Natural Capital Accounting
Community of Practice Africa

Africa Natural Capital Accounting Community of Practice Webinar Series:

The Use of Natural Capital Accounts in Policy Scenario Analysis

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Outline

- Introduction: setting the stage
- Module 1: Policy scenario analysis and forecasting
- Module 2: Models, scenarios and accounts
- Module 3: Policy assessments with models and scenarios
- Module 4: Steps to follow for your own assessment!

Introduction: setting the stage

Objectives of the report

The interdependent nature of the 17 Sustainable Development Goals and underlying indicators of the 2030 Agenda for Sustainable Development embodies the **need for a systemic approach** to tackling the challenges facing humanity.

Attaining **one goal at the expense of another** is neither desirable nor sustainable

- **Progress on one goal can contribute to another**: poverty can only be eliminated through decent work and economic growth.
- **Failure** on one goal will lead to negative progress on another

Policymakers require new sources of data, based on coherent statistical frameworks, that can be transformed into decision-relevant information through the application of innovative, sophisticated modelling techniques.

The use of the ecosystem accounts of the **SEEA EEA in scenario analysis models can provide policymakers with better understanding of the interconnections** existing between society, economy and the environment, and hence lead to better decisions.

Rationale for this guide

Ecosystem accounts are by nature **backward-looking**: they describe the state of affairs at some point in the past, which may be relevant for a whole range of policies.

Policymaking is, by contrast, **forward-looking**: it seeks to influence future states of affairs based on decisions taken today.

The challenge, then, is how to marry the two.

The guide focuses on **the use of backward-looking data in forward-looking policy scenario analysis** that allows policymakers to assess the possible impacts of their choices.

The utility of such an approach is demonstrated by the work carried out by **The Economics of Ecosystem and Biodiversity (TEEB)** in various countries and policy areas.

Module 1:
Policy scenario analysis and forecasting

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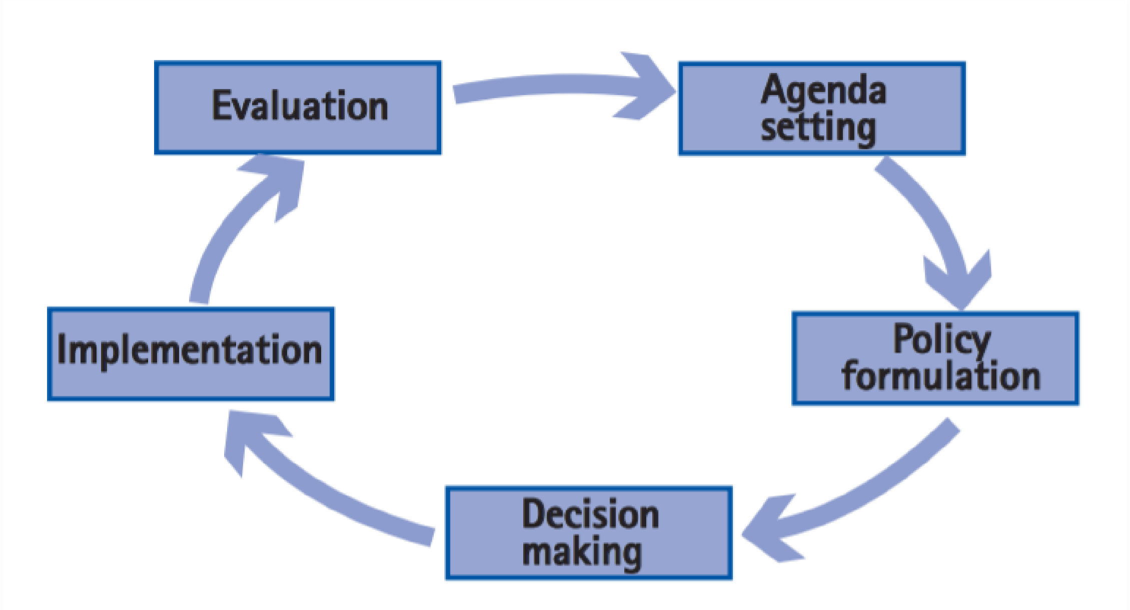
The policymaking process

The policymaking process includes five broad steps: **(1) issue identification** (or agenda setting), **(2) policy formulation** (including identification of intervention options and their assessment), **(3) decision making** (or policy adoption), **(4) policy implementation**, **(5) monitoring and evaluation**.

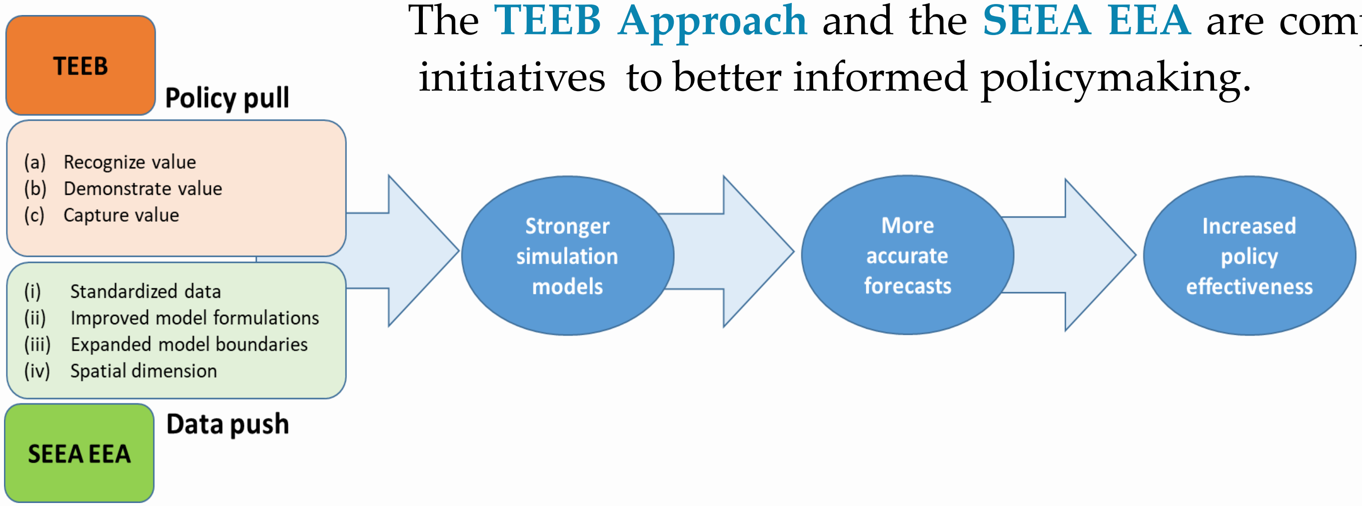


Data push and policy pull

There are different **entry points** for the use of SEEA EEA in scenario and forecasting exercises, both originating from the institutionalization of the accounts and emerging from the need of specific policy assessments, on demand.

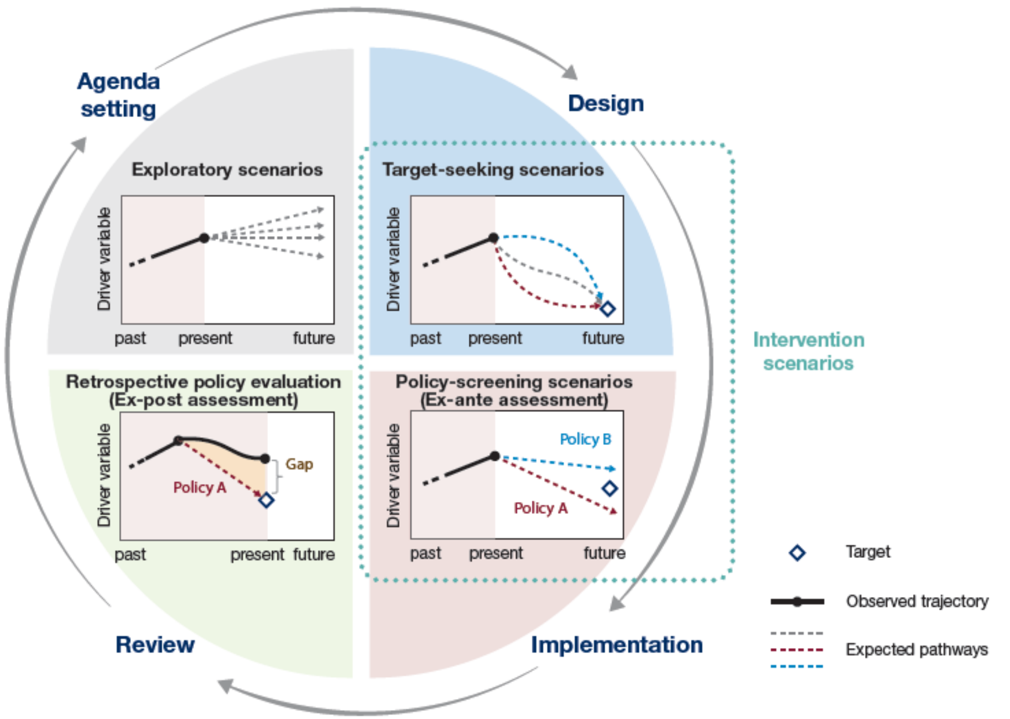
- A "**data push**" approach driven by the availability of new information
- A "**policy pull**" case where the use of SEEA EEA data is requested to carry out a comprehensive policy assessment, are both important.

The **TEEB Approach** and the **SEEA EEA** are complementary initiatives to better informed policymaking.



Scenarios and forecasting methods

The various types of scenario that can be used in policy scenario analysis are usefully classified into **(a) exploratory scenarios**, **(b) target-seeking scenarios**, **(c) policy-screening scenarios** and **(d) retrospective policy evaluation**. This characterization is consistent with the potential for scenarios to inform policymaking primarily in the agenda setting and design phase, and for monitoring and evaluation after implementation.



Roles played by different types of scenarios (referred to as "simulations" in this report when these scenarios are quantified) corresponding to the major phases of the policy cycle (IPBES, 2016).

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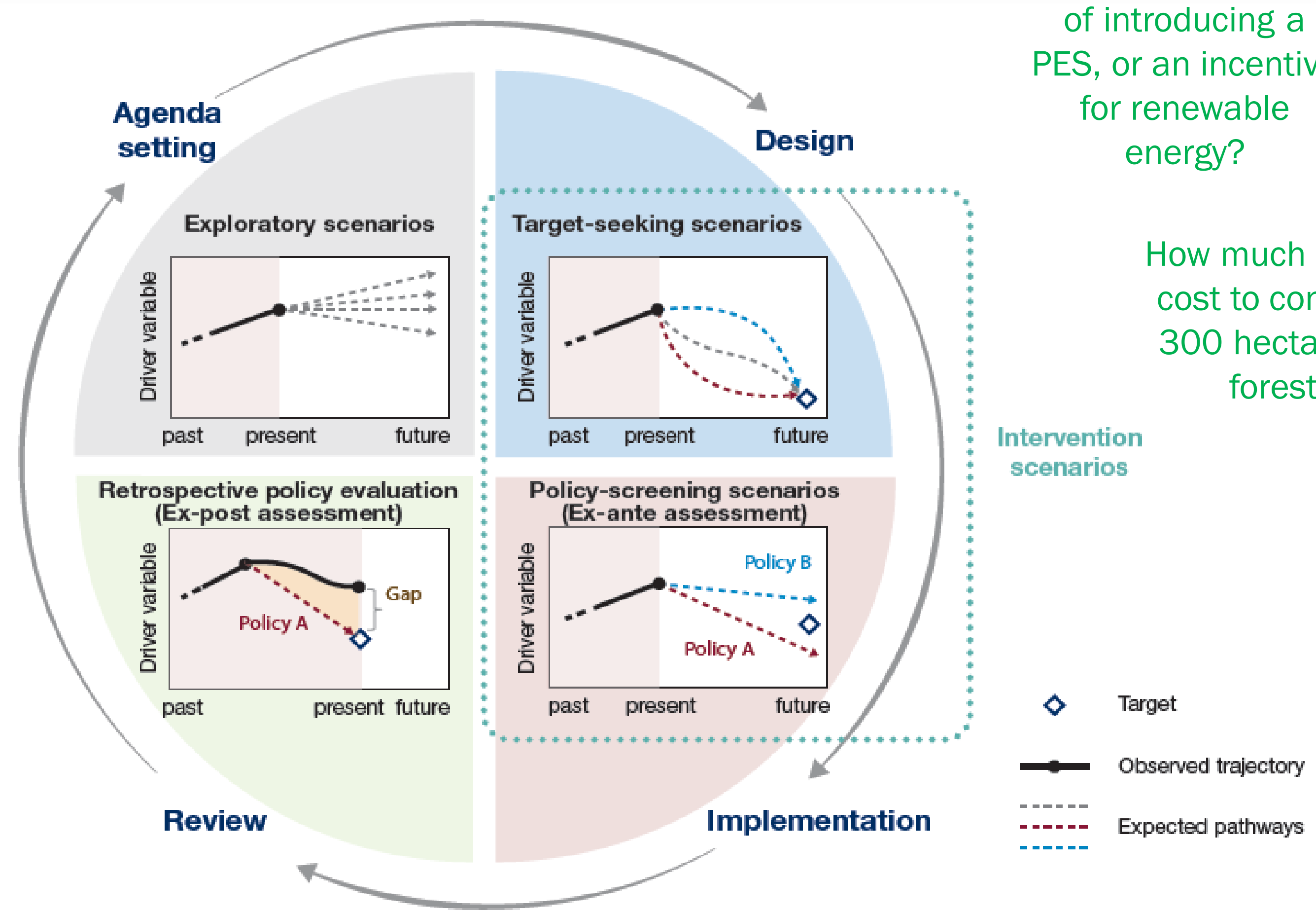
Exercise!

Can you match the examples to the types of scenarios in the figures?



What is the impact of introducing a PES, or an incentive for renewable energy?

What are the consequences of a continued increase in the use of chemical fertilizer?

How much does it cost to conserve 300 hectares of forest?

How effective has been the introduction of efficient irrigation in the past 10 years?

Roles played by different types of scenarios (referred to as "simulations" in this report when these scenarios are quantified) corresponding to the major phases of the policy cycle (IPBES, 2016).

The relevance of SEEA EEA and TEEB for policy analysis

The SEEA EEA and TEEB can both support the use of accounts, further development of modelling approaches and creation of new models, all with the **ultimate goal of informing policy decisions**.

This can happen through:

- **Creation of new knowledge about ecosystems** and how their extent and quality leads to ecosystem services that benefit communities and human wellbeing.
- **Creation of coherent and harmonized accounts**, allowing for the development of new models that can make use of such a data framework
- **Promotion of the use of a systemic (closed-loop) approach**, closing the loop between models that assess (a) the impact of human activity on ecosystem and (b) models that determine the extent to which ecosystems influence human health and human activity.

The relevance of SEEA EEA and TEEB for policy analysis

- **Design of new integrated or coupled models:** (a) Improving the analysis performed with sectoral models, by introducing physical indicators on ecosystem extent, condition, services and hence generating a higher degree of realism; (b) generating knowledge on how existing models could be connected with one another to better represent the relations between society, economy and environment; (c) providing information for the creation of new integrated models.
- **Use of simulations**, extending the analysis provided by SEEA, by forecasting or back-casting scenarios.
- Making explicit the importance of site-specific drivers of change, system responses and impacts, with the use of a spatially-explicit analysis that allows to **determine the value of ecosystem services** based on the location where these are used (i.e. more explicitly assess demand and supply).

Module 2:
Models, scenarios and accounts to inform policy scenario analysis

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Simulation Models

Several simulation models are available, using different modeling approaches, focused on different sectors and domains, geographies, and policy processes.

One of the reason for having so many models is the **difficulty in integrating knowledge**, which leads to the continuous creation of new models in different fields.

The strength of the SEEA is that it provides knowledge and data to connect the environment with society and the economy, **with a spatially explicit approach**.

This is the information needed to connect domains of research and integrate many of the models that are currently being used in isolation.

Simulation Models – key features

Sectors: the outcomes of events, including external factors and human decisions, have to be analyzed for a variety of sectors. They are necessary to assess a system's performance, rather than focus only on its parts.

Economic actors: the assessment of outcomes across economic actors has to consider ecosystems. This is because certain groups of the population and certain businesses rely on natural resources and on ecosystem services and ecosystem goods more than other.

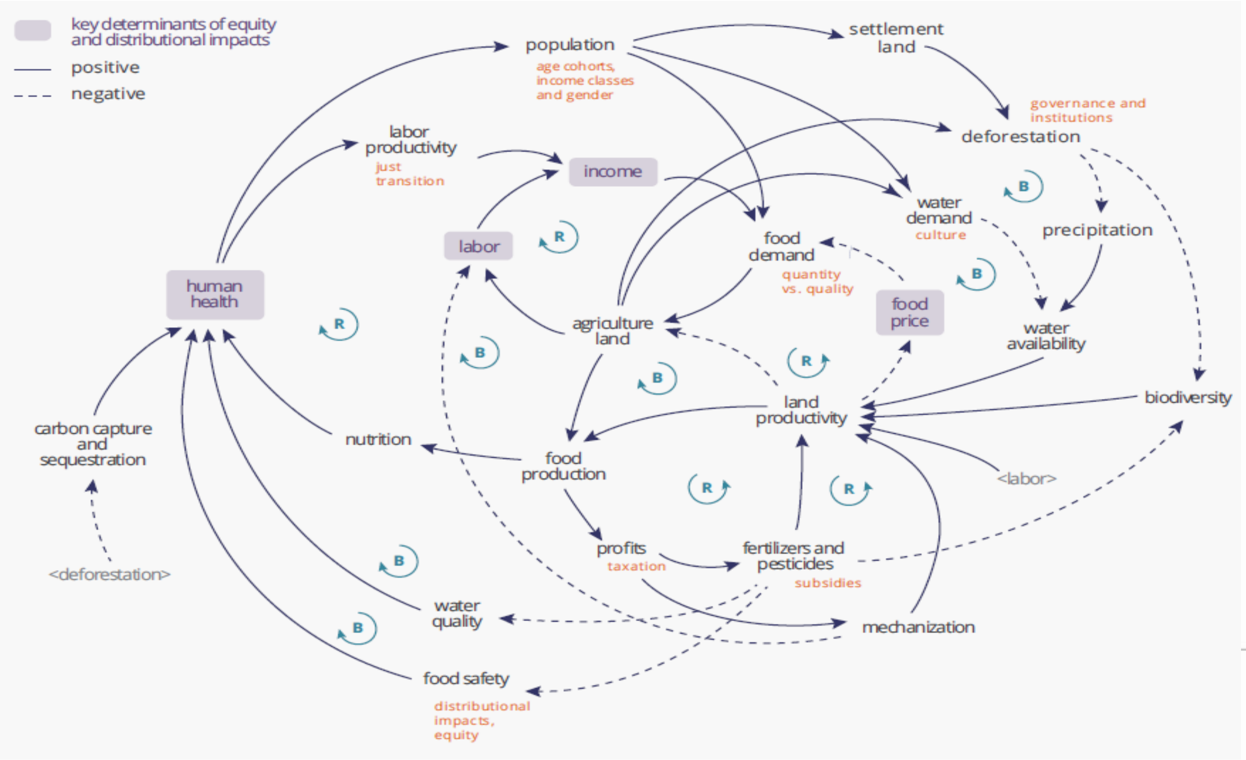
Dimensions of development: sustainable development has three pillars, society, economy and the environment. It is critical that all pillars are treated as part of the same system, to avoid that advances for one do not lead to challenges for others.

Time: the outcomes of decision making, including policies and investments, as well as behavioral change, have to be assessed for the short, medium and longer term

Space: location is even critical when estimating ecological outcomes, such as for the provision of ecosystem services and their economic valuation and for the assessment of the vulnerability (or efficiency) of infrastructure.

Scenario creation tools (qualitative)

System maps: **a causal loop diagram (CLD) is a graphical representation of the main variables forming a system and their interconnections**. As a map of the system analyzed, a CLD facilitates representation and exploration of the complexity of the system, with the use of causal relations and feedback loop.



Causal Loop Diagram of the eco-agri-food system. Source (Zhang, 2018)

Scenario forecasting with simulation models (quantitative)

Simulation models are presented as (a) thematic, or sectoral models and (b) cross-sectoral, nested or integrated models.

Thematic models focus on a single theme or area of analysis (e.g. economy, employment, energy, water, land), are generally sectoral and focus in the vast majority of cases exclusively on biophysical or economic indicators.

Cross-sectoral models are also called integrated models. These models consider the interconnections existing across various sectors that include social, economic and environmental indicators, and are either built as nested models

Scenario forecasting with simulation models (quantitative)

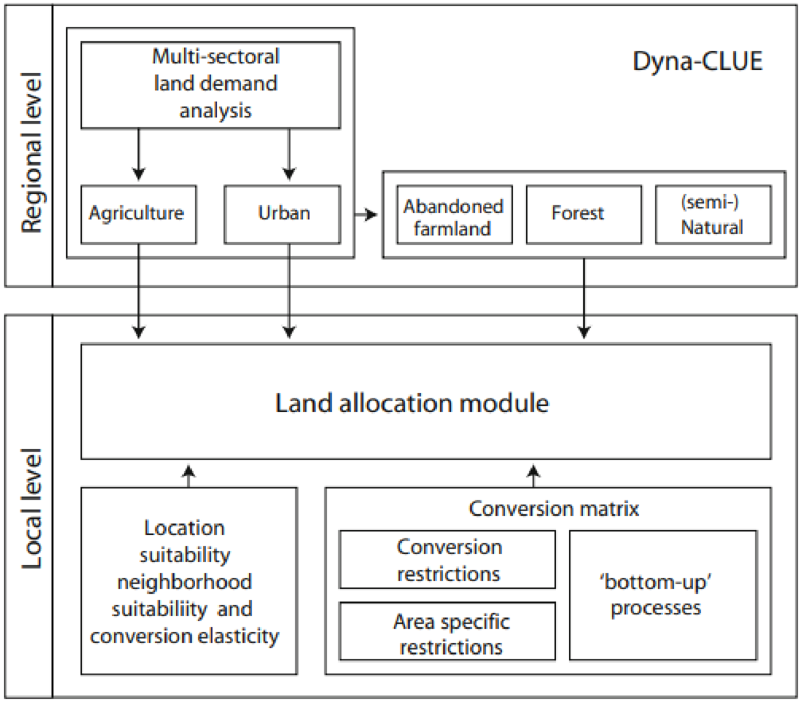
Land use models:

- Spatial planning tools are used to plot out future optimal physical placement of economic activities, human settlements, based on a variety of scenario drivers.
- On the other hand, this is often without reference to what this means for socioeconomic effects or monetary valuation of loss/gain in natural capital assets.
- They are often static assessments that do not 'speak to' decision-makers outside of land use/conservation planners, but provide very valuable inputs for planning of infrastructure as well as to assess impacts on ecosystems.

Scenario forecasting with simulation models (quantitative)

Land use models: examples

- The Conversion of Land use and its Effects (CLUE) model, a dynamic, spatially explicit land use and land cover change model, is among the most frequently used land use models globally.
- CLUE constitutes a flexible and generic land use modelling framework and allows scale and context specific applications, depending on the requirements of the analysis.



Overview of the inputs to model and allocation module of the Dyna-CLUE model (Verburg & Overmars, 2009)

Scenario forecasting with simulation models (quantitative)

Land use models

Model type	Sector/thematic area	Actors	Dimensions of development	Time	Space
Land use (spatial planning)	Land, agriculture	Generally not specified (but may include considerations on land tenure and production, and so public and private sector)	Primarily environmental. May include economic (e.g. agriculture production) and social considerations (e.g. land tenure)	Snapshot, forecasts outcomes for a given point in time	Explicitly represented

Contribution of SEEA EEA:

1-New and standardized data inputs

2-Improved equations (improved understanding of dynamics) for possible land cover change

3-New indicators (extended model boundaries), including new potential factors determining the extent to which land use could change

Scenario forecasting with simulation models (quantitative)

Macroeconomic models: used to perform economic assessments at the regional, national and sectoral level. An example of the use of these models is for the estimation of the impact of fiscal policy. Two main approaches are found, based on general equilibrium (optimization) and econometrics.

- **Computable General Equilibrium (CGE) models are a tool of economic analysis**. The three conditions of market clearance, zero profit and income balance are employed by CGE models to solve simultaneously for the set of prices and the allocation of goods and factors that support general equilibrium.
- **Econometric models** function by collecting historic data on a range of variables and using economic theory and statistical techniques to **determine how a change in one variable is correlated with changes in others.** This type of model is not based on an attempt to theorize how an economy works (despite being nevertheless theory-based), instead it measures how it has evolved based on actual data.

Scenario forecasting with simulation models (quantitative)

Macroeconomic models: potential structural improvements with SEEA EEA

Extent:

- **for production** - can inform the estimation of whether the land resources required to maintain and expand economic production are available. This implies that land requirements for different economic activities are estimated and compared with available land (considering al land cover classes) and potential future land cover change. In this respect, the use of extent data can indicate whether land-related constraints may emerge in the future.
- **for impacts of production** - for both CGE and macroeconometric models the inclusion of new variables on land use can support the estimation of the impact of economic production on land cover, and as a result on potential changes in the condition of ecosystems and provisioning of ecosystem services.

Scenario forecasting with simulation models (quantitative)

Macroeconomic models: potential structural improvements with SEEA EEA

Condition:

- **for production** - can support the estimation of the economic productivity of land, using biophysical data and increasing the accuracy of projections (e.g. **for agriculture, forestry or all land-based sectors for instance).**
- **for impacts of production** – new variables could be added to the model that indicate environmental pressures emerging from activities that affect condition but not extent (e.g. land management practices, logging practices).

Scenario forecasting with simulation models (quantitative)

Macroeconomic models: potential structural improvements with SEEA EEA

Ecosystem services:

- **for production** – including ecosystem services in macro models could support the assessment of productivity at the sectoral level. It could shed light on the extent to which water quality, air quality, soil erosion and other ecosystem services can contribute to economic productivity (or conversely, on the extent to which production relies on ecosystem services). This could be introduced through the use of "productivity shocks" in the model, resulting from changing ecosystem service provisioning.

Scenario forecasting with simulation models (quantitative)

Macroeconomic models: potential structural improvements with SEEA EEA

Economic valuation:

- **for production** – could inform the extent to which production costs may change in case of declining ecosystem services. This in turn may affect economic growth projections (sectoral and national level) and contribute to more holistic assessments of economic development. In the case of CGE models, this implies that the optimization algorithm would consider an extended set of parameters (i.e. the environmental dimension and its impact on production costs).

Scenario forecasting with simulation models (quantitative)

Macroeconomic models: Interpretation of results

- Macroeconometric models **use data to estimate model formulation**. With more data and more knowledge of causality for ecosystem extent, condition and services, these models could be greatly enhanced.
- CGE models use optimization, and the **results of simulations will change when new factors are included in the objective functio**n (e.g. when the loss of ecosystem services translates in costs).
- **Model boundaries for both types of models could be expanded**, including environmental dimensions more explicitly in the estimation of economic performance.
- **Spatial information may provide more insights** as to the emergence of environmental problems (e.g. water and air pollution), informing policy development to avoid the emergence of these tradeoff-related costs.

Scenario forecasting with simulation models (quantitative)

Infrastructure models

Model type	Sector/thematic area	Actors	Dimensions of development	Time	Space
Infrastructure	Energy supply, buildings, roads, water supply and treatment, waste management, natural infrastructure	Generally focused on private sector (contracted entity), but may extend to operators (e.g. government) and recipients of infrastructure benefits (society, households and private sector)	Primarily economic. May include environmental (e.g. deforestation, emissions) and social considerations (e.g. access to services, side effects of construction)	Continuous time (monthly, quarterly or annual projections)	Not explicitly included for national assessments, explicitly represented for project-level analysis

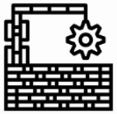
Contribution of SEEA EEA:

1-New and standardized data inputs

2-Improved equations (improved understanding of dynamics) for the impacts of infrastructure on the environment

3-New indicators (extended model boundaries) for the inclusion of the impact of ecosystem services on infrastructure (full feedback loop), including how costs and revenues may be impacted

4-Spatial disaggregation/interpretation of results, making project-level assessments more valid and allowing to include environmental considerations in national-level assessments



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Module 3:
Policy assessments with models and scenarios

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Overview of policy areas and related priorities

Outcomes may be an endpoint of modeling, but represent a **starting point for decision making**

According to UNEP (2011), it is possible to group intervention options in four different categories:

- Investments
- Incentives and disincentives
- Land use planning
- Awareness raising programs

Each of these are a suite of interventions that impact on, directly or indirectly, **climate change**, **biodiversity loss**, **air and water pollution**, **deforestation**, **land degradation** and **desertification**.

Overview – policy focus

		Climate change	Biodiversity loss	Air and water pollution	Deforestation	Land degradation and desertification
1	Low Carbon Development in Indonesia	X		X	X	
2	Agriculture expansion in the face of climate change in Tanzania	X	X	X	X	X
3	Biodiversity and tiger habitat conservation in Indonesia	X	X		X	X
4	Forest certificates for reducing deforestation in Brazil		X		X	
5	Water pollution reduction in India and Sri Lanka	X		X	X	X
6	Deforestation and development planning in Rwanda				X	X
7	Integrated planning for ecosystem conservation in the Heart of Borneo		X		X	X

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Agriculture expansion in the face of climate change in Tanzania

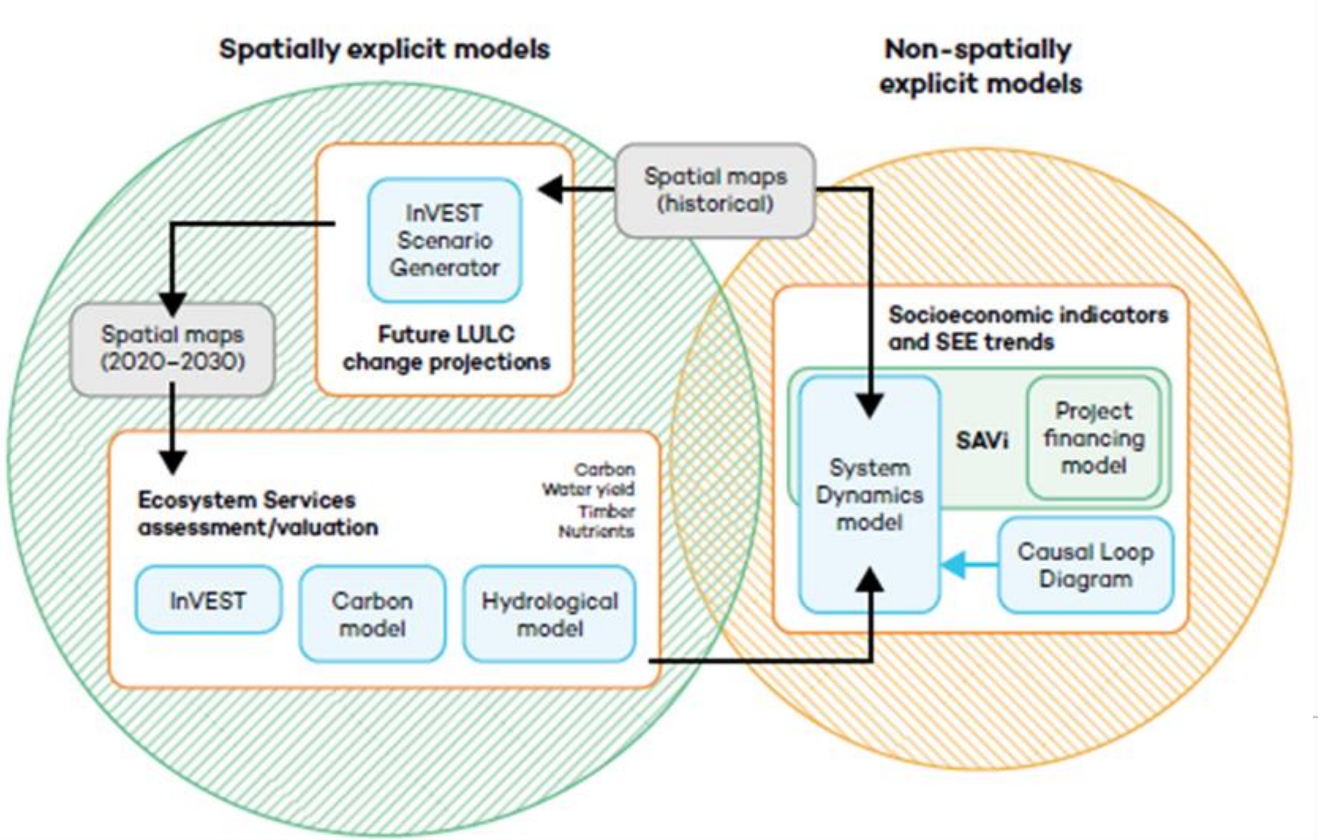
Policy context and overview of the issue

- The Government of Tanzania aimed to provide funding for the implementation of the Southern Agriculture Growth Corridor of Tanzania (SAGCOT). These policies seek to reduce poverty and ensure food security, in line with the Sustainable Development Goals.
- The Kilombero basin in Tanzania covers an area larger than 40.000 km2, and it is characterized by high levels of poverty due to low rates of agricultural productivity and investments.
- The initiative recognizes possible conflicts of interest, such as competition of resources between farmers and livestock breeders, including land and water. The availability of natural resources and ecosystem services underpin livelihoods for the local population and sustain ecological integrity in the Kilombero valley.

Agriculture expansion in the face of climate change in Tanzania

Modeling approach

Five quantitative models were used, supported by surveys on land use and land management practices, and land cover maps to better understand socio-economic and environmental dynamics of the basin.



Agriculture expansion in the face of climate change in Tanzania

Scenarios

- Business-as-usual (BAU): this scenario assumes that existing trends on population, land conversion for agriculture and settlements, and related impact on the environment will be stable.
- SAGCOT Reference (RE) and Green Economy (GE): these two scenarios represent two different SAGCOT implementation options; one using flood irrigation (reference or RE) and the second one utilizing drip irrigation (green economy or GE).

Agriculture expansion in the face of climate change in Tanzania

Results of the analysis

	land use	water stress	carbon sequestration	production	employment
SAGCOT	↑	↑	↓	↑	↑
water constraints	↓	↑	↑	↓	↓
water efficiency (30%)	=	↓	=	↓	↓
intensification (50%)	↓	=	↑	=	↓
combination	↓	↓	↑	=	=

Scenarios	IRR (%)	NPV (USD million)	Min. DSCR (ratio)	Ave. DSCR (ratio)	Min. LLCR (ratio)
1) Flood irrigation (SAGCOT RE)	6.20%	(0.61)	1.18×	1.51×	1.19×
2) Drip irrigation (SAGCOT GE), high capital expenditure (CAPEX)	Negative	(45)	0.14×	0.17×	0.14×
3) SAGCOT GE, low CAPEX	Negative	(20)	0.32×	0.36×	0.32×
4) SAGCOT GE, high CAPEX, incl. social cost of carbon (SCC)	Negative	(45)	0.15×	0.19x	0.15×
5) SAGCOT GE, high CAPEX, incl. SCC and additional revenues	3.06%	(22)	1.11×	1.13×	1.11×
6) SAGCOT GE, high CAPEX, all externalities	6.04%	(12)	1.22×	1.50×	1.22×
7) SAGCOT GE, low CAPEX, all externalities	13.42%	10	2.33×	2.64×	2.34×

Key financial indicators for investments in flood (SAGCOT scenario) and drip irrigation (SAGCOT GE scenario). Source (IISD, 2018)

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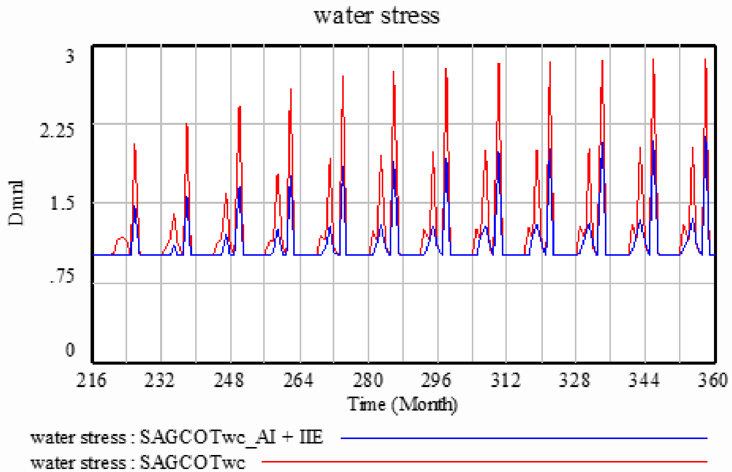
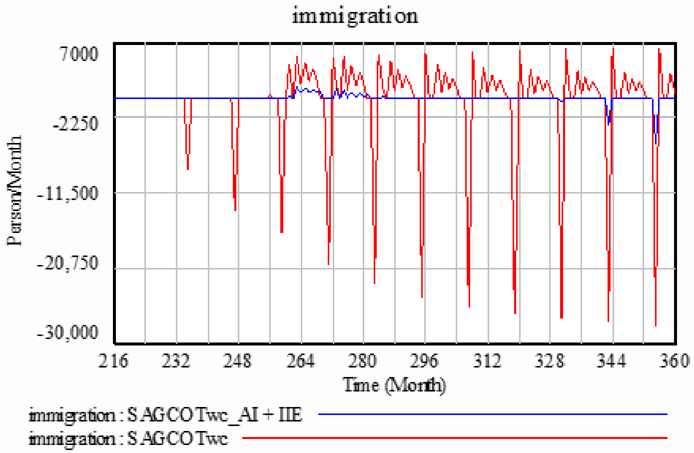
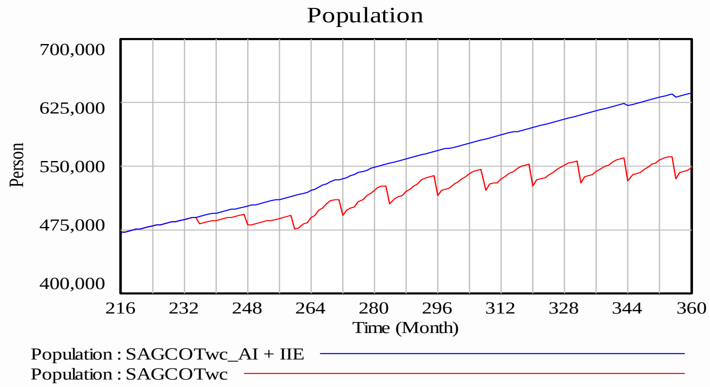
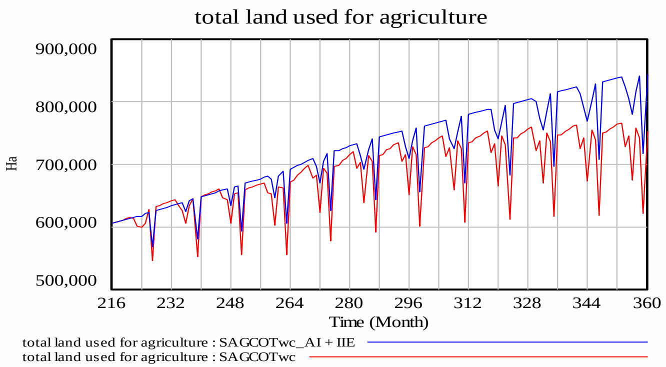
Agriculture expansion in the face of climate change in Tanzania

Results of the analysis









Agriculture expansion in the face of climate change in Tanzania

Potential contribution of SEEA-EEA to the case study

The modeling work presented in this study makes use of spatial information, incorporating ecosystem extent.

On the other hand, the analysis of ecosystem condition is limited to crop production and water availability.

Refining and deepening ecosystem condition would provide more valid results.

Expanding the list of ecosystem services, in addition, would allow to improve model formulations for crop production, water use, with validated accounts.

It would then support expanding the cost benefit analysis, with new economic valuation of ES.

Agriculture expansion in the face of climate change in Tanzania

Potential contribution of SEEA-EEA to the case study

Ecosystem extent	Ecosystem condition	ES supply and use, physical	ES supply and use, monetary	Thematic accounts
Required to better determine the land cover changes caused by expansion of agriculture. Indicators: - Subtropical deciduous forests and shurblands - Subtropical wooded savannas - Subtropical grasslands - Croplands - Pastures - Plantations - Mangroves - Permanent upland streams - Permanent lowland rivers	Useful to better estimate ecosystem services, especially in relation of crop production and water. Indicators: - Biomass of natural forest - Living plant index - Nutrient concentrations (N) - Nutrient concentrations (P) - Habitat quality	Required to expand the list of ES quantified, and to improve the calculation of ES provisioning. Indicators: - Carbon retention - Blue carbon retention - Soil retention - Crop provisioning - Timber provisioning - Air filtration - Water regulation - Water purification	Necessary to better assess the economic viability of the project, from a societal perspective. Indicators: - Value of carbon and blue carbon retention - Value of crop provisioning - Value of water supply and purification	Water accounts would be valuable to extend the analysis to the Rufiji delta (e.g. to lowlands) and to improve the calculation of the societal impacts of agriculture expansion (including for the calculation of project IRR for the government and farmers).

Deforestation and development planning in Rwanda

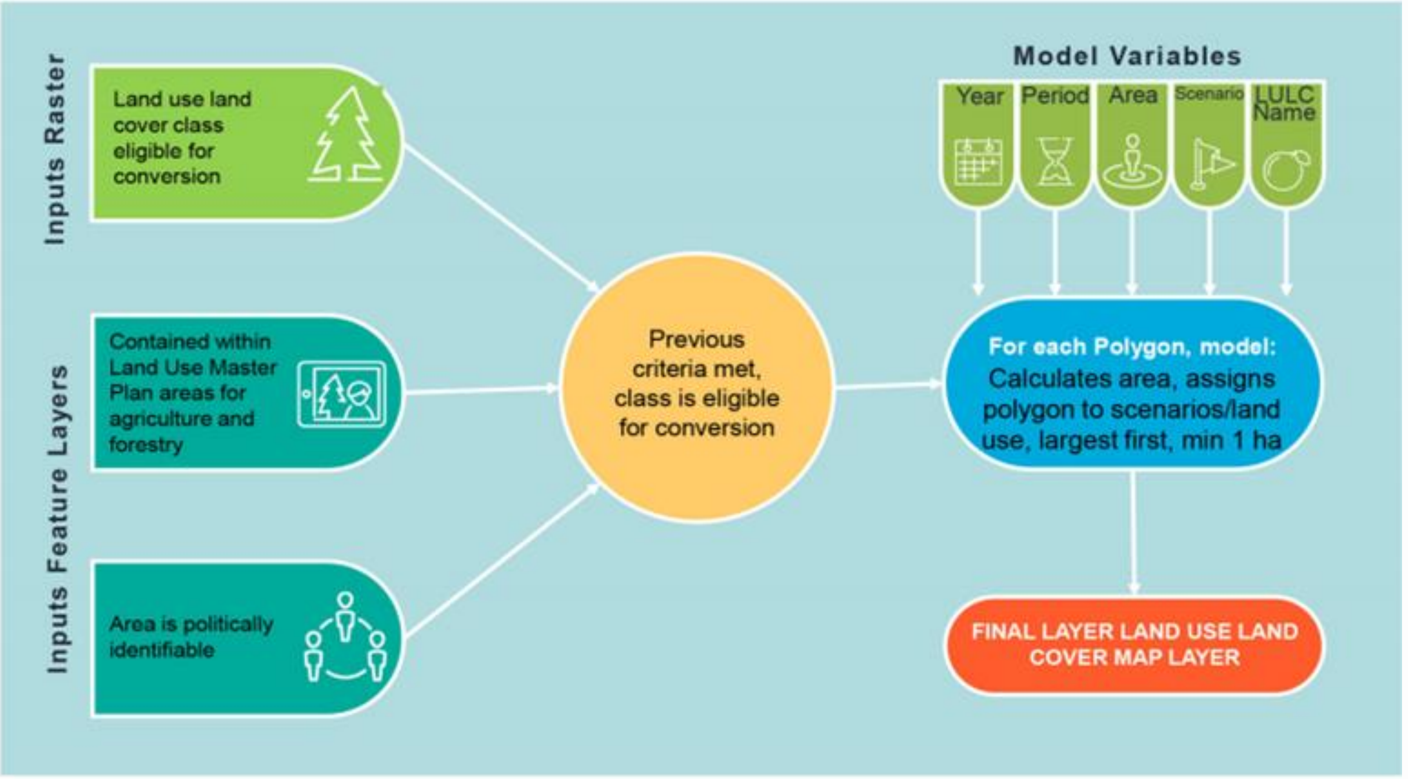
Policy context and overview of the issue

- In 2011, Rwanda's Government set the ambitious goal to restore 2 million hectares of the country's forest cover under the Bonn Challenge, a global goal to bring 150 million hectares of degraded and deforested landscapes into restoration by 2020.
- Through a collaboration funded by the Science for Nature and People Partnership, the Integrated Economic-Environmental Modeling (IEEM) model was developed, a macroeconomic Computable General Equilibrium (CGE) model that incorporates land use and SEEA accounts.
- Specifically, the IEEM Platform was linked with ecosystem services modeling (IEEM+ESM) to better understand and analyze green growth strategies on the relationship between land use dynamics and green growth in Rwanda.

Deforestation and development planning in Rwanda

Modeling approach and scenarios

The IEEM Platform integrates non-material, regulating and cultural and aesthetic ecosystem services by linking IEEM with spatial ES modeling. The bridge between the two modeling frameworks is made possible through a Land Use Land Cover change (LULC) modeling modul.e



Modeling workflow (Banerjee, et al., 2020)

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Deforestation and development planning in Rwanda

Scenarios

Name	Description
BASE	• Based on business as usual trends.
FOR1	• Forest plantation area is increased by 110,400 hectares to 2035. • Total investment cost is US$285,581,699 (US$20,398,693 annually). • Land endowment is fixed, therefore forest plantation expansion causes a reduction in land for agriculture.
FOR2	• Forest plantations increased by 110,400 hectares between 2018 and 2035. • Cost of the policy is US$285,581,699. • Land endowment is not fixed, so forest plantations can expand without reducing availability of agricultural land.
FUEL	• Efficient cookstoves and kilns reduce woody biomass used by 25%. • Rural household labor productivity is increased by 0.125% due to less work hours lost to acute respiratory diseases, eye disease and burns.
IRRIG	• 85,473 ha of farmland currently cultivated without irrigation or with irrigation infrastructure in disrepair are brought into irrigated agricultural production. Irrigation will increase yields and crop values given quality improvements and seasonality of irrigated crops.
FERT	• Increase in area and quantity of fertilizer applied to all cropland to 45 kg/ha/yr.
COMBI1	• Joint implementation of FOR1, FUEL, IRRIG, and FERT.
COMBI2	• Same as COMBI1 but does not account for urban expansion.

Deforestation and development planning in Rwanda

Results of the analysis

The FERT and COMBI scenarios are the greatest “winners” for economic growth.

From an ecosystem services perspective, the FOR and COMBI scenarios, which help reverse a 25-year trend of forest loss in Rwanda, provide the greatest gains.

Of these, the FOR scenarios yield reductions in nutrient export while when combined with fertilization in the COMBI scenarios, the net effect is an increase in nutrient export, though to a lesser degree than the FERT scenario.

	FOR1	FOR2	FUEL	IRRIG	FERT	COMBI
Absorption	(25)	92	490	185	2,653	3,312
Private consumption	(5)	79	479	141	2,121	2,744
Fixed investment	(20)	12	11	44	532	567
Exports	72	47	165	43	596	886
Imports	19	22	94	13	467	607
GDP	28	116	561	215	2,781	3,591
Genuine savings	(34)	11	27	73	713	763

Impacts of different scenarios analyzed by the IEEM+ESM platform: difference relative to the baseline scenario in 2035, in million USD (O. Banerjee et al., In press).

Deforestation and development planning in Rwanda

Potential contribution of SEEA-EEA to the case study

- The modeling approach considers the relationship existing between economic activity and land use.
- Ecosystem condition and ES accounts could be added, leading to the economic valuation of ecosystem services (either model-based or estimated with ES monetary accounts).
- Some of these ES are modeled, but not valued monetarily because of the absence of a market price.
- With the availability of the economic valuation of ES, these economic values could be used as input in the GCE model.
- This would improve the economic assessment, possibly considering other economic losses resulting from the loss of ecosystem services (beyond land), and approximating an assessment of the societal value of intervention options.

Deforestation and development planning in Rwanda

Potential contribution of SEEA-EEA to the case study

Ecosystem extent	Ecosystem condition	ES supply and use, physical	ES supply and use, monetary	Thematic accounts
Required to better estimate the impact of land cover change on ecosystem services. Indicators: - Temperate tropical lowland rainforests - Temperate tropical montane rainforest - Temperate tropical dry forests and shrubs - Plantations - Croplands - Pastures - Settlement land - Roads	Required to improve the calculation of ES provisioning and for the estimation of habitat quality. Indicators: - Biomass of natural forest - Species abundance index - Living plant index - Nutrient concentrations (N) - Nutrient concentrations (P) - Habitat quality	Required to expand the list of ES quantified with InVEST, better parametrize the model. Indicators: - Carbon retention - Soil retention - Crop provisioning - Timber provisioning - Water regulation - Water purification - Species appreciation services - Nursery population and habitat maintenance services	Necessary to assess the economic impact of ES provisioning, and the viability of proposed policy options. Indicators: - Value of carbon - Value of crop provisioning - Value of water supply and purification - Value of tourism activity	Relevant for the assessment of ES that affect economic activity (e.g. water)

Module 4:
Steps to follow for your own assessment!

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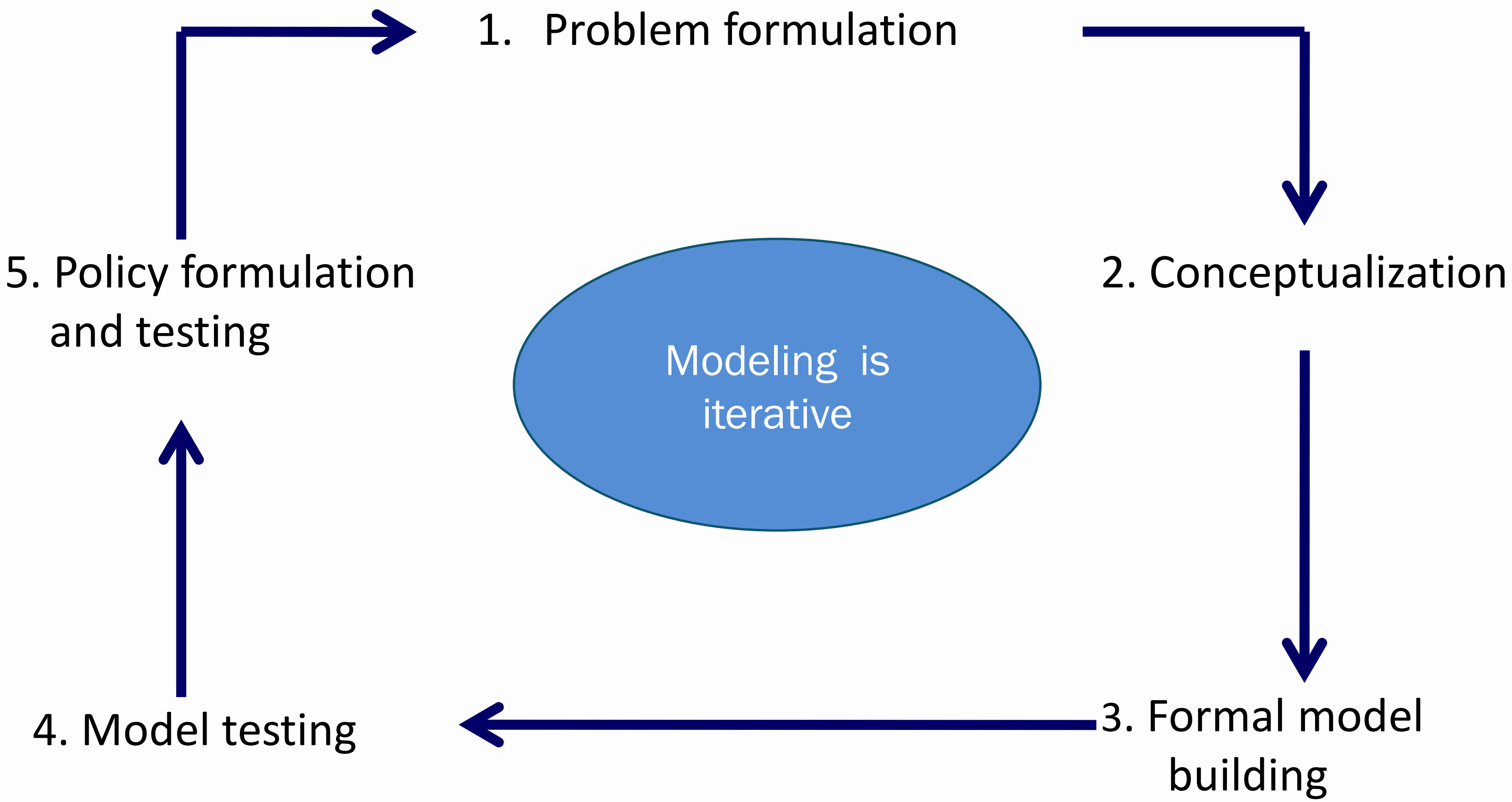
Modelling process



Modeling process

1. **Identify the problem or policy opportunity**

- Describe the problem statement in a sentence
- Identify one or more indicators that allow to measure the problem

2. **Determine causes and effects of the problem**

- Identify indicators that represent the factors affecting the problem
- Identify indicators that represent the effects of the problem

3. **Determine the boundaries of the model**

- Based on the indicators identified, determine internal and external influences
- Review existing models and identify what features are critical to assess

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Modeling process

4. **Choose the model(s) to use**

- Assess the boundaries of the model, and whether all key causes and effects of the problem are captured
- Assess the required data inputs, as compared to data availability

5. **Formulate and simulate scenarios**

- Determine policy assumptions (e.g. targets, cost of interventions)
- Simulate the model and validate the results

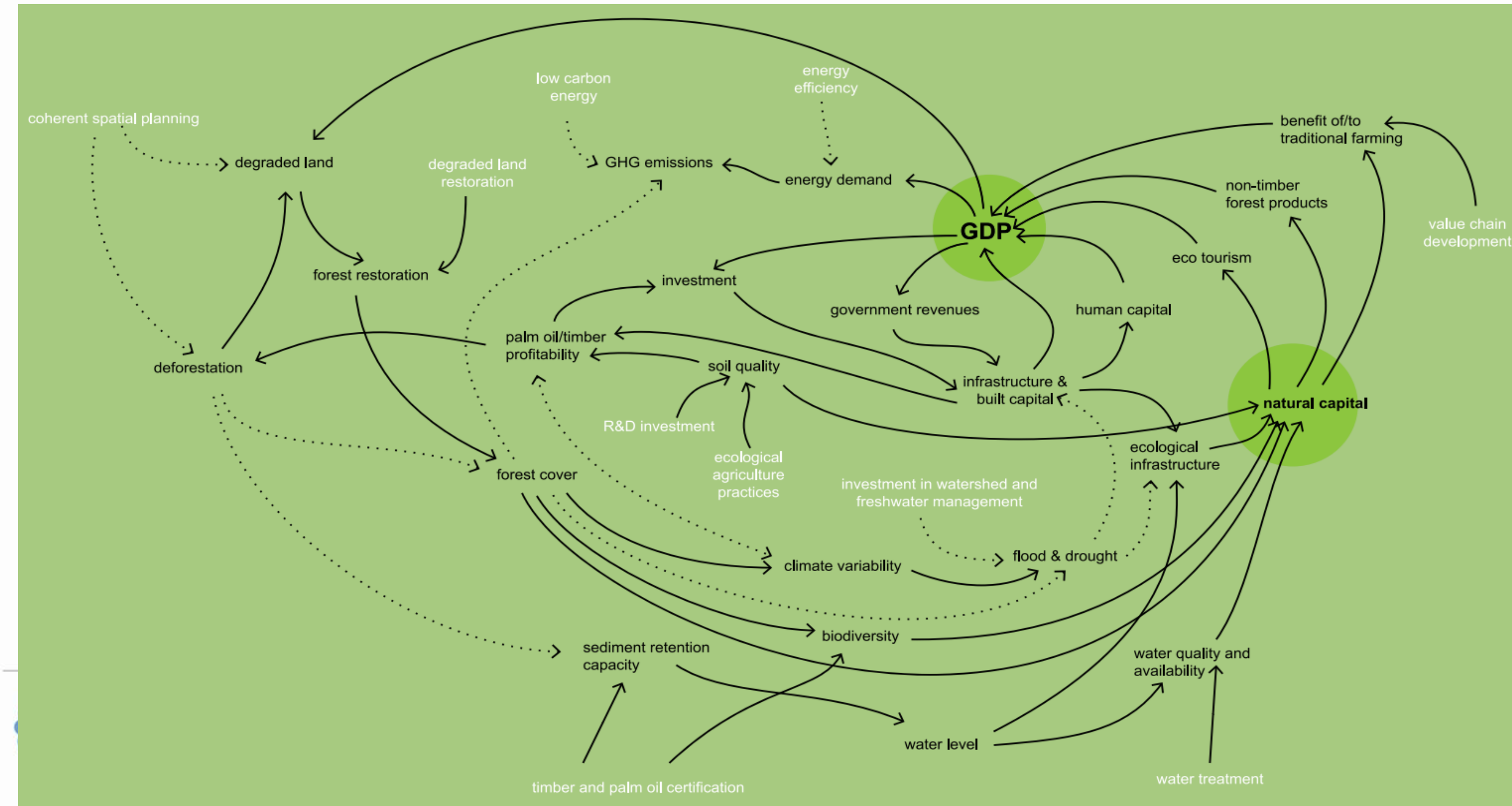
6. **Review and interpret results**

- Assess results in relation to the problem (is the problem solved?)
- Interpret results in relation to social, economic and environmental indicators, especially in relation to causes and effects of the problem

Identifying model boundaries

3. **Determine the boundaries of the model**

- Review existing models and identify what features are critical to assess



Identifying model boundaries

3. **Determine the boundaries of the model**

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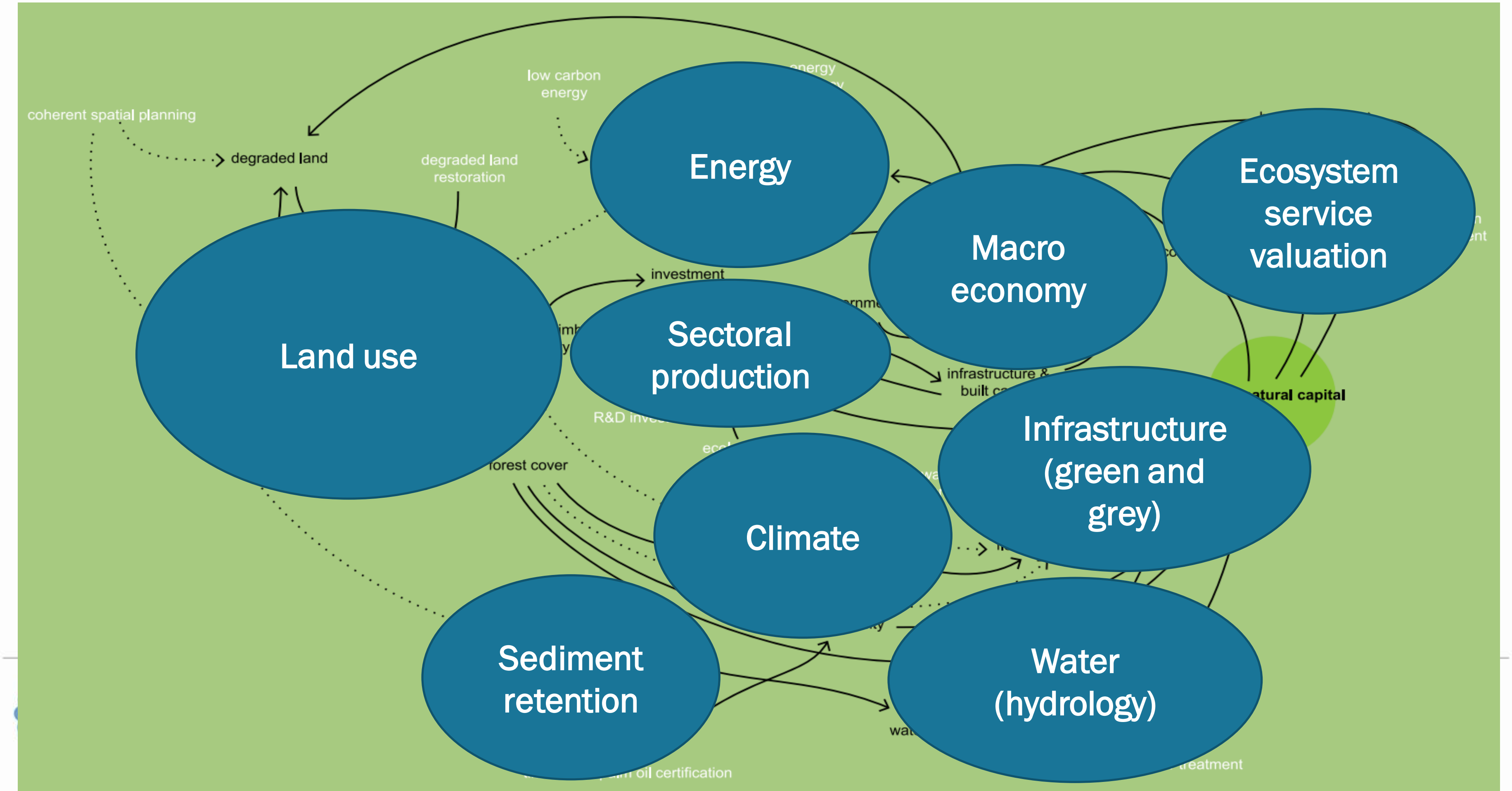

Conclusions

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Key messages

The use of SEEA EEA, providing a standardized set of accounts**, allows to bring more of a top-down approach to data collection** (in a way similar to the SNA). It would also allow for time series data and hence **repeatable analys**is as opposed to one-off studies.

The economic valuation of ES requires instead **local customization** of the approach.

The same can be said about the **policy process**: unless the local context is taken into account, it will be difficult to gain traction with policy makers at local and national level.

The joint use of SEEA EEA and TEEB therefore **bridges several gaps**: **(i)** between top down and bottom up analysis; **(ii)** between the assessment of historical data and future projections; **(iii)** between science and policy.

SEEA EEA and TEEB can contribute to the development and refinement of various models and related policy assessments. This is a result of improved knowledge, expanded data availability and improved data quality, expanded model boundaries and creation of more systemic assessments that involve a broader group of local stakeholder.

Natural Capital Accounting
Community of Practice Africa

Moderated Interactive Discussion

Questions for Professor Bassi

Sharing of Country Experiences on the Use of Accounts in Policy

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