VALUING ECOSYSTEM SERVICES

EXPERT GROUP MEETING ON THE WATER, ENERGY, FOOD SECURITY NEXUS IN THE ARAB REGION

ESCWA  23-3-2015

IUCN MISSION

To influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable
IUCN At Glance

- The World’s oldest and largest global conservation network
- A unique democratic union with more than 1,000 state and NGO member organizations in 160 countries
- Almost 11,000 expert volunteers reviewing scientific research and developing standards for the conservation community
- Over 1,000 staff in 60 offices worldwide
- Hundreds of partners in Governments, NGOs, Scientists, Business and Local Communities
- Thousands of field projects and activities around the world

IUCN WEST ASIA

Guiding Principles

RELEVANCE TO COUNTRIES/STATES CURRENT POLICIES AND DEVELOPMENT OBJECTIVES:

The strategy is directly linked to current development policies and plans of the West Asia governments reflected on addressing the need to sustained livelihood, poverty alleviation, protect the environment, conserve nature, mitigate and adapt to climate change, and naturalizing the energy sector.
OBJECTIVES

- Promoting poverty alleviation through catalyzing sustainable management of ecosystems for human-well being
- Mainstreaming natural resources conservation measure and management best practices in landscape and production systems and in the livelihood systems
- Encouraging and catalyzing ecosystem conservation and management capacity building
- Generation of knowledge, dissemination of information, demonstration and utilization of best practice

INITIATIVE FOR WEST ASIA

***Provide nature-based solutions and ecosystem services needed to improve livelihoods through;

***Better participatory management, gender equity and bridging the gap between implementation and policy
THE GOVERNANCE THEORY IN RESTORING ECOSYSTEM

- Security of natural resource rights
- Enforceability of NRM rules, regulations and plans (governance)
- Better application of SLM approaches (management and investment)
- Livelihood security and environmental health

HIMA – GOVERNANCE TOOL

The word Hima (Arabic): originally means “protection” and حضنة. It refers to an area set aside for conservation. It’s a traditional conservation system used by Bedouins to organize grazing and keep lands protected and conserved.
**GOVERNANCE: THE BEDROCK OF SUSTAINABLE LAND MANAGEMENT**

- **Strengthening Local Government:**
  - To reach the stage of full decentralization the capacity building

- **Empowerment local level:**
  - Empowering the local community to be able to participate in the decision making process concerning their natural resources.

  Through building their accountability

  It will probably gives further insights in decision-making and concerted actions processes, while deepening understanding on attitudes and believes of related Stakeholders.
IN JORDAN – BANI HASHEM HIMA SITE
The case for using ecosystem service valuation to support the scaling up of SLM strategies
**PROJECT ACHIEVEMENT**

- **Return of plants** with medicinal values (e.g. *artemesia* spp.)

- **Return of wildlife** and possible hunting concessions (e.g. partridge)
ECONOMICS OF LAND DEGRADATION

- Reversing land degradation as a conservation strategy and a national development priority.
- SLM
- Benefits of SLM are found:
  - On-site
  - Off-site

Aims at integrating the sound management of land, water and biodiversity to sustain ecosystem services and livelihoods.

BENEFITS

Economic values from pasture restoration

Direct Use Value
- Increased supply of:
  - Medicinal plants
  - Fodder

Indirect Use Value
- Biophysical data processing tool
- Improved:
  - Carbon sequestration
  - Sediment stabilisation
  - Ground water infiltration
  - Dry season water baseflow
  - Annual water yield

Valued using
- Avoided costs
- Stated preference
- Social cost of carbon
- Production function approaches
We study the value of enhanced:
- Rangeland productivity
- Infiltration of rainfall to groundwater aquifers
- Stabilisation and trapping of sediments
- Carbon sequestration and storage

Women's unique knowledge and skills are essential for effective combating and conservation measures and policies.
- Women are important agents of change as managers of natural resources
- Supporting economic and income generating options for rural communities.
GENDER SCREENING METHODOLOGY

- Disaggregating between women and men
- Determine whether women are faced with inequalities in terms of
  - their social or cultural role,
  - their access, control and use of services or resources,
  - access to rights and their participation in decision making
- Focus of analysis
  - take stock of the recent situations and possible tensions and
  - enquire about potential impacts of planned actions - especially considering potential threats of perpetuating inequalities between women and men
- Does the project sufficiently provide for
  - social and gender inclusion and
  - equitable social, economic, and environmental benefits for both, women and men

ECONOMIC VALUATION STUDY FOR HIMA SERVICES

- The study examined the contribution of reviving Hima systems to securing the long-term viability of rangelands for climate change mitigation, and food and water security.
- High-resolution remote sensing and ArcSWAT (Soil and Water Assessment Tool) integrated with economic analyses of key regulating and provisioning ecosystem services were used.
- Biophysical models were used to predict impacts of adopting Hima on key ecosystem services.
MULTIPLE BENEFITS OF PASTORALISM THROUGH HIMA
(MCGHEE ET AL. 2014 UNPUB.)

COSTS AND BENEFITS OF COMMUNAL RANGELAND REHABILITATION IN JORDAN:

- Benefits of adopting large-scale rangeland restoration through the Hima system **outweigh** the associated management and implementation costs.

- **Large-scale** of adaptation of HIMA could provide between **144 and 289 million JOD** worth of net benefited to Jordanian society **over a 25 year time horizon**.

- **Pastoral Communities could save up to 16.8 million JOD** on fodder purchase by sustainable managing their rangeland through Hima system in ZRB.

- Hima restoration is a cost effective way of enhancing groundwater resources. **The value of enhanced ground water recharge from large-scale Hima restoration is in the order of 188.5 million JD.**
Implementation costs:
- Community workshops, participatory processes, biomass studies, observation tower ~ 1000 JD – 2000 JD

Management costs:
- Biomass and stocking density studies ~ 800 JD / year for 5-10 years
- Surveillance by community ~ 800 JD / year
- Surveillance by MoA ~ 5000 JD / year
IN TOTAL

- 109,093 ha suitable for HIMA restoration
- Out of a total 359,675.2 ha within the Zarqa river basin

NPV of Cell rotation for 100,000 ha of HIMA including global carbon sequestration benefits (r=5%)

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural forage / Rangeland productivity</td>
<td>20.5 million JD</td>
</tr>
<tr>
<td>Groundwater percolation</td>
<td>188.5 million JD</td>
</tr>
<tr>
<td>Sediment control</td>
<td>10.1 million JD</td>
</tr>
<tr>
<td>Carbon sequestration</td>
<td>6.9 million JD</td>
</tr>
<tr>
<td><strong>Total Present Economic Value</strong></td>
<td><strong>226 million JD</strong></td>
</tr>
</tbody>
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**Costs (COMMUNITY CONTROL ONLY)**

- Implementation, community surveillance and biomass studies: 10 million JD

**Benefits - Costs**

- Total Net Present Value of HIMA restoration: **216 million JD**
LESIONS

- The HIMA system is extremely valuable:
  - To pastoral communities in terms of an increased availability of natural forage

- Also to the Jordanian Society as a whole.
  - Large-scale HIMA-restoration can provide
  - >200 million JD worth of services over and above continuing the present land use system over a 25-year time horizon.

POLICY OPTIONS

- Increase public investment to strengthen local governance for community-based rangeland rehabilitation, through revival of Hima
  - Prioritise investment for the revival of Hima approaches.
  - Strengthen communal management rights over rangeland resources through appropriate legal mechanisms and greater willingness within the public sector.

- Build institutional capacity and awareness to implement and monitor Hima processes, to provide suitable rangeland management advice, and to stimulate innovation in rangeland management
  - Strengthen awareness and capacities in the public sector and communities for implementing Al Hima processes. Develop protocols for linking technical rangeland extension services with Al Hima development.
  - Promote innovation in rangeland management.
  - Invest in appropriate rangeland surveillance for improved monitoring and decision making
POLICY OPTIONS

- Create an enabling policy and institutional environment for sustainable rangelands management
  - Establish cross-sectoral mechanisms to ensure a wide range of positive externalities are recognised and compensated.
  - Explore options to differentiate policies and investments for livestock sub-sectors.

- Strengthen awareness of the economic values of rangeland rehabilitation and develop markets-based incentives
  - Develop market-based incentives to incentivise the environmental benefits of Hima.
  - Use economic valuation to validate further up-scaling nationally and regionally.
Possibilities Are Endless