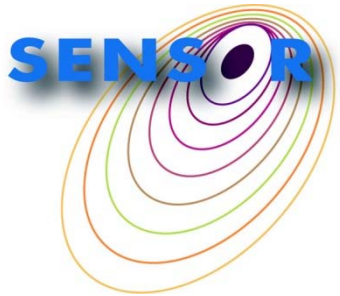
LUPIS: Land Use Policies and Sustainable Development in Developing Countries

SENSOR: Sustainability Impact Assessment: Tools for Environmental, Social and Economic Effects of Multifunctional Land Use in European Regions



Ex-ante Impact Assessment: Participative concepts versus modelling approaches for operational policy advice

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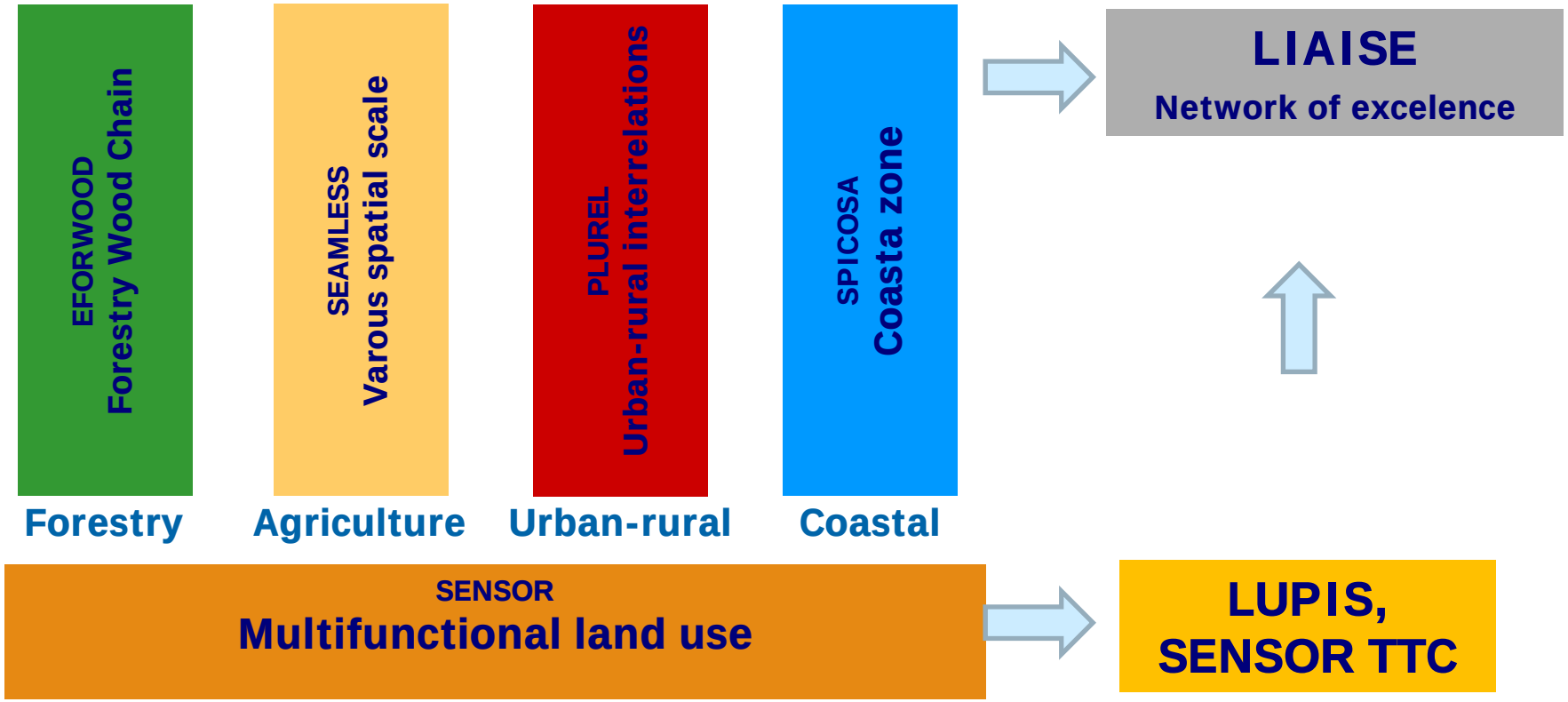
The Sixth Framework Programme

Content

1 Objective

EU-FP6,7 Projects on Impact Assessment tools of land use



approx. 15 Mio Euro

approx. 3 Mio Euro

1 Objective

EU-FP6,7 Projects on Impact Assessment tools of land use

approx. 15 Mio Euro

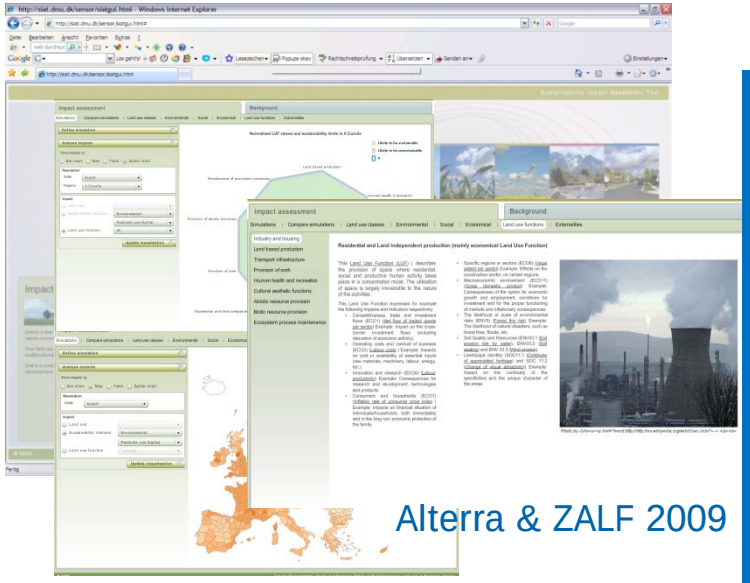
approx. 3 Mio Euro

Overall objective:

- To test the transferability of Tool(boxes) for land-use induced Impact Assessments
- To involve stakeholders to develop expertise in modelling and methods on impact assessment

2 Examples Sensor TTC and LUPIS

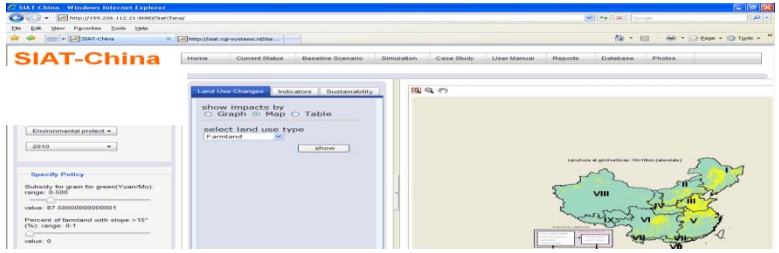
EU SENSOR



Alterra & ZALF 2009

Integrated IA / Meta-Model

SENSOR-TTC: Mercosur, China



SENSOR: Tools for Environmental, Social and Economic Effects of Multifunctional Land Use

LUPIS

LUPIS: Land Use Policies and Sustainable Development in Developing Countries

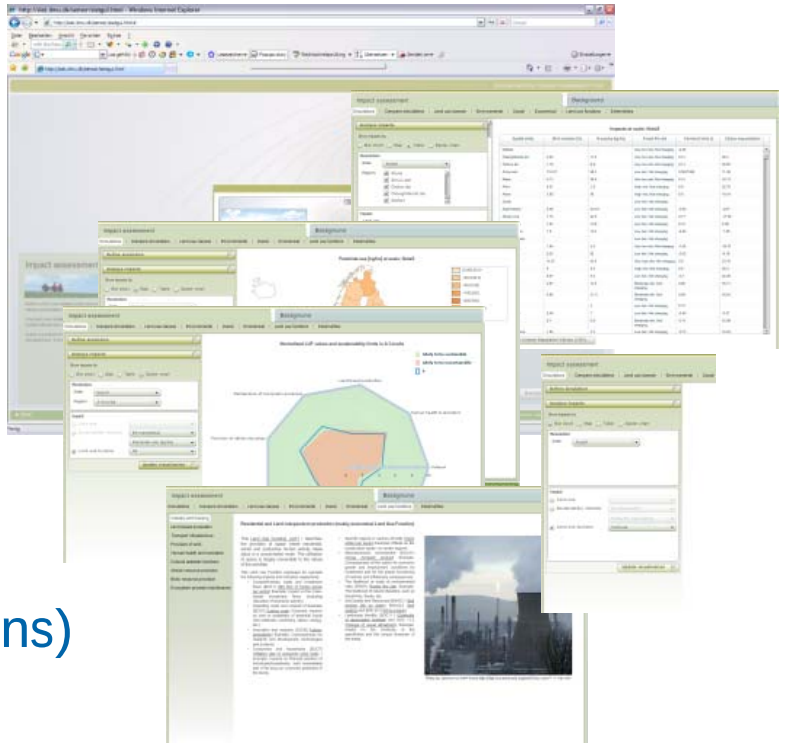
EU SEAMLESS

Integrated IA / Components

3 One example from EU: SENSOR

1. To deliver ex-ante Impact Assessment Tools (SIAT) to support decision making on policies related to multifunctional land use in Europe
2. To test the transferability of the EU model SIAT to targeted third countries

- Ex-ante Impact Assessment
- Multifunctional agriculture
- Sustainable Development



SIAT web-application, server data base
Meta-Modelling for Policy Simulations
100 Sustainability Indicators (subdivisions)
600 European Regions
9 LUF aggregation, normalization

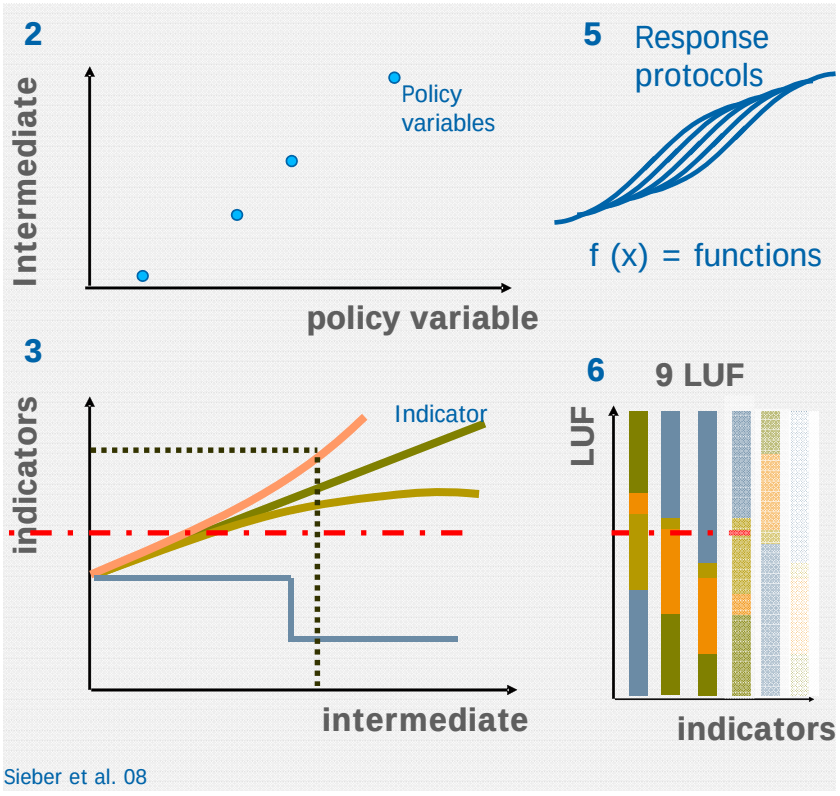
3 One example from EU: SENSOR

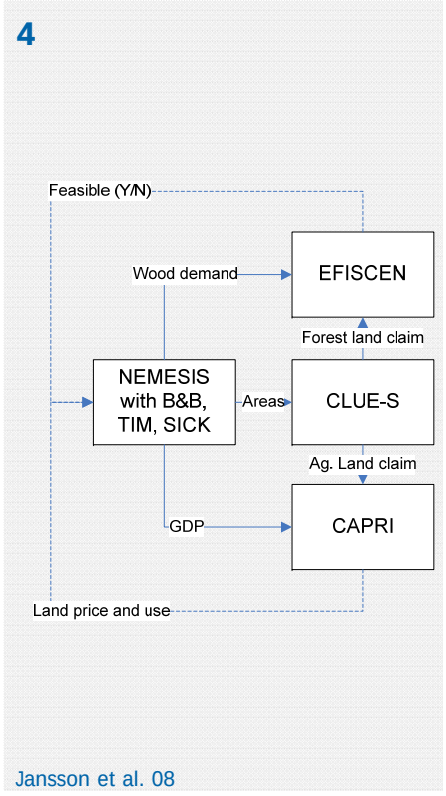
- SIAT – An integrated model for Sustainability Impact Assessment

Theoretical concept

SIAT Core concept

Modeling framework

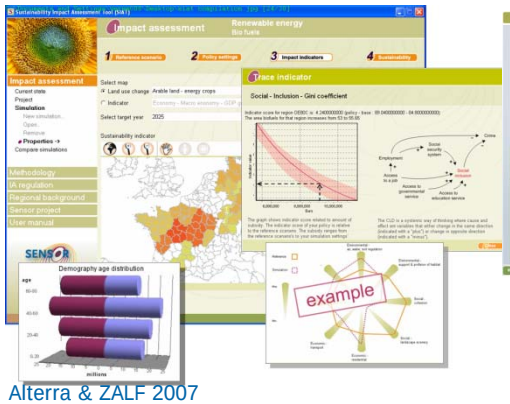




3 One example from EU: SENSOR

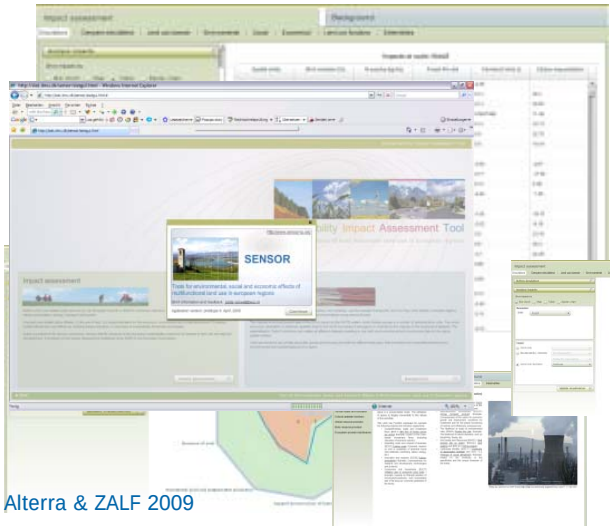
- High requirements of model and software expertise
- High requirements to establish software architecture / system environment and consolidated data base

Power Point



Alterra & ZALF 2007

Alterra & ZALF 2008



Alterra & ZALF 2009

2005

- First concept
- ppt-Demo
- Target driven

2007

- Proto1:
- Conceptual development
- Sample functionality
- Stand alone

2008

- Proto2:
- System integration
- Web based
- Real data base & server

2009

- Final version (?)
- System integration
- Web based
- Real data base & server

beyond

4 Transferability of SIAT – integrated IA

Testing the transferability of SIAT in the projects SENSOR TTC

-> Focus groups with interdisciplinary experts to transfer one **integrated Model - IA**

Task

- Reference run
- Policy case
- Case study
- Regionalisation (Spatial Reference Framework)
- Indicator selection (key set)
- Data availability & Data management
- Threshold selection
- Compare Simulation
- Technical architecture

High need for Consolidation

4 Transferability LUPIS

Testing the transferability of IA components in case studies of the LUPIS project

-> Teams of interdisciplinary experts to develop **IA Tools / model components and methods** with high diversity

- Crop growth model
- Farm optimisation model
- Regional computable equilibrium model
- Regression analysis
- Spatial planning model
- Dynamic land use simulation model
- Agent-based model
- GIS tools
- Participatory methods
- Multi-criteria analysis
- Driver-Pressure-State-Impact-Response method

Focus on selected components

5 Transferability: Challenges

Diversity of requirements, needs and conditions

	Challenge
IA method	Need for ex-ante policy assessments: to understand intended and unintended impacts of policies
Policy	Specific, case-study and context-driven
Data base, Indicators	Consolidated, harmonized data bases limit modeling, indicator methods and scaling often lacking
Expertise	Diversity of cultures, lack of ex-ante in-house approaches, limited experience in multi-disciplinary research
Decision Making	Policy-science interface-platforms often lacking

6 Generalized Transferability

Factors that drove our model development (pathways)

1. **Project environment**
    1. **Funding program**
        1. Objectives
        2. Method compliance
    2. **Project design**
        1. Project period
        2. Tool development period
        3. Testing period
    3. **Budget allocation**
        1. Budget for tool development
        2. Contingency fund structure
        3. Topping up of external budget
        4. External involvement

Project analysis

6 Generalized Transferability

Contextual analysis

2. **Policy environment**
    1. Legal framework compliance
    2. Policy practice compliance
    3. Characteristic of policy approach
        1. Ex-ante analysis
        2. Ex-post evaluation
        3. Level of innovation
3. **Socio-cultural environment**
    - Acceptability of research
    - Openness of active involvement
    - Regional/national compliance
4. **Economic, environmental environment**
    - Problem pressure
    - Degree of regional inclusion
    - Solution feasibility

6 Generalized Transferability

Contextual analysis

5. **User environment**
    1. User involvement for development
        1. Demand driven tool design
        2. Supply driven tool design
        3. Harmonized solution
    2. End User use
        1. Open free access
        2. Limited use by system constraint
        3. Limited use by contractor , policy
6. **Institutional environment**
    1. Transaction costs, interdisciplinary research
    2. Transaction costs, coordination
    3. Research staff skills
    4. Hard/software facilities
    5. internal/external infrastructure

6 Generalized Tranferability

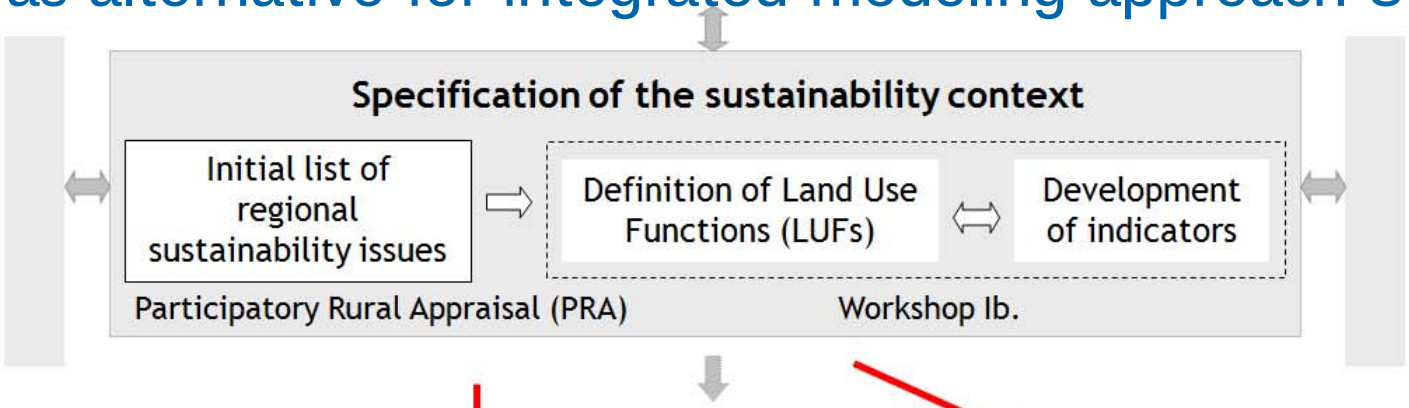
Factors defining model development

7. **System environment**
    1. Accessibility
        1. Stand alone solution
        2. Server web-based
        3. Non-modeling approach
8. **System environment**
    2. Software
        1. System compatibility
        2. Software Licensing
        3. Property rights, use
        4. Property rights, development
    3. Operational performance
        1. Computable results
        2. Interaction, hybrid approach
        3. Pure expert consultation

Model analysis

7 Alternative Participative Approaches

FOPIA (Framework for Participatory Impact Assessment) as alternative for integrated modeling approach SIAT

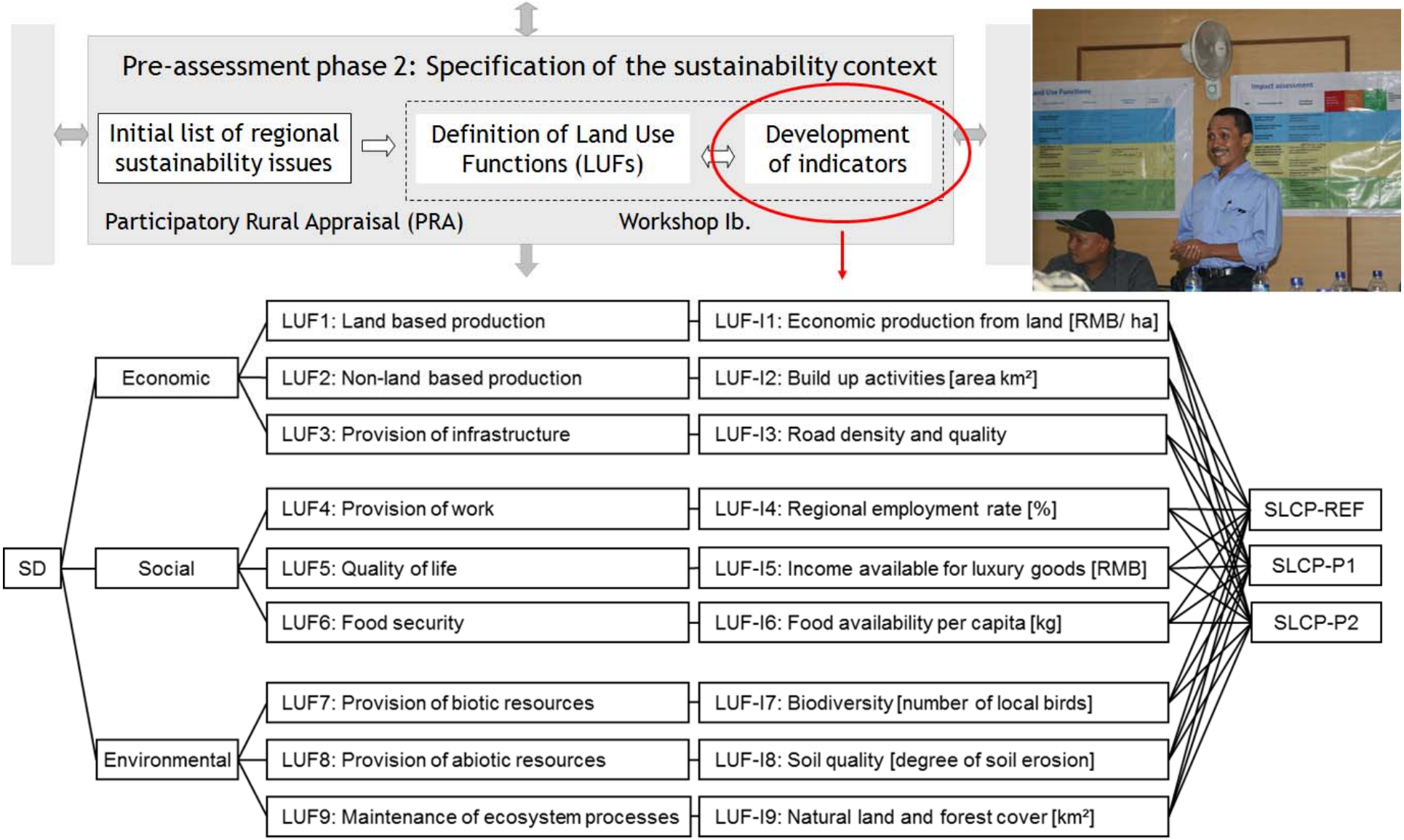


1. Perceptions of local farmers (Participatory Rural Appraisal PRA)

2. Specification by regional experts (expert workshop)

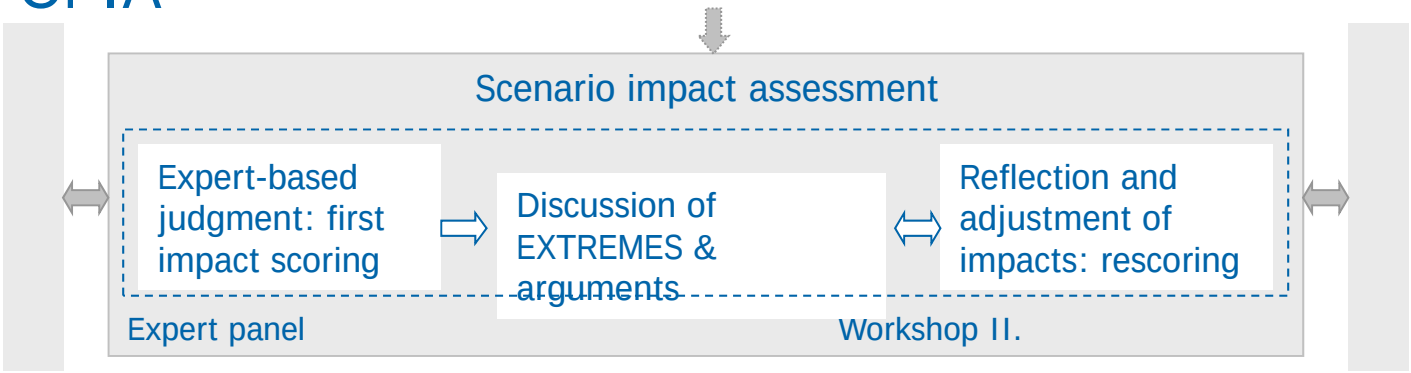
7 Alternative Participative Approaches

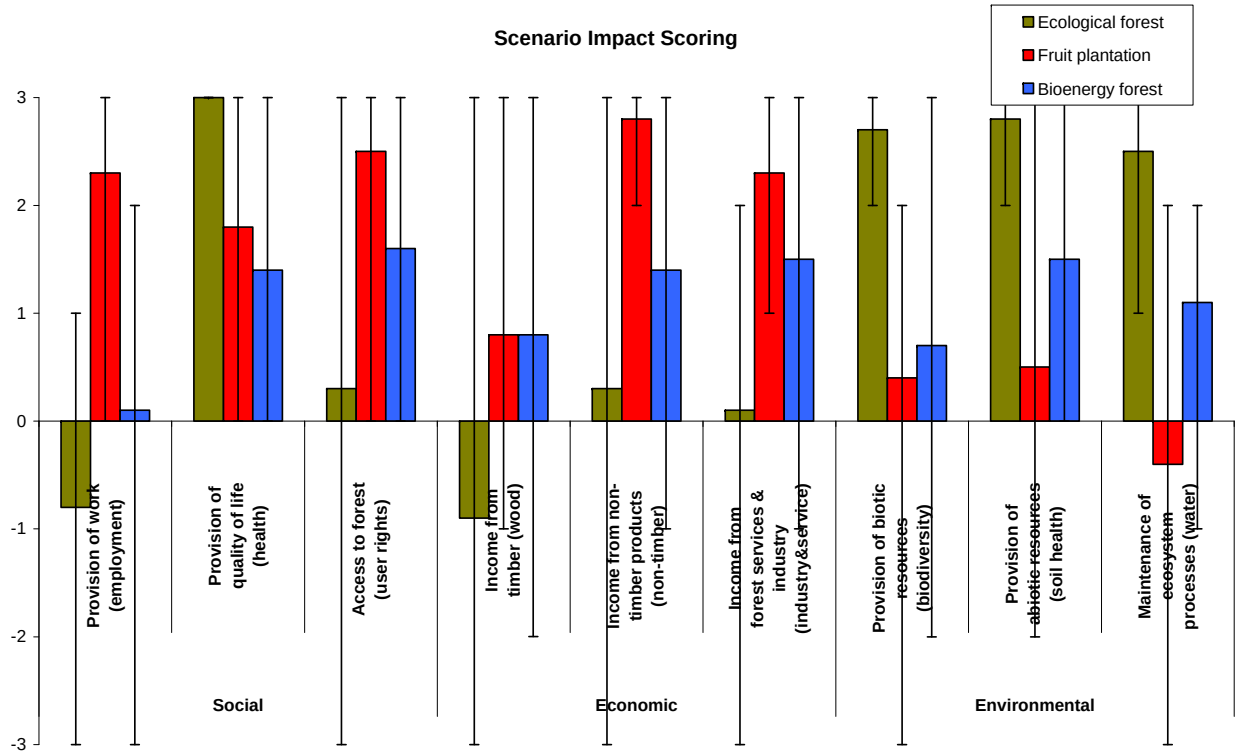
FOPIA



7 Alternative Participative Approaches

FOPIA





8 Lessons learned

Transferability of IA methods at project level by tailor-made adjustments of original concepts

- Contextual requirement analysis
  - Analysis of needs, conditions (capacities, skills, acceptance etc.)
  - Policy characteristics (level of integration, regionalization etc.)
  - Policy decision process (decision level, participation etc.)
- Model requirement analysis for IA tools
  - Technical and software analysis
  - Data availability analysis
  - Capacity analysis
- Limitations/ Risk analysis

9 Conclusion

- Transferability of model designs do not fulfill always demand, needs, requirements.
- Requirement and risk analysis needed to test viability of model transferability
- Integrated Model Transferability (SIAT): Often alternatives such as participatory approaches towards formalized decision processes preferable, if model requirements are not fulfilled.
- Component-based Transferability (LUPIS): But, if model requirements are fulfilled, transferring “model components” provide a structure and may be more feasible!
- A general judgment on transferability is not possible due to a specific contextual and situation-based development.

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Thank you for your attention!

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