# Participatory Scenario Planning in Agriculture Landscape Planning

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# Outline

- Scenarios: Recaps
- IPBES's approach to Scenarios and Models
- Scenario building approaches
- Participatory Scenarios
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  - Types
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- Application
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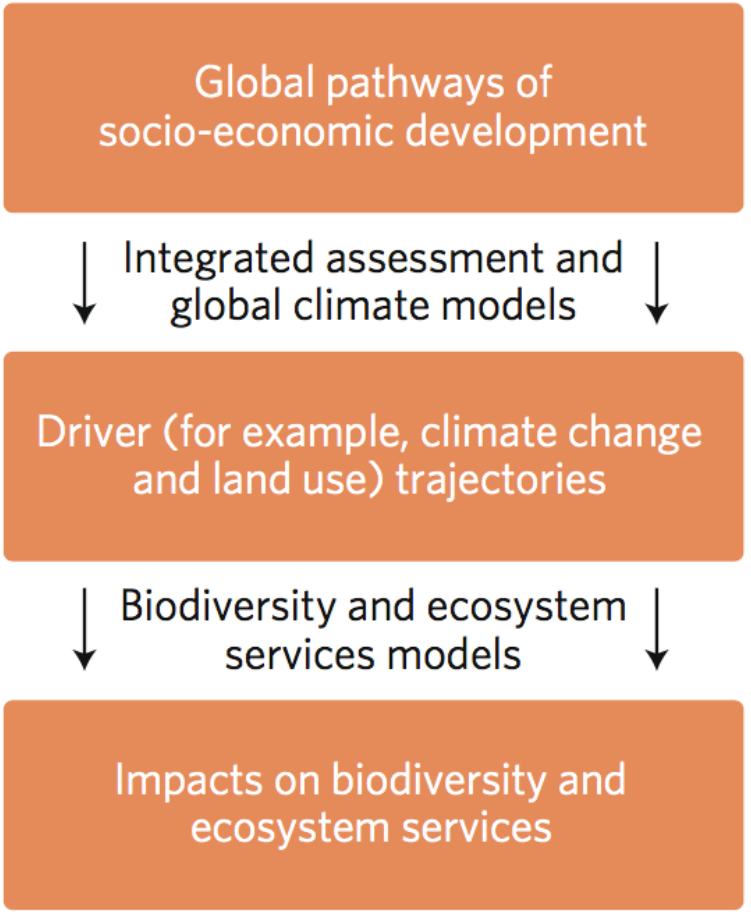
# What are scenarios?

- Heugens and van Oosterhout (2001: 863) define scenarios as "stories about the future". Scenarios are plausible descriptions of what the future might hold (Kahn and Weiner, 1967).
- Scenario development (or scenario "analysis" or "planning") is a systematic method for thinking creatively about dynamic, complex and uncertain futures, and identifying strategies to prepare for a range of possible outcomes (c.f. Peterson et al., 2003; Madlener et al., 2007).
- So, it is useful in foresight work in food sysytems planning

# Why do we need new scenarios?

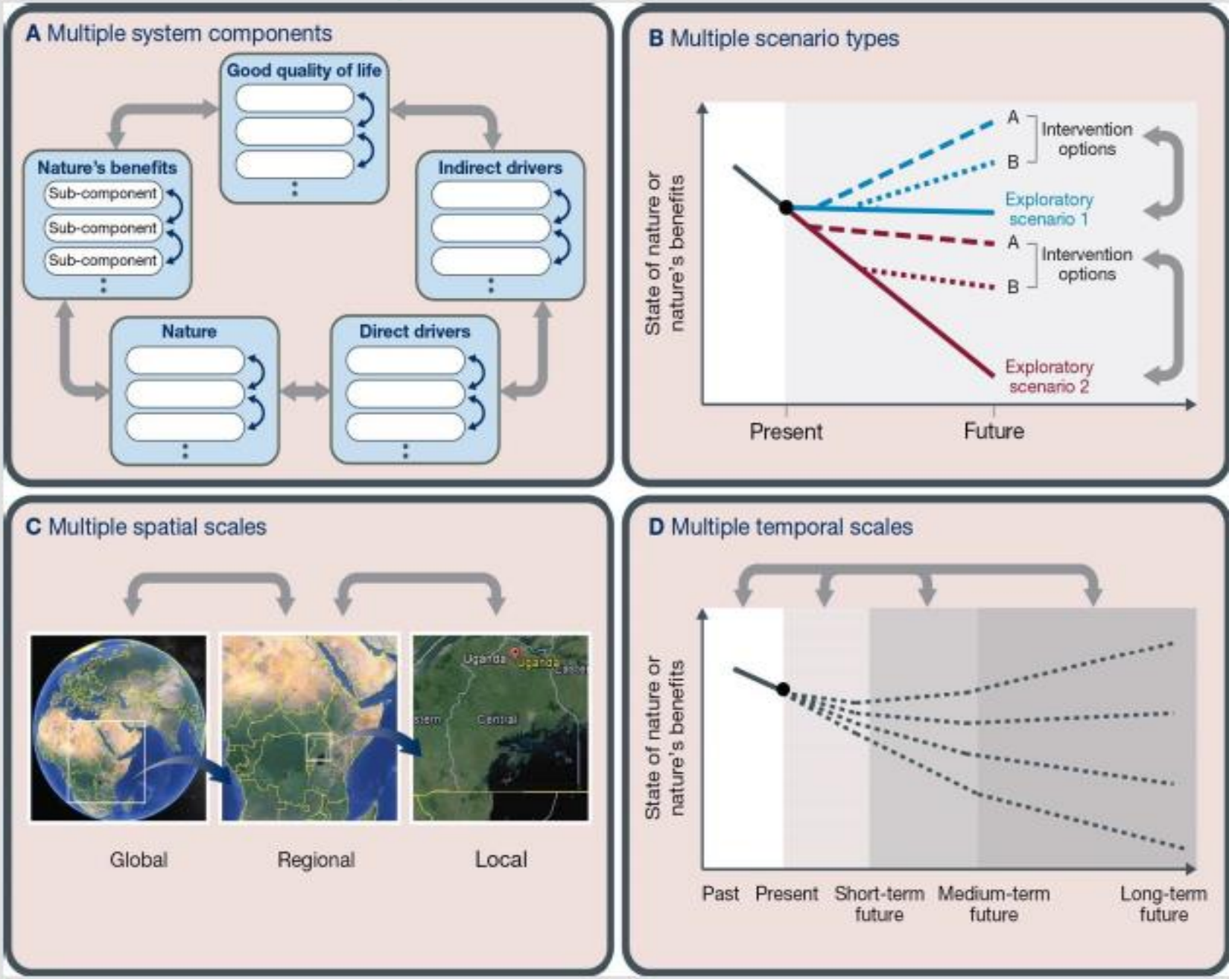
- Global scenarios explore impacts of society on food, environment, biodiversity and water, but have not included food systems in changing situation.
- Available scenarios are not relevant to regions like EGP because targets for agriculture and food are increasingly connected with targets for environment (Paris Climate Agreement).

**e.g., IPCC, MA, GEO**

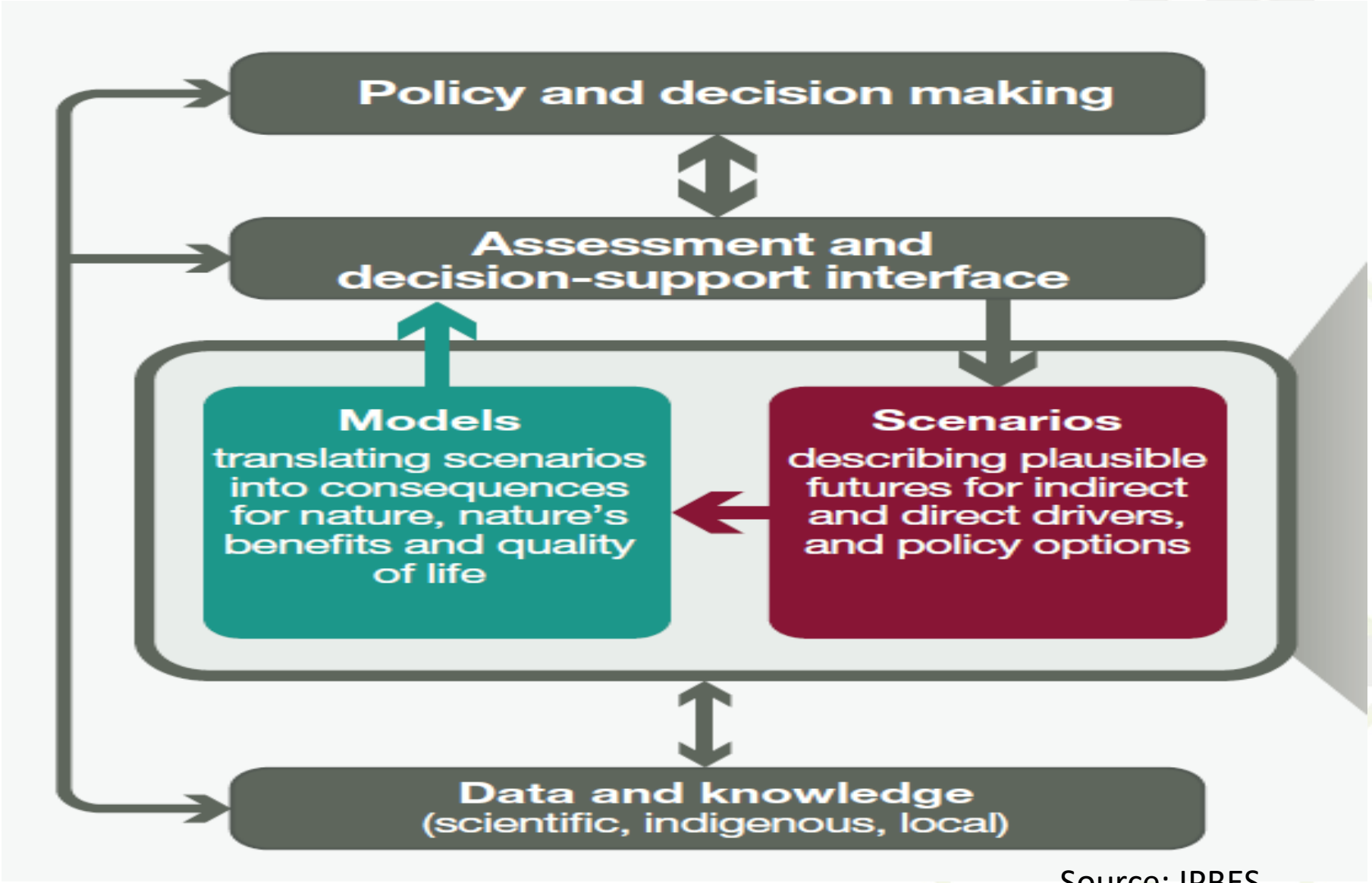



Rosa, I, Pereira, H.M. *et al.* (2018) *Nature Ecology and Evolution*

# Scenario planning for a complex system; Source: IPBES

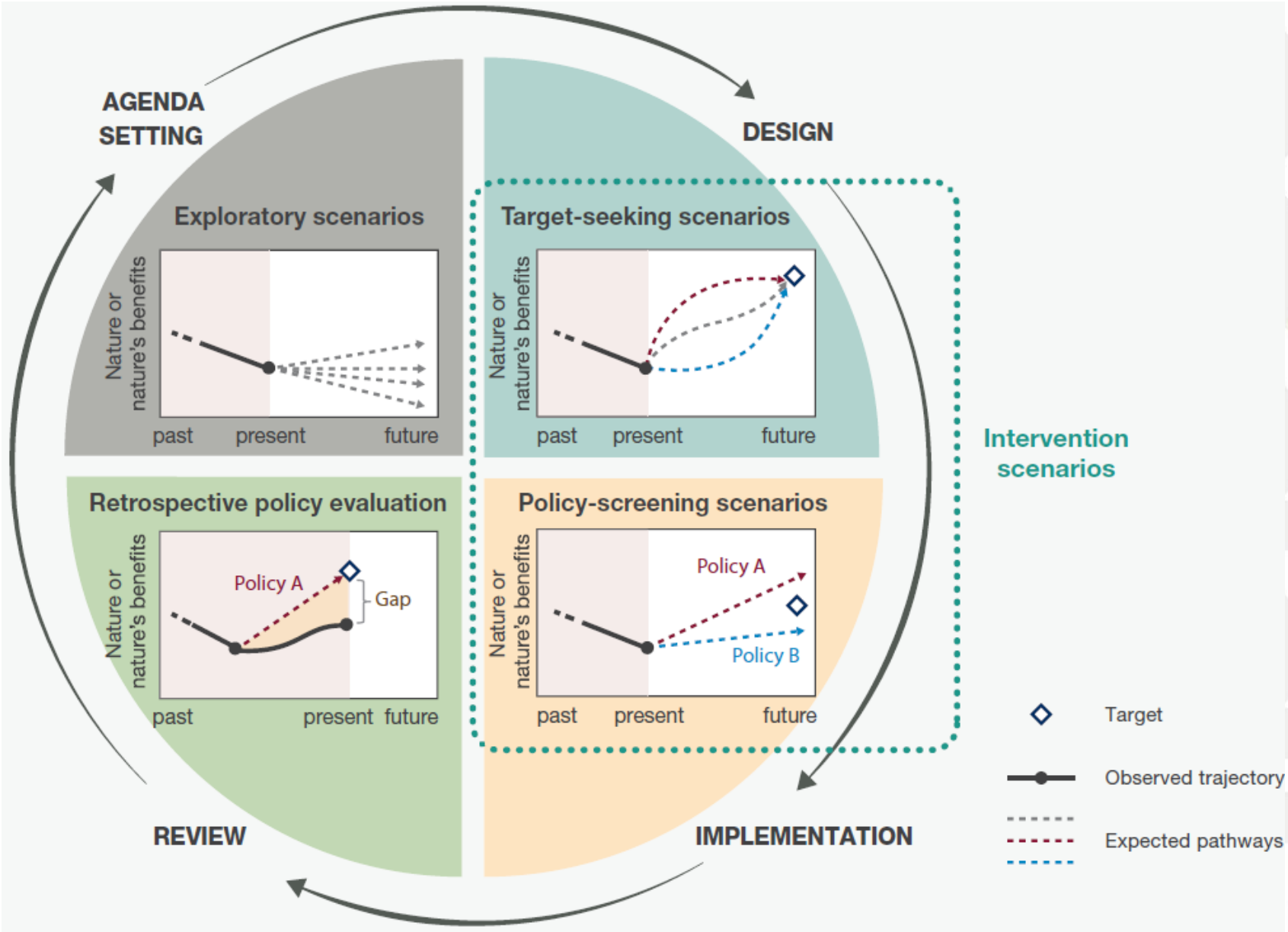


# IPBES's Approach Scenario and Models




Source: IPBES

# Roles played by different types of scenarios in policy




Source: IPBES

# Scenario building approaches

Two general approaches to scenario analysis exist; forecasting and backcasting:

1. Exploratory (Forecasting) – Stakeholders create projections about what may occur in the future and the alternative paths to getting there.
2. Normative (Backcasting) – Stakeholder groups determine a desired future situation, and the group works backwards from this point to identify steps needed to reach the desired future position.

# Participatory scenario development

- Involves stakeholders in the creation of scenarios;
- Uses shared learning dialogue (SLD) and debate to produce a shared vision of the future and a plan to achieve it
- Co-produces knowledge, and foster cooperation between different stakeholders
- Fits into multi-scale scenario building and foresight

# Why participatory scenarios?

- Most global scenarios lack a participatory approach
- participatory scenario development has the potential to:
  - i) make scenarios more relevant to stakeholder needs and priorities;
  - ii) extend the range of scenarios developed;
  - iii) develop more detailed and precise scenarios through the integration of local and scientific knowledge; &
  - iv) move beyond scenario development to facilitate adaptation to future change.

# Need for a pluralistic approach for scenario building and pathways

- EGP region requires a pluralistic approach to decision making (interlinkages between land use types e.g., water, agriculture, forests, etc; between communities and natural systems, different knowledge systems.
- Drawing together knowledge integration, priorities and perspectives for policymaking, including gaps in current approaches

# Rationale for involving stakeholders in building plausible scenarios

- Trade-offs along three axes: spatial scale, temporal scale and reversibility
- Key challenges to manage multiple services across landscapes and to capture the trade-offs of cultural and supporting services also which many quantitative models fail to do
- Evidence base on role of agri-ecosystem goods & services
- Interlinkages between communities and natural systems
- Examples on how different drivers have an impact on agro- ecosystem at various levels,
- The integration of local observations to improve the modelling of food systems across scales

# Benefit of involving local stakeholders (see Reed et al, )

- Makes the scenarios more relevant to stakeholders' needs and priorities, and thus more useful in decision-making.
- Helps to extend the range of scenarios (or options within scenarios);
- Moves beyond scenario development ..to facilitate action to achieve desired results.

# Types and use of participatory scenarios

- Scenarios can be entirely qualitative "storylines" or may include significant levels of quantification, for example incorporating findings from process-based mathematical models.
- Scenarios may serve a number of functions, for example: i) supporting research; ii) facilitating public learning and discussion; and 3) political decision-making support.

# Types of participatory methods

- Initial scenario development
- Develop and prioritise scenarios emerging from prior engagement for further study
- Evaluate scenarios developed by researchers and make them relevant to local contexts
- Using participatory mapping (P3D) as an input to land cover maps in quantitative scenario development
- Using computational model outputs as a basis for negotiation with stakeholders

# Applying participatory processes

- Sustainable food and agriculture cannot be achieved without the involvement of the local farming communities ; Participation is necessary for:

a) The attainment of good agriculture governance;

b) Involving and empowering stakeholder communities;

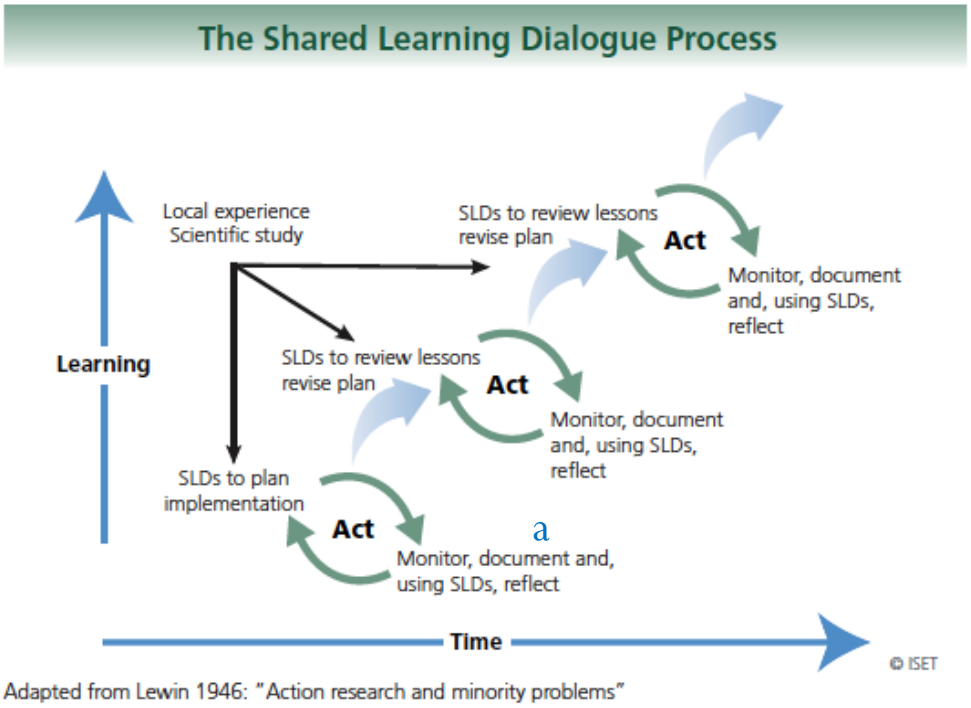
c) The co-production of knowledge between experts and users

d) Improving the community/agro-ecosystem relationship;

e) Reaching consensus among stakeholders and developing a common vision of the future; and

f) Increasing the effectiveness of agri.landscape mgmnt.

# Example of Participatory scenario building process




Adapted from Lewin 1946: "Action research and minority problems"

- Local communities are engaged in listing possible agri development options
- Participatory discussions identify different possible activities
- Priority is set based on consensus on plausible future scenarios through iterative dialogue process

## LOCAL POLICY DESIGN AND IMPLEMENTATION

Source: IPBES

5 Implementation of ecosystem restoration and conservation fee

**Policy and decision making**
Municipality and Watershed Committee

**Assessment and decision-support interface**
Consultation workshop and RIOS tools

4 Projection of economic consequences of land-use options

1 Use of policy-screening scenarios

2 Land-use modelling

**Models**

**RIOS:** economic model

**InVEST, USLE:** ecosystem service models

**CLUE-s:** spatially explicit land-use change models

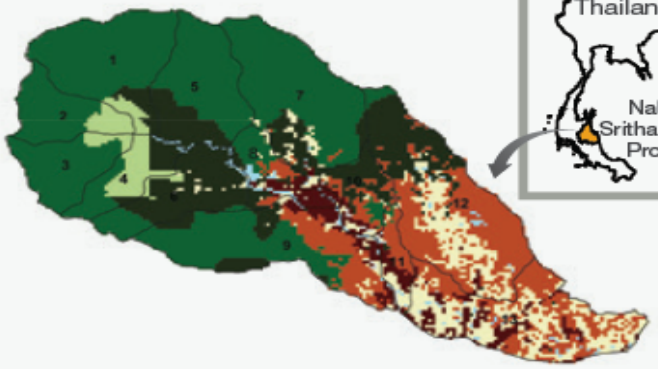
**Scenarios:** Alternative land-use options: agricultural development, conservation

3 Modelling of impacts on water supply and sedimentation

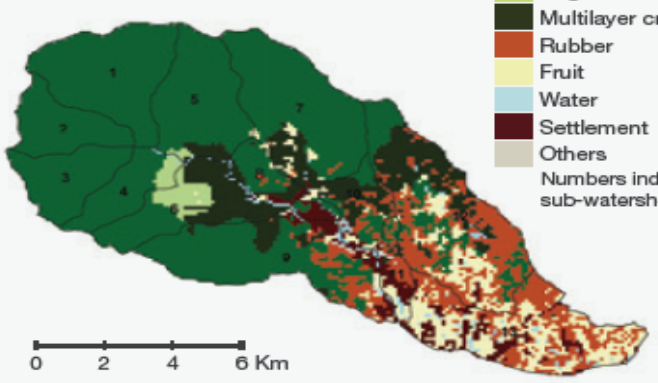
**Data and knowledge**
Watershed management & land-use data, traditional knowledge

Alternative land-use scenarios for 2030, Thadee watershed

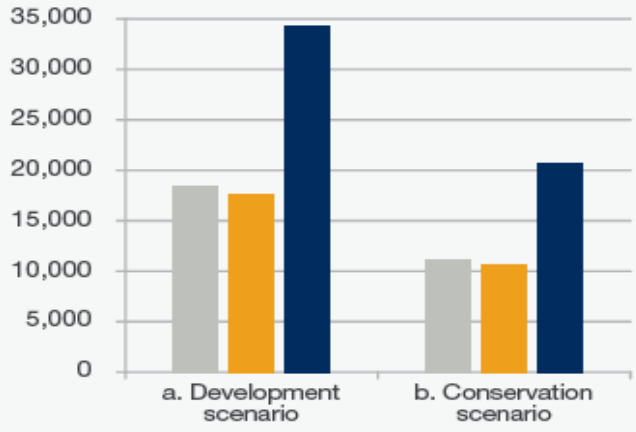
a. Development scenario




b. Conservation scenario




Predicted sediment load for 2030 (tons/year)



# Literature Referred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