



PBL Netherlands Environmental  
Assessment Agency

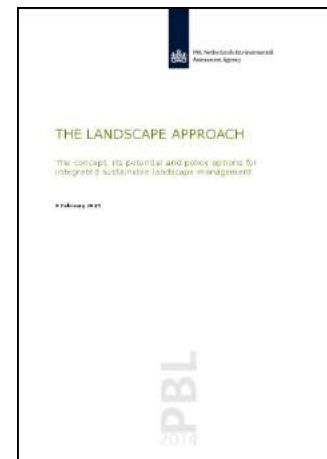
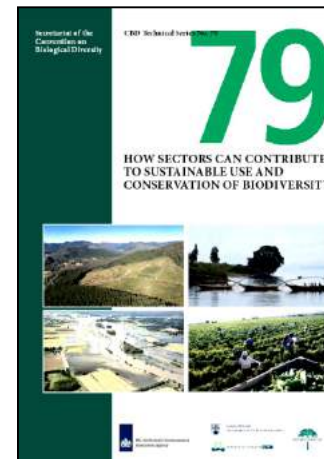
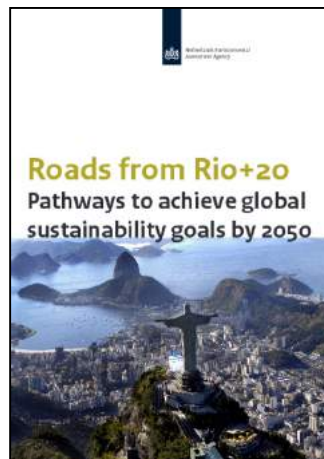
# Modelling landscape scenarios

Pilot project to assess  
impacts on selected SDGs in  
3 case study landscapes



# PBL Netherlands Environmental Assessment Agency

- An independent research institute within the Dutch government
- Focus on strategic policy analysis in the fields of the environment, nature and spatial planning.
- Global, regional, national, landscape level analyses
- Department of Nature and Rural Areas
- Related publications:
- [www.pbl.nl](http://www.pbl.nl)



## PBL pilot project within DGIS covenant

- 18 months, started Jan 2017
- Together with EcoAgriculture
- Apply integrated spatial modelling, pilot various tools
- Support strategic planning in 3 ongoing landscape initiatives
- Analyse impacts on selected SDGs
- Synergies and trade offs

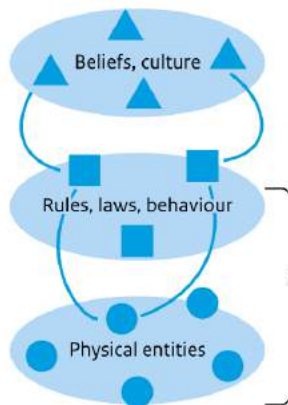


# Participatory scenario development

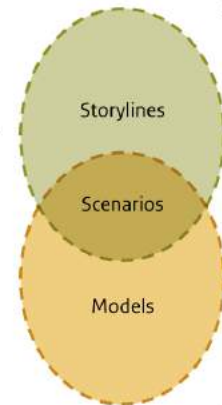
- Use scenarios to explore the future effects of today's decisions

## Model-based scenario analysis

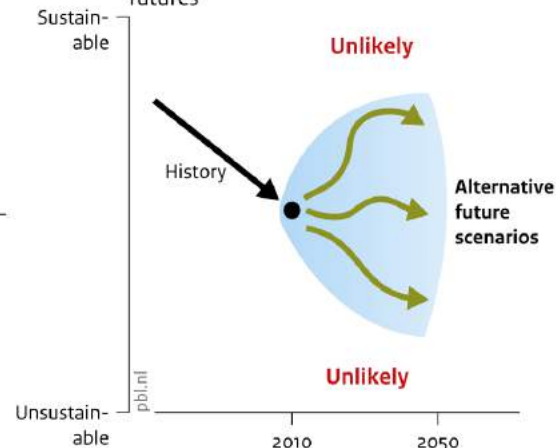
Future development is determined by different factors



Some of which can be captured well with models, some by storylines



These can be combined to generate scenarios to explore different possible futures



Bron: PBL

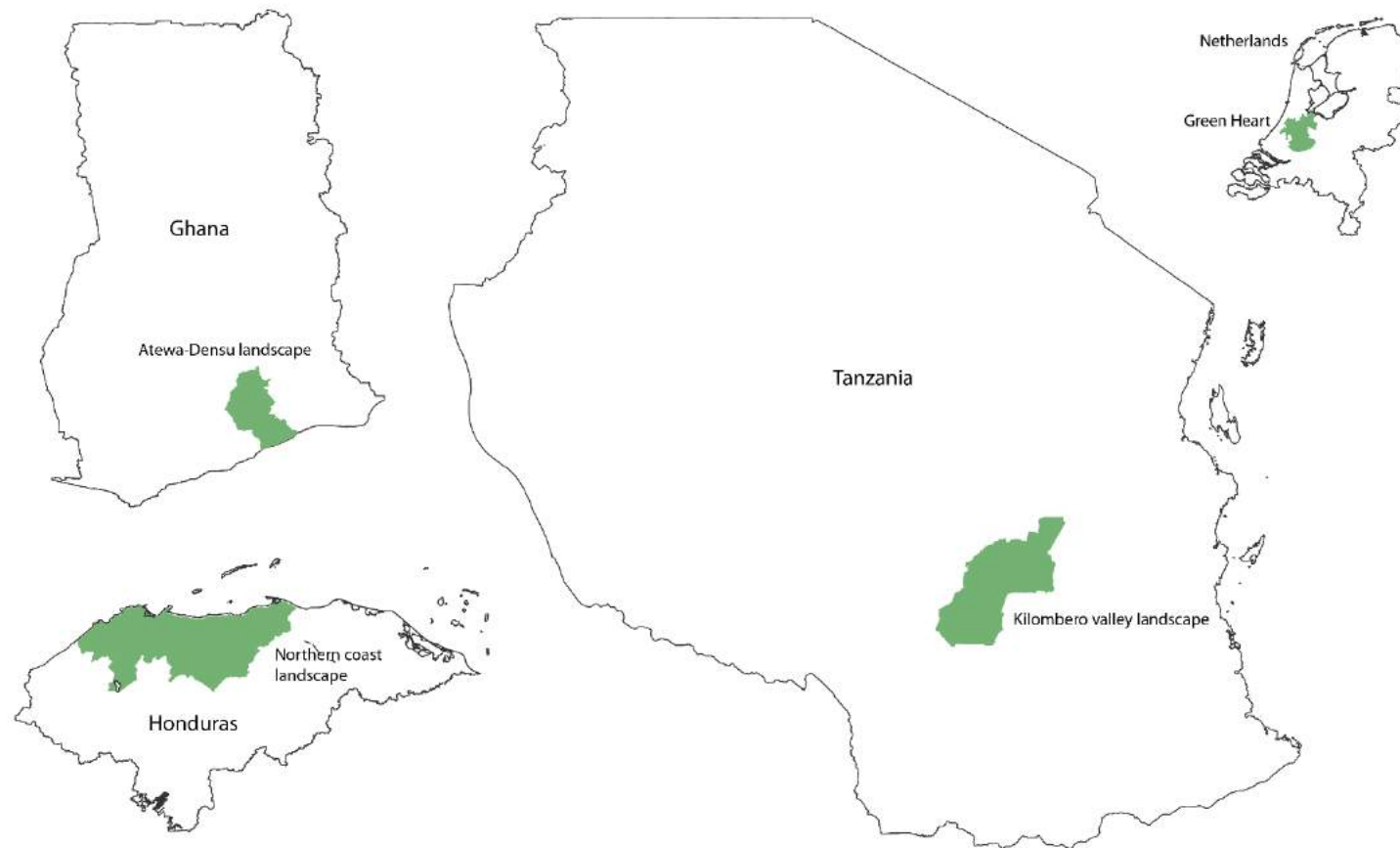
- Participatory scenario workshop to explore different plausible futures

## Scenario workshop

- Build a Trend or Business as Usual scenario based on current situation and timeseries data
- Collectively identify the ambitions of the stakeholders
- Develop different storylines and find landscape interventions that support achieving the ambitions
- Translate the interventions into a scenario that can be explored with the spatial modelling tools
- Discuss model outcomes



## Case study landscapes





## Case study landscapes

	<b>Honduras Caribbean North Coast</b>	<b>Ghana Atewa-Densu</b>	<b>Tanzania Kilombero Valley</b>
Partner	Solidaridad	IUCN-NL/A Rocha	African Wildlife Foundation/SUSTAIN
Area	22,000 km <sup>2</sup> Based on watersheds	6,000 km <sup>2</sup> Based on districts	16,000 km <sup>2</sup> Combined cluster, watershed, wards
Population	3.5 million	6 million	0.5 million
ILM governance phase	MSP in place	Collaborative planning process	Exploring MSP startup
Entry point	Sustainable palm oil production in line with food security and resilient and attractive landscape	Protecting Atewa forest as water source for increasingly urban and agricultural areas	Protecting biocorridors and promote sustainable agricultural development
Spin off	Connecting with Landscape finance tool to support agroforestry development	Involve NDPC and district assemblies to embed SDGs in planning	Connecting with National Land Use Planning commission



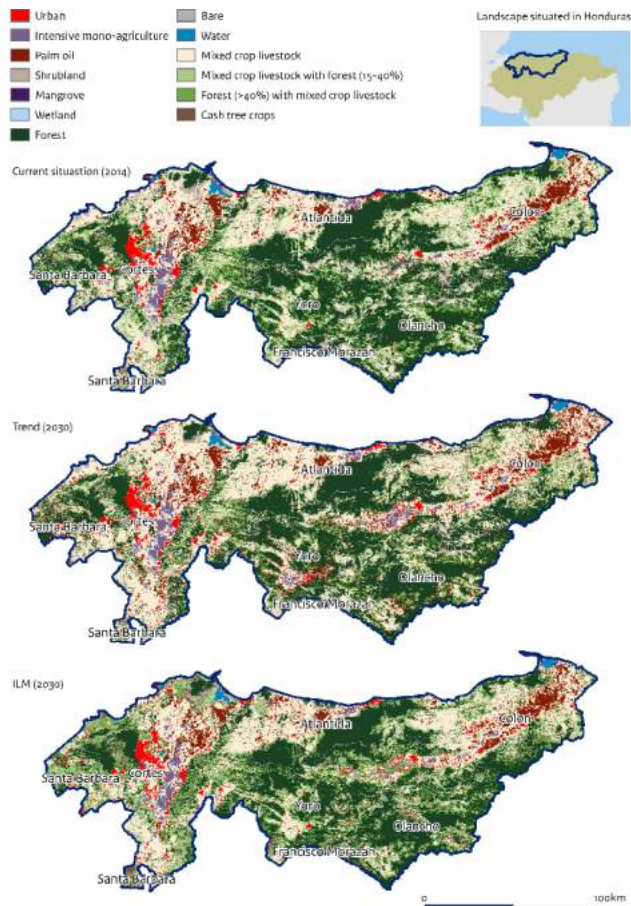
## Spatial Modelling framework

- Models and partners:
  - Land use simulation: CluMondo model
    - › VU University Amsterdam, NL
  - MESH-SDG: Mapping Ecosystem Services to Human well-being
    - › Bioversity International – CGIAR
    - › Natural Capital Project – University of Minnesota, USA
  - GLOBIO: modelling impact on biodiversity
    - › PBL and Radboud University Nijmegen, NL

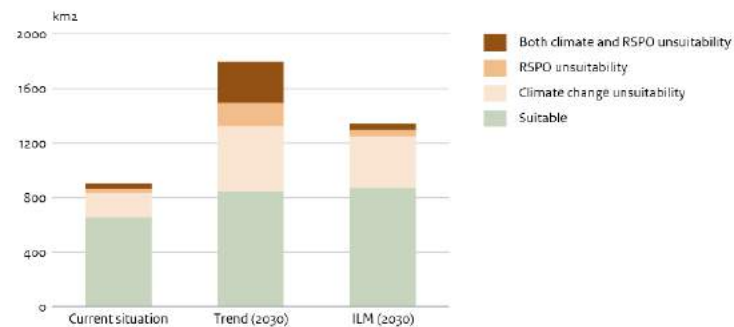




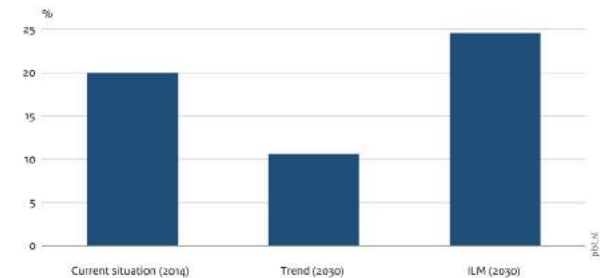
# Example outcomes



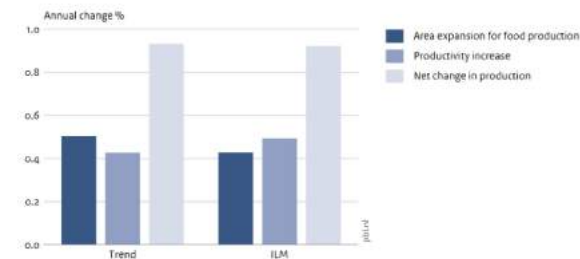
Suitability of area used for palm oil production



Sustainable land use in areas with a high risk of flooding

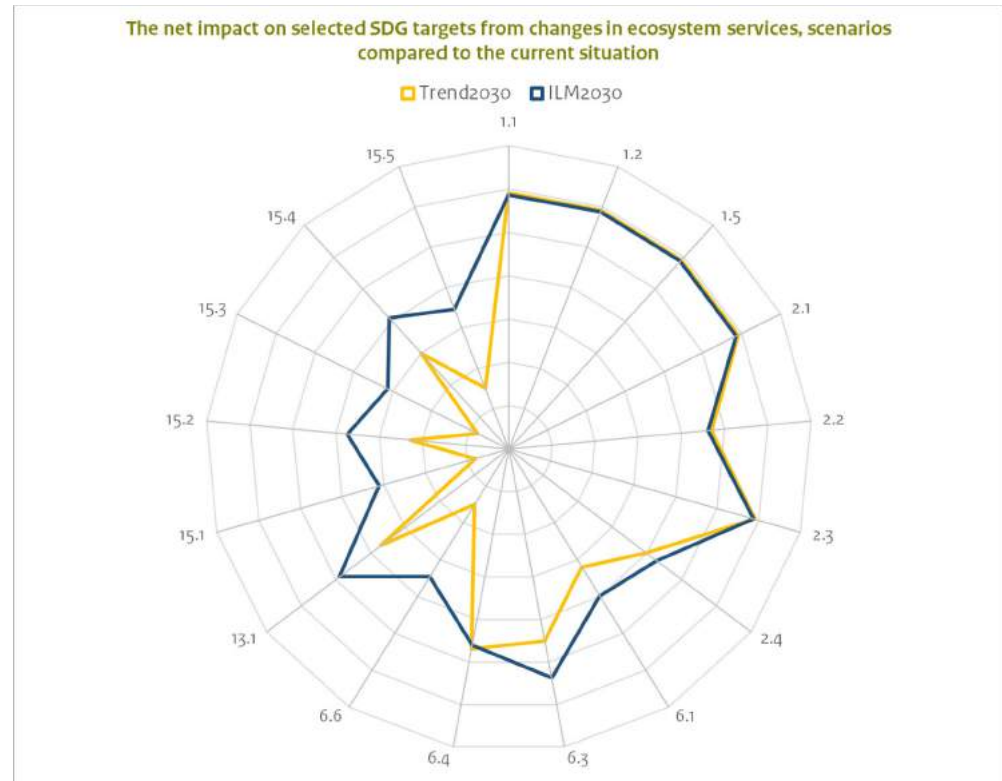


Annual change in food production to 2030



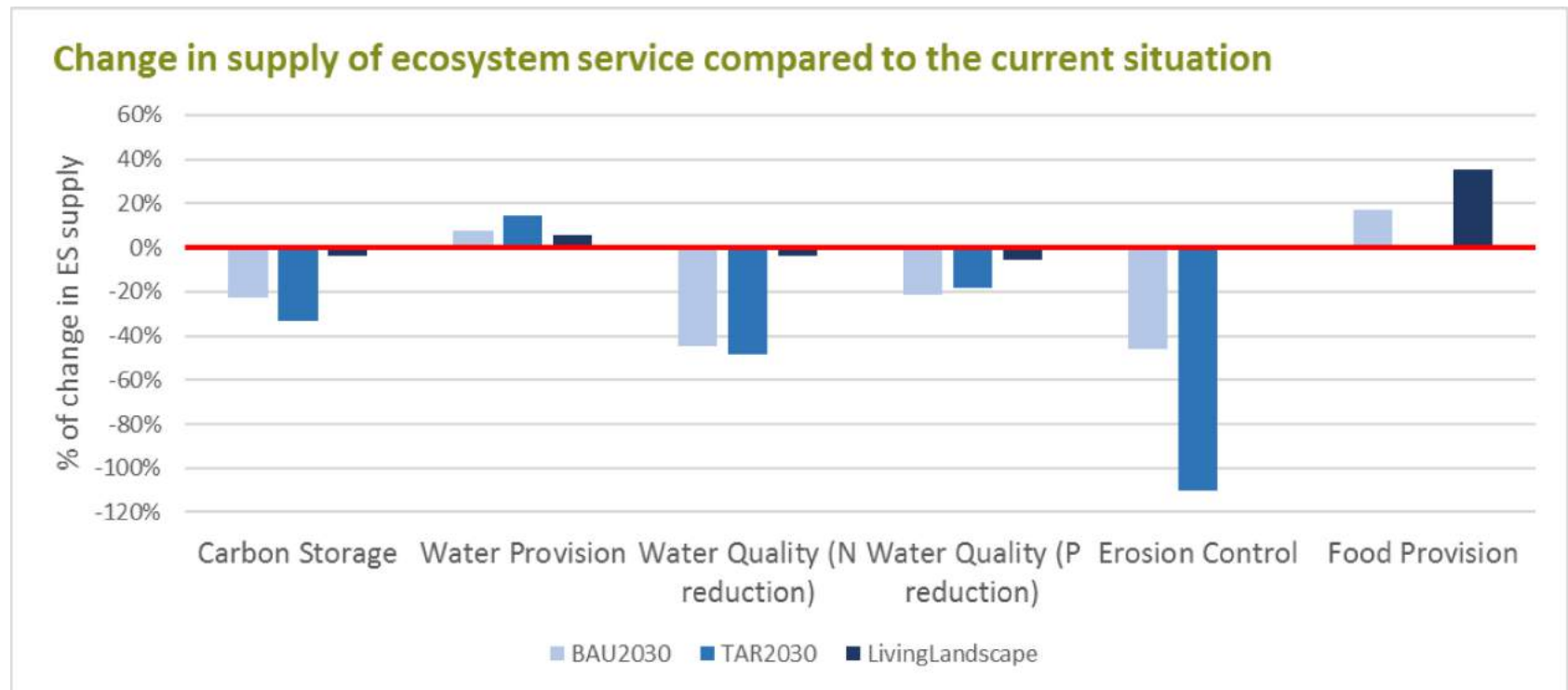
## Impact on selected SDGs

- SDG2: Food provisioning and sustainable land management
- SDG6: change in riparian zones and water ecosystems, water quality/quantity indicators
- SDG13: change in forest area, carbon storage
- SDG15: change in protected areas, biodiversity loss
- Potential additions...



## Synergies and ecosystem services

- Example from Ghana case study:



- Link to nutrition: multifunctional land use?

# Supporting landscape governance processes



Thank you!