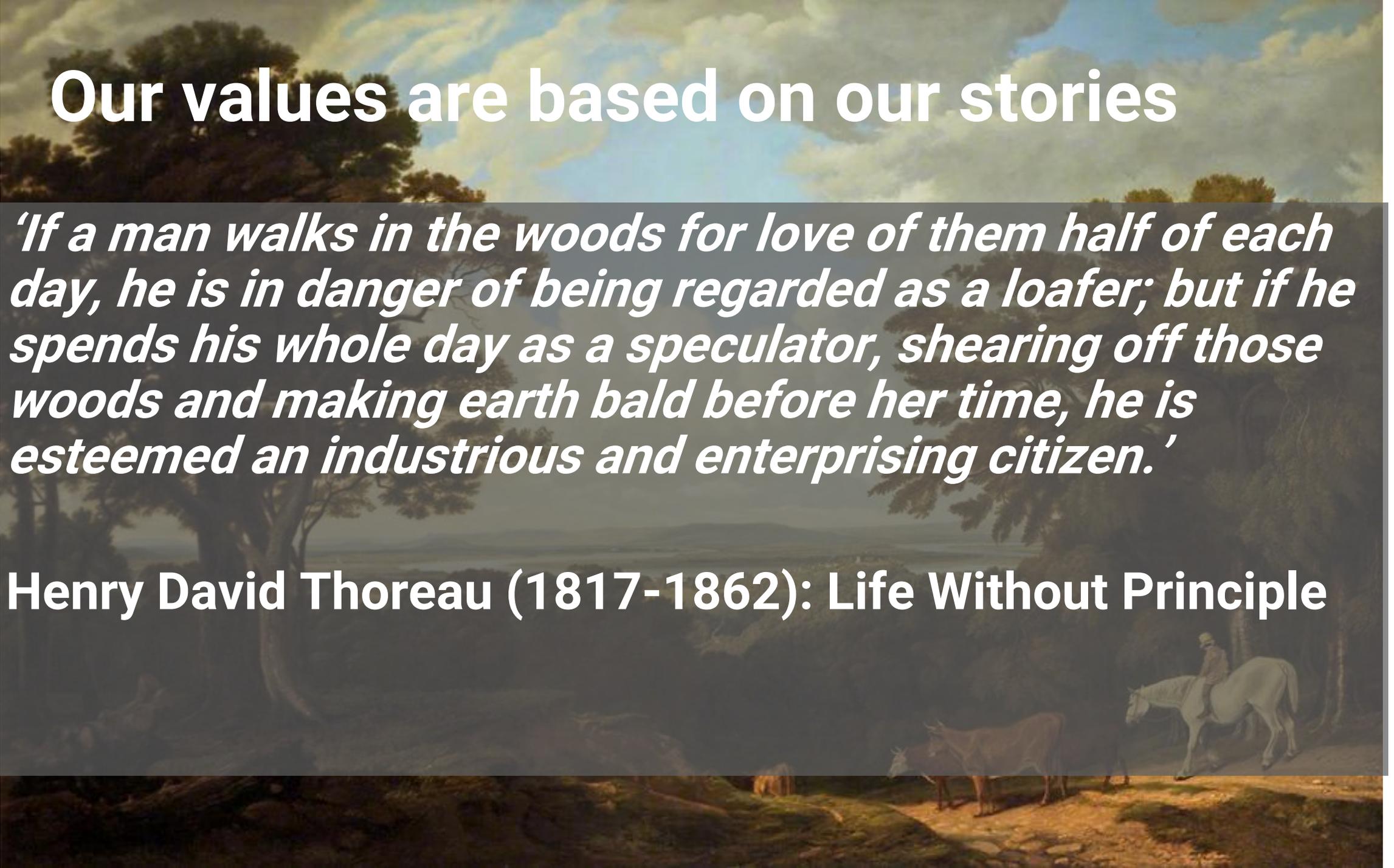
Values in the landscape

THANK YOU