PBL Netherlands Environmental Assessment Agency

Modelling of participatory landscape scenarios

Exploring spatial modelling tools to support landscape planning

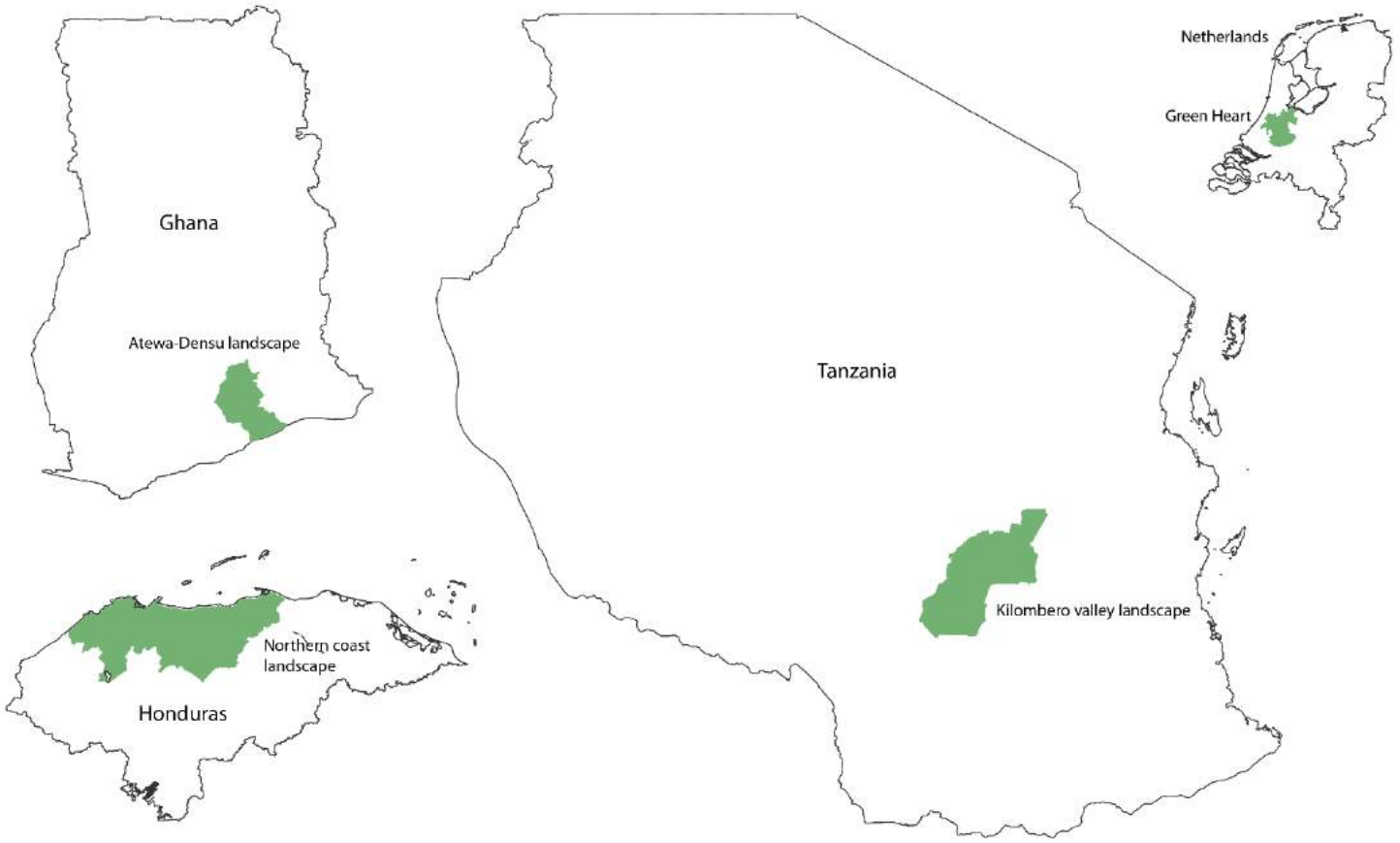
Introduction

- Now finalizing reports (June)
  - Synthesis and main lessons
  - Case study reports
  - NL lessons learned
- Feedback and what's next?
- Now: overview of the research

Research objectives

- Explore the use of spatial modelling tools for landscape level assessments with spatial planning and ecosystem services as core elements.
- Develop plausible scenarios in a participatory way and use the spatial models to assess their potential contribution to selected SDGs (food, water, climate and life on land).
- Explore how ongoing landscape initiatives can benefit from this.
- In 3 case studies: a methodological and practical challenge:
  - Include as much local information, ideas and details as possible
  - Models are simplifications of reality and require standardization

Case study landscapes from LPFN network



Diversity of case study landscapes

	Honduras Litoral Norte	**Ghana Atewa-Densu**	**Tanzania Kilombero Valley**
Partner	Solidaridad	IUCN-NL/A Rocha Ghana	African Wildlife Foundation
Area & boundary	22,000 km2 Based on watersheds	6,000 km2 Based on districts	16,000 km2 Combined: SAGCOT cluster, watersheds, wards
Population	3.5 million	6 million	0.5 million
ILM governance phase	Multi Stakeholder Partnership (MSP) in place	Collaborative planning process	Exploring MSP startup
Entry point, main challenge	Sustainable palm oil production in line with food and water security and eco-tourism	Protecting Atewa forest as water source for increasing urban and agricultural areas in a wider landscape	Protecting bio-corridors and promote sustainable agricultural development

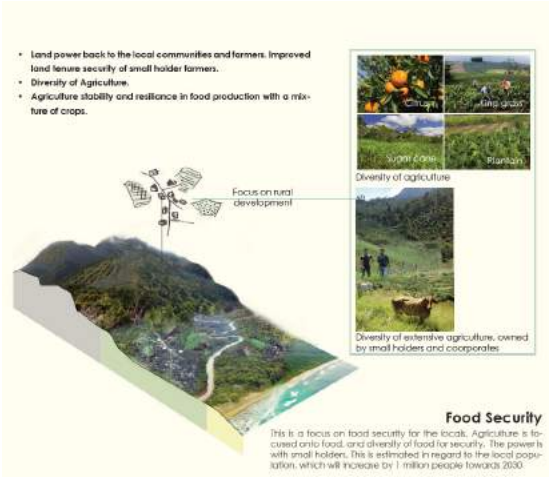
Participatory scenario development

- **3 case study phases:**
- 1: Collect key information from data, documents and stakeholders
  - Build a Business as Usual scenario based on the current situation and available timeseries data

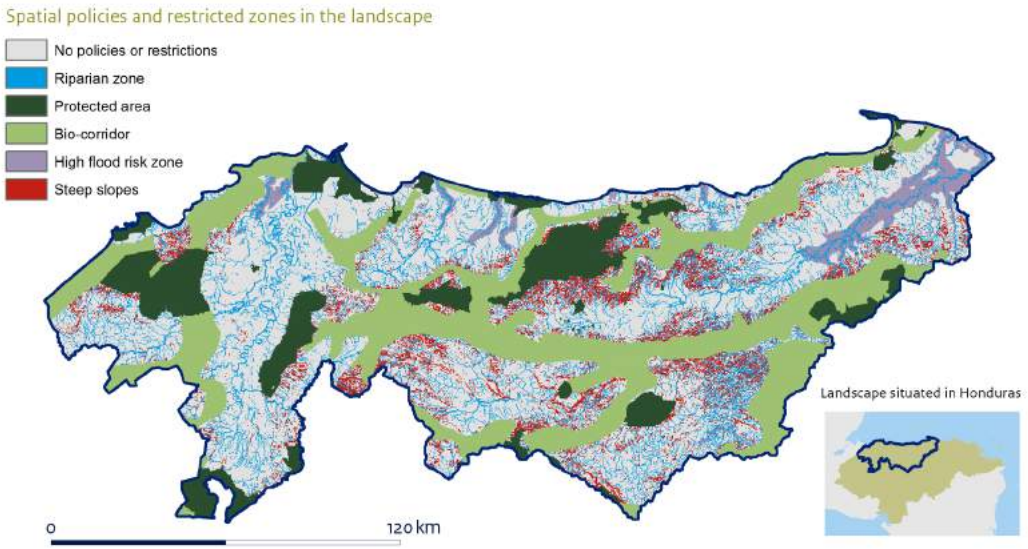
- 2: Stakeholder workshop
  - Discuss BAU scenario and collectively clarify the joint ambitions
  - Develop alternative storylines and find landscape interventions that support achieving the ambitions, focus on synergies
  - Translate the interventions into a scenario(s) that can be explored with the spatial modelling tools

- 3: Reporting and discussion on scenario outcomes
  - Feedback, improve modelling and scenarios.
  - Adapt strategic planning?

Visualization of ambitions and scenarios



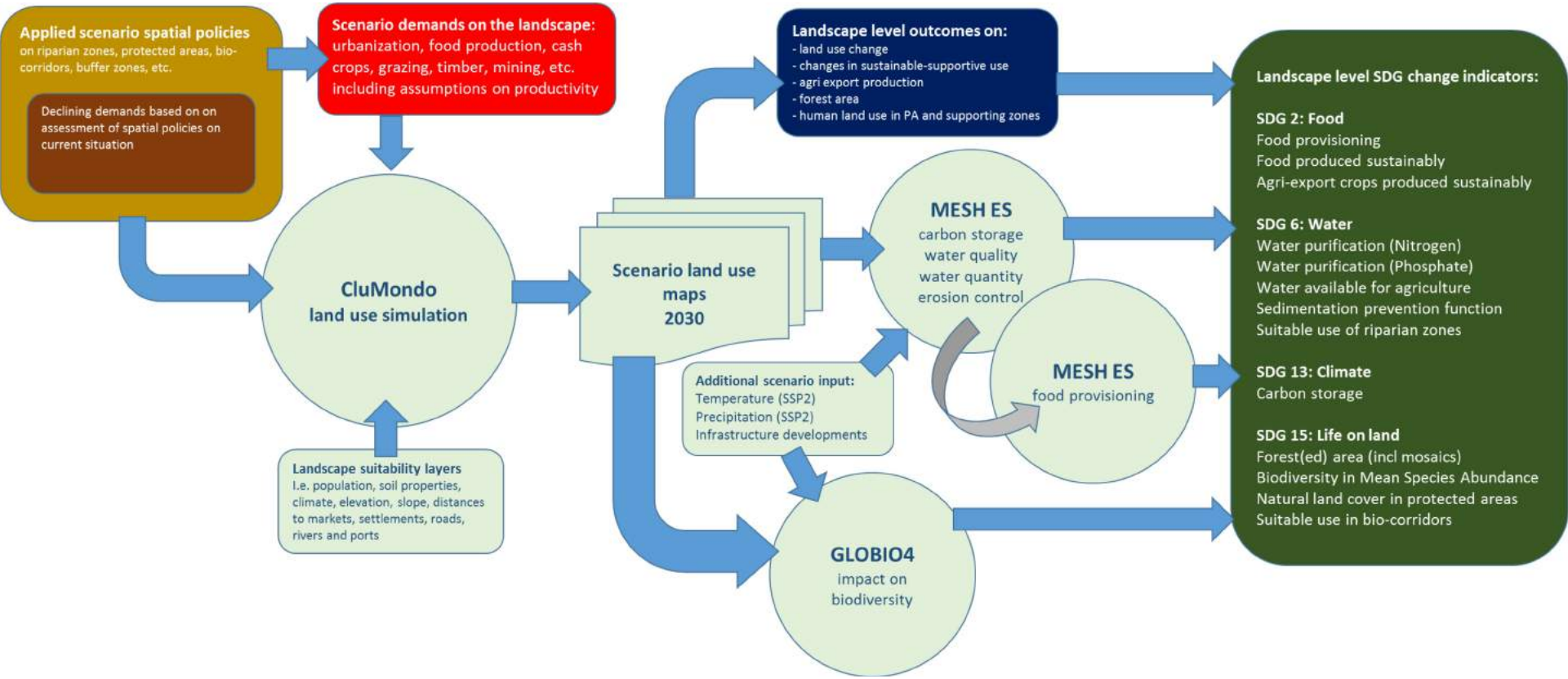
Translating actions under spatial policy rules



Landsystem	1- Riparian zones	2- Protected areas	3- Bio-corridor	4- High flood risk	5- Slopes
Urban	0	0	0	0	0
intensive agriculture	0	0	0	0	0
palm-oil	0	0	2	2	0
Mixed crop-livestock	0	0	0	0	0
Mixed crop-livestock with forest	0	0	2	2	0
Forest with extensive agriculture	1	1	1	1	1
cash tree crops, mixed with trees	1	1	1	1	1
forest mixed with cash tree crops	1	1	1	1	1

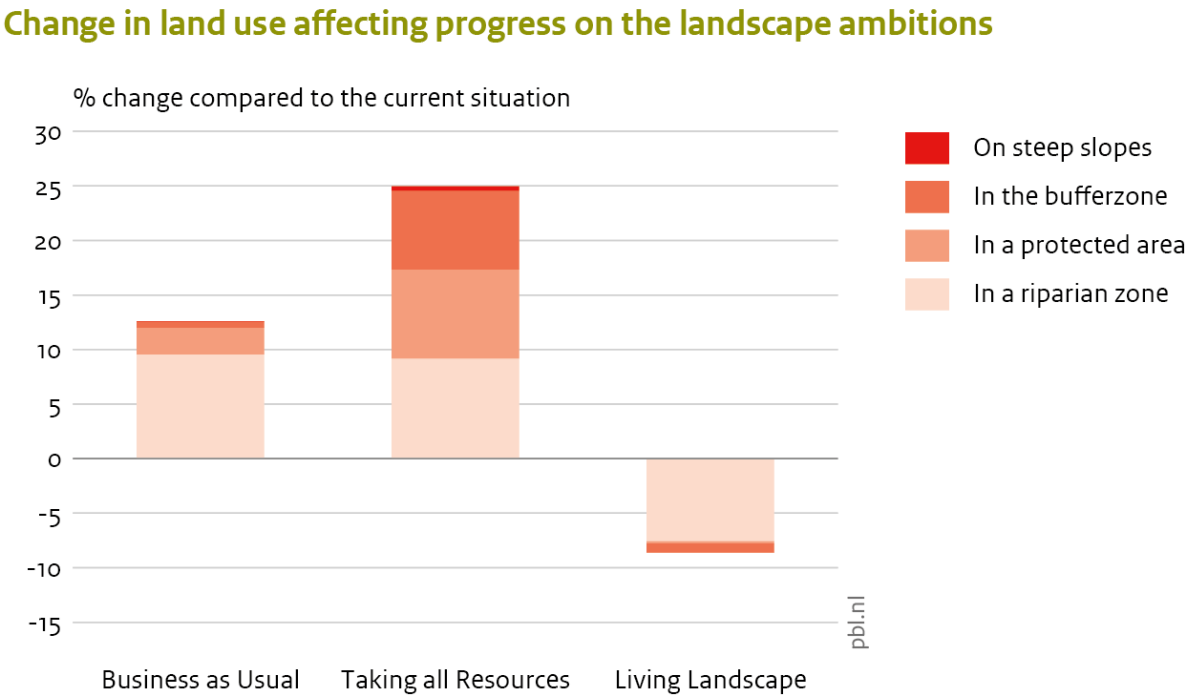
If no policy: model algorithm determines suitability for a land use type or conversion

Models and flow of information



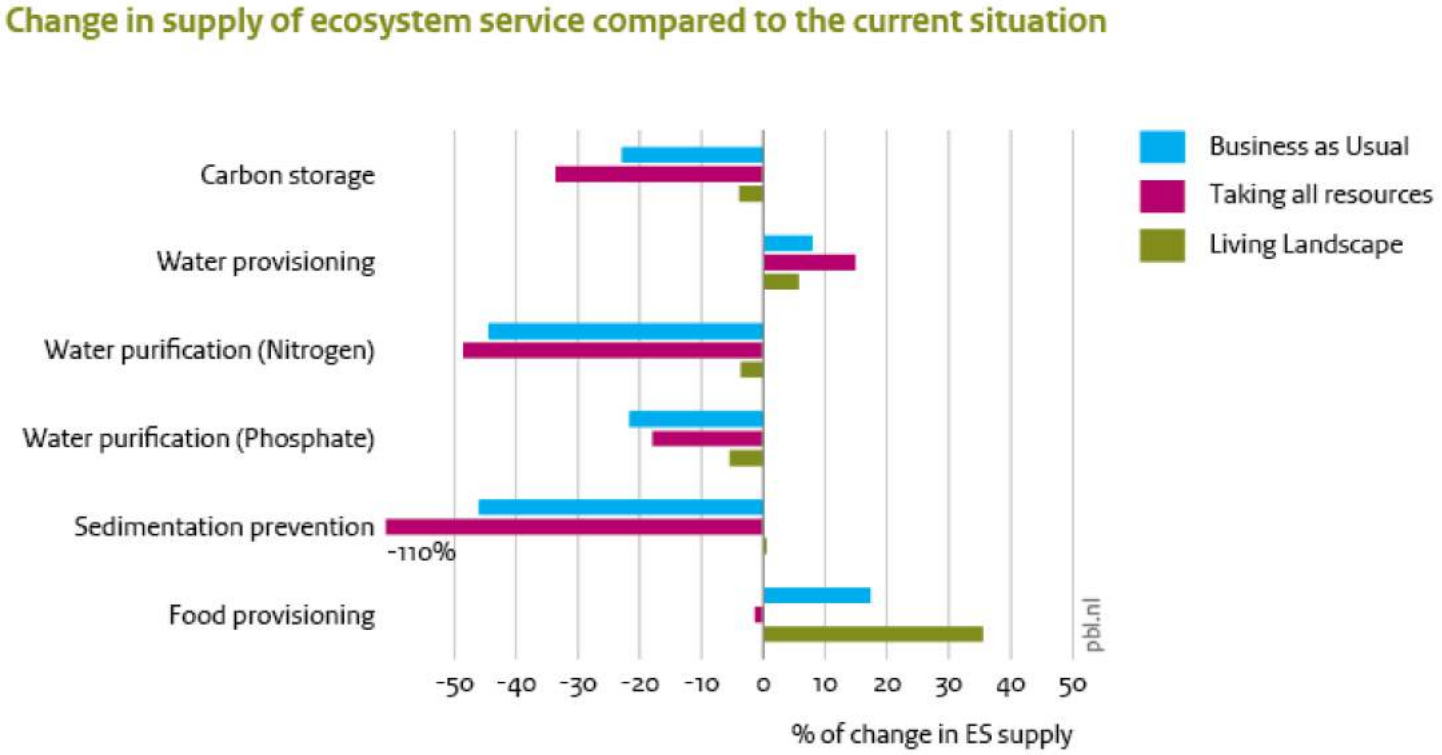
Rationale of the outcomes (1)

- For example in the Ghana landscape:
- Protecting vulnerable areas



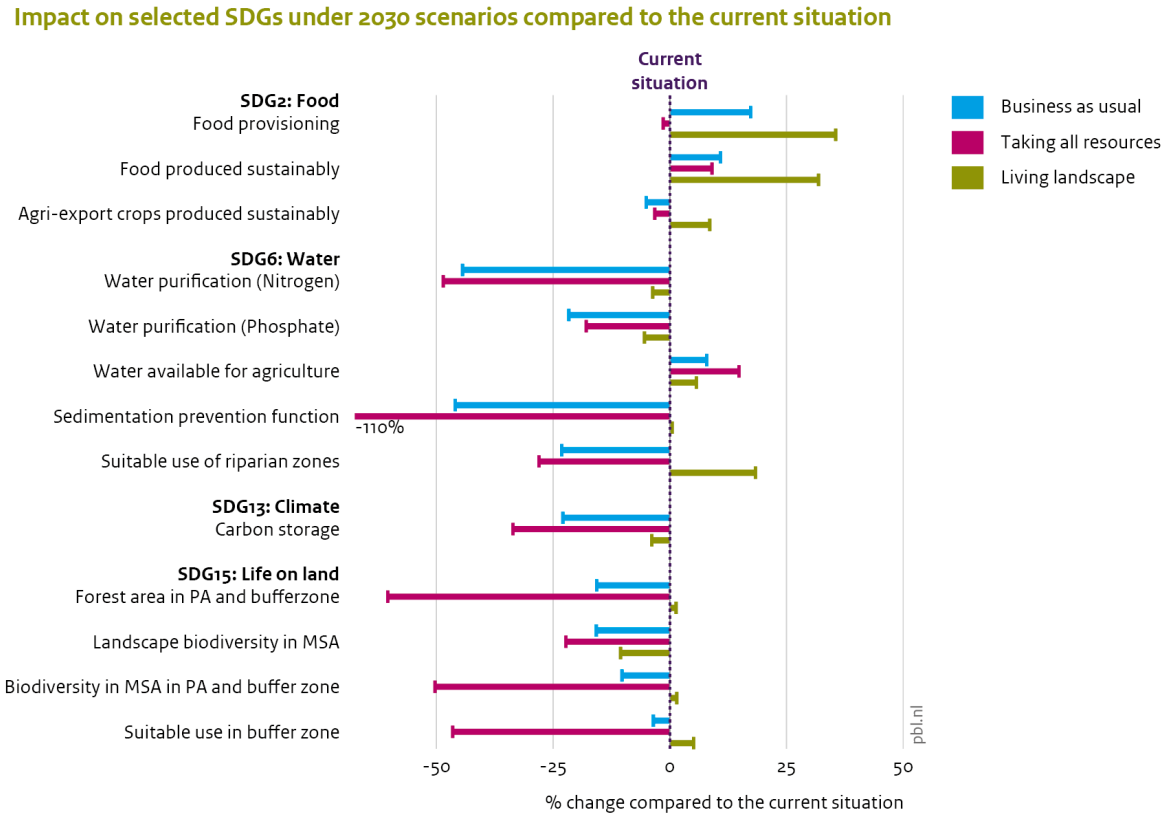
Rationale of the outcomes (2)

- Change in ecosystem services…



Rationale of the outcomes (3)

- And assess potential progress on multiple SDGs:



Summary

- Even though current model interactions are still limited and they roughly describe the complex and dynamic natural and socio-economic processes that take place in landscapes:
  - They are able to capture the main drivers of change for a comparative scenario analysis to support strategic landscape planning discussions…
  - …Provided that sufficiently accurate and recent landscape data is available and can be used in the models.
  - Crucial role for local partners to provide landscape level information
- Scenario results should not be interpreted as the truth. Outcomes should be used in discussions and considered in light of the changes and efforts required.
- Not a decision support tool, but rather a landscape strategy and opportunnity exploration tool.