THE GLOBAL MECHANISM

UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION

Economic Valuation of Land

Supporting Evidence-Based Decision Making

Training and Information Events
WGRI-3 – UNCBD
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Simone Quatrini
Coordinator, Policy & Investment Analysis, GM
s.quatrini@global-mechanism.org

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UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION

Agenda

- **Rationale** – why shall we care about the value of land
- **Methodologies** – which models are currently available
- **Approach** – is there a cost-effective integrated approach
- **Country case studies** – where is being applied

Rationale

- **Land resources support life**, underpin the economies of nations and the livelihoods of people across the world
- In many places these resources are being degraded by a series of pressures, and **climate change** will only make things worse
- **Unsustainable land uses** and practices take place for many different reasons, and may produce irreversible losses in fragile ecosystems
- The **value of land resources** to national development and poverty reduction is often not understood properly
- Investments in land, sectors or technologies driven by short-term gains may generate huge **negative externalities**, leading to serious depreciation of natural capital

Land acquisitions

- **"Farms Race"** (The Economist, May 21st 2009)
  - Large scale land acquisitions by sovereign-wealth funds (government-to-government)
  - Projects are large, risky and controversial
  - Traded value of land does not reflect its total economic value

A: Other deals (area unknown)

Target	Investor	Deal type/value
Cambodia	Kuwait	Land for rice
China	United States (Goldman Sachs)	$450m-500m, poultry and pigs
Ethiopia	India	$4bn
	UK (Sun Biofuels)	Jatropha
	Saudi investors	$100m
Malawi	Djibouti	unknown
Mozambique	UK (Sun Biofuels)	Jatropha
Sudan	Egypt	Wheat (2m tonnes pa)
	Kuwait	"Giant" strategic partnership
	Qatar	Joint holding firm
Turkey	Bahrain (Agricapital)	$500m (may rise to $3bn-6bn)

B: Failed deals

Target	Investor	Size of deal
Mozambique	China	$800m
Philippines	China	1.24m ha
Indonesia	Saudi Arabia (Saudi Binladin Group)	0.50m ha
Madagascar	South Korea (Daewoo)	1.30m ha

Sustainable land management

- What drives decisions to use/manage natural resources responsibly and sustainably?
- Why are the economic benefits of SLM not recognised?

⇨ Benefits of SLM are often **difficult to specify**

⇨ Several of these benefits have a **public goods** character and/or are not traded in a market

⇨ Often a **mismatch** between the stakeholders that pay the (opportunity) costs of maintaining an environmental benefit (e.g. by not converting a forest to cropland) and the beneficiaries of that benefit (e.g. downstream water users benefiting from the regulation of water flows).

identification of incentives for SLM
mobilization of financial mechanisms

Understand the unexpected

- Some of the costs of land degradation and benefits of SLM can be unexpected but of great significance
- For example, agricultural lands are the source of 30% of GHG emissions, whilst conversely soils have the potential to be a major 'sink' for carbon sequestration
- Even remote impoverished drylands and fragile ecosystems may be endowed with substantial natural wealth (e.g. Salar de Uyuni in Bolivia: the 10,000 sq km high-altitude salt flat stores more than half of the world's supply of lithium, but is also a tourist attraction and a natural habitat for many species)

difficult choices and tradeoffs

Supporting decision making

1. Reveal the economic costs and benefits of land use conversion, or of different types of land management
2. Show the interests of different groups of stakeholders in land and ecosystem management, thereby providing a basis for conflict resolution and integrated, participatory planning of resource management
3. Calculation of economic efficient land management options
4. Provide the basis for setting up Payment for Ecosystem Services type of schemes, for allocating funds from the beneficiaries of ecosystem services to the providers of these services

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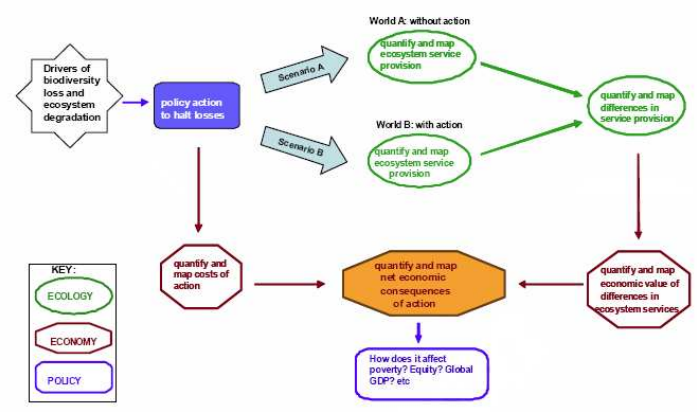
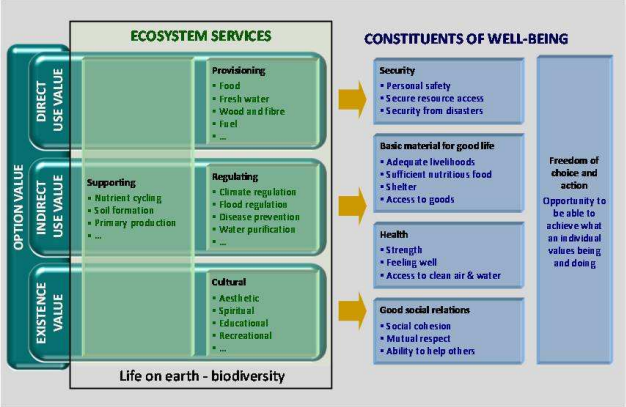
Relevant methodologies

- **The Economics of Ecosystems and Biodiversity (TEEB)**
  - Quantification of global economic benefits of biodiversity
  - Costs of biodiversity loss, ecosystem degradation and declines in ecosystem services



Relevant methodologies

- **Millennium Ecosystem Assessment (MA)**
  - Categorization of 4 ecosystem services and their related economic valuation

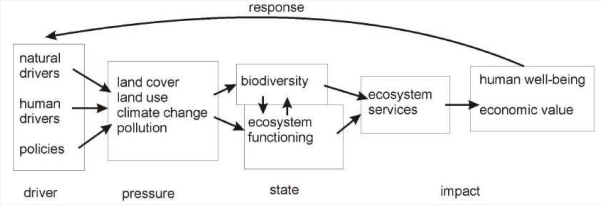


Relevant methodologies

- **Natural Capital Project (WWF, Stanford)**
  - Integrated Valuation of Ecosystem Services and Tradeoffs (InVEST)
  - Development of natural capital database
- **Land Degradation Assessment in Drylands (LADA)**
  - Development of global indicators for land degradation
  - Use of Sustainable Livelihoods Framework
  - Global baseline for future monitoring
- **Hein & de Groot**
  - Partial valuation concept focussing on a small number of ecosystem services providing the bulk of benefits
- **Global Methodology for Mapping Human Impacts on the Biosphere (GLOBIO)**
  - Analysis of changes in land use and its impact on ecosystem services
- **Dynamic Integrated Model of Climate and the Economy (DICE)**
  - Estimated value on the negative effects of global warming in a number of crucial areas such as agriculture

Relevant methodologies

- **OECD Driver-Pressure-State-Impact-Response (DPSIR) Framework**
  - Development of DPSIR Framework for land degradation



- **Other relevant models:**
  - Landscape Ecological Decision & Evaluation Support System (LEDESS)
  - Conversion of Land Use and its Effects (CLUE)

Earlier studies

- **Studies on the costs of land degradation (GM, Berry et al., 2003)**
  - 7 country case studies showed 3 – 7 % loss of agricultural GDP due to land degradation
  - Investment required in remedial action an order of magnitude smaller than the estimated costs to the national economy
- **Studies on 'costs of inaction' (WB, Rydén, 2005)**
  - 25% increase in number of hungry people in Africa south of the Sahara due to land degradation and agricultural yield changes between 2000 – 2010
- **Economic returns in success stories (GM, Reij & Steeds, 2003)**
  - 30 % in irrigation, Mali
  - 20 % in soil and water conservation, Niger
  - More than 20% in forestry, Ethiopia
  - 12 % in forestry, Tanzania
  - Over 40% small-scale irrigation in northern Nigeria & Komadougou valley, Niger

not enough to influence policy and decision making

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GM spearheaded a new initiative

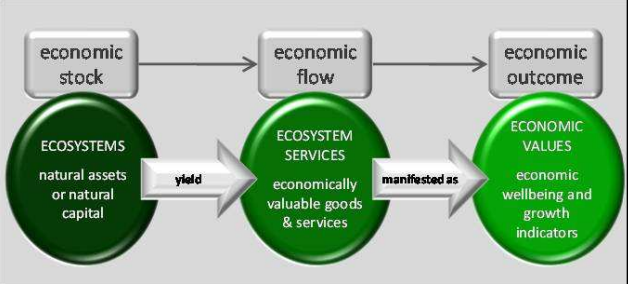
- **International workshop** focusing on costs of inaction & opportunities for investment
  - Economic rates of return can be as high as 30 %
  - Economic losses can be several % points GDP
- New **evidence** needed of the total economic value of land resources
  - Total economic value of land
  - Total economic costs of land degradation
  - Total economic return of SLM
- Notion of **global public good** in addition to private benefits
  - Regional and global costs
- Resurgence of sustainable development paradigm - **green economy**
  - Rethink the discount rates

Economic valuation of land

- Coalition of research institutions led by the Stockholm Environment Institute (SEI)
- Innovative methodological approach for assessing the value of land, the costs of land degradation and the benefits of SLM
- The **goal** is to increase public and private investments in SLM through the generation of scientifically rigorous arguments to **demonstrate the economic benefits** of SLM as opposed to the costs of unsustainable business-as-usual practices
  - identification of barriers to SLM and incentives
  - assessment of alternative scenarios
  - evaluation of risks and potential returns on investment
  - mainstreaming into relevant development frameworks

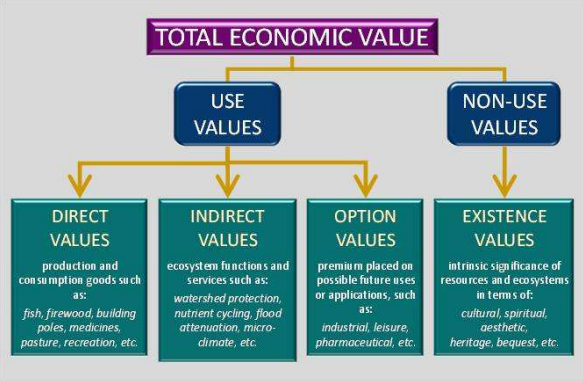
Integrated and dynamic

- Multidimensional - modular approach integrating different methodologies
- Multilevel approach
  - Top-down aggregated economic analysis
  - National-level sectoral economic impact assessment
  - Sub-national local case studies
- Assessment of aspects of the relation between land resources and economic development



Comprehensive and scalable

- Applicable to:
  - Different spatial scales (local, national, regional, global)
  - Specific study objectives
- Total Economic Value:



Phased implementation

1.) Scoping:

- Identification of scope, location, spatial scale and strategic focus based on stakeholder consultation
- Preparation of background information on socio-economic and environmental context

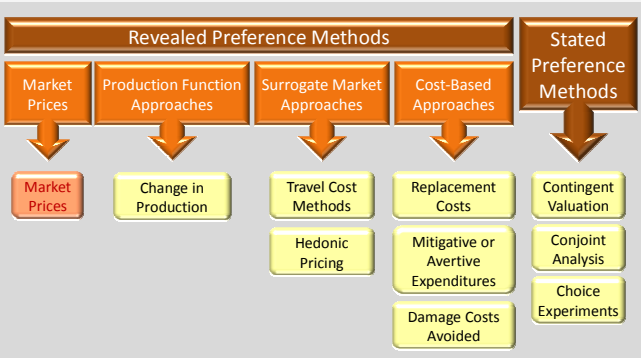
2.) Assessment of land cover type:

- Assessment of quantity, spatial distribution & ecological characteristics of land cover
- Method (national level): GIS analysis with categorization by agro-ecological zones (governments, FAO)
- Method (local level): participatory GIS, supplemented with CLUE or LEDESS model

Phased implementation

3.) Analysis of ecosystem services:

- Analysis of stocks and flows for each land cover category based on 4-fold categories of ecosystem services (MA)
- Expert judgement and stakeholder consultation on suitable methodology
- Method: Choice from common valuation techniques, including list of indicators for ecosystem services and their calculation



Phased implementation

4.) Economic significance of study area:

- Analysis of role of ecosystem services in community livelihoods (local) and overall economic development (national)
- Method (local): Secondary statistics & field research
- Method (macro-economic): National accounting frameworks

5.) Assessment of land degradation:

- Identification of patterns, pressures, spatial distribution, causes, driving forces
- Analysis of future risks & vulnerabilities
- Assessment of 'costs of inaction'
- Method: GIS analysis including defined set of degradation drivers

6.) Sustainable Land Management:

- Analysis of options for reducing/removing degradation pressures, including their economic viability and suitable locations
- Method: GIS analysis, perhaps supplemented by models as LEDESS or CLUE

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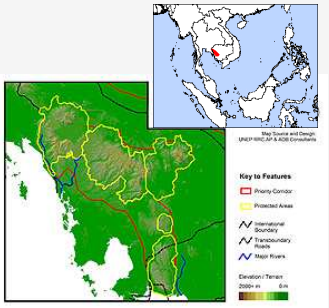
Country studies: Cambodia

- Ministry of Agriculture, Forestry and Fisheries (MAFF)
- Economic Valuation Study (EVS) of land resources in Cardamom Mountains
- Capacity building at national level to undertake future valuations
- Integration of study results into national development planning processes
- Identification of specific financial opportunities for scaling up SLM investments
- Economic valuation approach:
  1. Assessment of the **inherent value** of Cambodia's land resources
  2. Assessment of the **costs of land degradation**
  3. Analysis of future **risks and vulnerabilities**
  4. Assessment of the **costs of inaction**
  5. Identification and assessment of **SLM options**
  6. **Policy dialogue** with key stakeholders



Country studies: Tanzania

- Vice President Office
- Economic Valuation Study (EVS) of land resources
- Capacity building at national level to undertake future valuations
- Integration of study results into national development planning processes
- Identification of specific financial opportunities for scaling up SLM investments
- Economic valuation approach (same as above)

Country studies: Zambia

- Ministry of Tourism, Environment and Natural Resources (MTENR)
- Zambia Development Agency (ZDA) – Environmental Council of Zambia (ECZ)
- Macro-economic valuation of land in most affected regions
- Capacity building at national level to undertake future valuations
- Integration of economic valuation programme into 6th National Development Plan
- Identification of mechanisms and incentives for scaling up SLM investments
- Approach (same as above)

thank you

For more information: Mr Simone Quatrini
Coordinator, Policy & Investment Analysis, GM
s.quatrini@global-mechanism.org
www.global-mechanism.org