

## FINANCING RANGELAND INVESTMENTS THROUGH (PES)

Figure 2 provides a visual picture of how different Payments for Ecosystem Services (PES) can connect different categories of investments (direct local, enabling and "financing" investments) and how national and international financial flows could be organized to support the necessary investments in SRM. This is important especially for financing many of the investments that have no clear cut immediate return such as investments in local range governance and value chain development (mainly social-organizations processes) as well as in soil and water conservation interventions with only long-term economic return.

The economic rationale to invest in SRM and to develop such financial flows through Payments for Ecosystem

Services is the fact that SRM can provide important benefits to society as depicted in Figure 2 above. The cost of direct local on-site investments cannot be carried alone by local range users. That would be greatly unfair. Modalities have thus to be implemented to ensure that investments are made and that other "downstream" beneficiaries are paying a price for the off-site benefits they enjoy, such as better ground water recharge and availability, reduced reservoir siltation and the avoided cost of land restoration. As many of the rangeland ecosystem services have also benefits for global society, ways and means needed to be developed to access international environmental funding such as the Global mechanism of the UNCCD and possibly UNDP and GEF funding.

## A PES PROPOSAL FOR INVESTING IN SRM IN JORDAN

*A first sketch for a proposal is developed and entails in summary an investment programme based on capitalizing on the minimum value of 15 Million JD/year of rangeland ecosystem services provided to society by rangeland restoration and SRM. This is done through avoiding cost of purchased fodder (for 80 % subsidized by the government) by increased forage production and by increased recharge of ground water. Not engaging in such SRM would moreover signify an important loss to GDP. The value of this ecological capital could be used as a justification for two ecosystem service payments: a SRM credit in the form of a subsidy to herder cooperatives responsible for SRM in designated areas and a green water credit to same cooperatives for enhancing ground water recharge. As SRM has also global societal benefits, discussions could be engaged with funding mechanisms as UNDP, GEF, GIZ and the Global Mechanism of UNCCD to support such a SRM investment programme. The country enhanced ecosystem service value of 15 Million JD/year could for instance be doubled up to 30 Million JD/year to finance a number of enabling investments necessary to sustain the direct local investments in SRM in specific selected areas. Enabling investments that call for priority are those especially falling under local range governance. Such international financing of country SRM can indeed be considered as a PES for the contribution Jordan is making to increased biodiversity and soil carbon sequestration as well as to Land Degradation Neutrality (LDN) which are country commitments to the three RIO conventions of UNCCD, UNFCCC and UNCCD. Moreover these environmental investments will also trigger important rural economy activity of importance to help reducing rural-urban migration flows with their negative social consequences*

## COMPENSATING FOR EXTRACTIVE USE OF RANGELANDS

Efforts to come to Sustainable Rangeland Management have obviously to take into account other interests and land uses that may compete with SRM, such as stone and phosphate quarries, oil shale exploitation and over-irrigation from ground water reserves.

Many of these natural resources are non-renewable and exploitation is often led by short-term financial interests. Where such exploitation may serve also the national economy (even if this is only short-term), priorities have to be

balanced and compromises be made. However, these investments in non-renewable natural resources could be charged and revenues used to finance Payments for Rangeland Ecosystem Services, while in this way contributing to Land Degradation Neutrality commitments. Overall land use decisions and planning should, in any case be informed by Environmental Impact Assessments (EIAs) of different land uses and consequently by the development of Environmental Management Plans (EMPs) for different parts of the country.

## ENABLING GOVERNMENT FRAMEWORKS

Investments in the institutional and regulatory frameworks of the country are necessary to enhance Sustainable Range Management at larger scales than the actual pilot projects of different institutions. The scale proposed above with around 30 % of the actual rangelands is substantial and need more systemic and structured policy approaches.

They would serve first of all to provide the legal and institutional frameworks enabling "Hima" local range governance mechanisms as mentioned above, in line with the MoA Rangeland Strategy, including finding appropriate matches between formal land tenure and community-based Hima-kind of resource use and access rights. Such investments will also deal with providing the conducive policies for enabling private sector and civil society to engage in value chains around SRM. Amongst others this relates to alleviating bureaucratic procedures for investments and value chain operations (for instance by one-stop-shops in local urban centers) and supporting SRM niche market development.

These government investments in the enabling framework are essential to "unlock" investments by both private sector and local community organizations as herder and women cooperatives.

## KEY RECOMMENDATIONS

On the basis of above the following key-recommendations can be made.

1. Initiate national land use planning in which substantial areas are assigned to SRM (the watershed areas in the Badia and others in the Steppe areas could form a basis for this) and designate specific rangeland areas as Rangeland Ecological Economic Zones (REEZs) as first target areas for financing SRM along national and international PES flows.
2. Overall land use planning at the national scale should be complemented at more local levels (Governorate and below) of REEZs by a bottom-up participatory stakeholder planning approach.
3. Put in place the regulatory and institutional frameworks to enable local range governance systems in the above designated REEZs.
4. Match sustainable and profitable investments in the rangelands with Verified Conservation Areas (VCAs).
5. Review and propose innovative matching arrangements between formal landownership and Hima-kind of resource use and access right systems.
6. Organize support systems to empower and build the management capacities of SRM Cooperatives.

7. Put in place a Rangeland Ecosystem Management Fund that draws on national and international PES financing flows.
8. Engage in further economic analysis for SRM (economic valuation, comparative economic analysis of SRM with other land uses, value chain economic development) to strengthen the economic argument for investing in SRM (possibly supported by strong visual footage).
9. Engage with the private sector to promote rural renewable energy provision and eco-tourism in support of SRM in the designated REEZs.
10. Develop the value chain modalities and market support necessary for the ecological livestock and the MARP sector to occupy larger shares on the domestic market (and eventually on the export markets).
11. Promote studies and research that will reduce the knowledge gaps between policy and implementation. Mitigate risks for the rangelands of extractive investments, through an Environmental Impact Assessment (EIA) and the development of an Environmental Management Plan (EMP)
12. Take the necessary measures to enable Jordan to commit to Land Degradation Neutrality (LDN) requirements, as will be discussed this year in the UNCCD and UNFCCC meetings in respectively Istanbul and Paris, amongst others by implementing the revised National Action Plan to Combat Desertification and the Updated Rangeland Strategy.

For more information,  
Drylands, Livelihoods & Gender Programme  
Fidaa F. Haddad  
Programme Manager  
fida.haddad@iucn.org



Regional Office for West Asia T. +962 6 554 6912 /3/4  
Hasan Baker Al Azazi St. #20 F. +962 6 554 6915  
Sweifiyeh - Amman - Jordan www.iucn.org/westasia



# Sustainably Investing in Rangelands Jordan

August 2015



## JORDAN RANGELANDS : A STUDY

This policy brief summarizes the findings of a study on investment options in the Jordan Rangelands, and builds importantly on the orientations given by the recent Rangeland Strategy of the Ministry of Agriculture (2013) and further elaborates on the UNCCD/Aligned National Action Plan to Combat Desertification (2015-2020) as developed with the Ministry of Environment (2015). An important basis for this study is furthermore given by different studies on economic valuation, GIS mapping for selecting high potential rangeland watersheds for investment<sup>1</sup> and detailed vegetation dynamics ground-truthing studies in 4 selected range sites in the Jordan Badia and Steppe areas<sup>2</sup>.

The economic valuation study was done as a background document for the UNCCD/Aligned National Action Plan to Combat Desertification in Jordan (2015-2020) developed under the responsibility of the Ministry of Environment.

Rangelands cover between 80 to 90 % of the country, they have suffered from important degradation processes, especially over the last 25 years with forage dry matter production diminishing from 200 and 80 kg/ha in 1990 to 100 and 40 kg/ha in 2013 for the steppe areas and the Badia (MoA, 2013). The above mentioned recent GIS studies have indicated 16 rangeland watersheds in the Badia<sup>1</sup>

INTERNATIONAL UNION FOR CONSERVATION OF NATURE



(with a total area of 20,170 km<sup>2</sup>; 28.5 % of the Badia 71,000 km<sup>2</sup>) that are considered to have good production potential for Sustainable Rangeland Management (Al Bakri, 2015)<sup>2</sup>. Similarly it can tentatively be estimated that another 3,300 km<sup>2</sup> or 30 % of the 10,000 km<sup>2</sup> of Steppe lands have similar potential (Laban 2015)<sup>3</sup>. The recent ground truthing study on vegetation dynamics and biomass/forage production (Zanat 2015)<sup>4</sup> shows that - when protected by community controlled grazing management (50% allowed grazing) - rangeland palatable dry matter (DM) forage production (80% of total biomass) can be estimated at 206 kg/ha respective to 100 kg/ha for Steppe lands and the Badia in moderate rainfall years (production estimated at 50% of high rainfall production such as in 2014/2015).

Improved rangeland management leads to multiple ecosystem services, from improved hydrological functions, increased biodiversity and soil carbon sequestration to higher forage production and better ground water recharge. Different economic valuation studies have approximated the monetary value of rangelands (restoration), notably by estimating the cost of imported fodder grains that can be saved when replaced by natural forage. The study on rangeland investment options used a valuation approach that is based on the factual and more recent results in four different range sites<sup>1</sup>.

As a possibly realistic priority target at the national level the potentially productive areas/watersheds for rangeland management mentioned above are used as a geographic basis for investment strategies: 3,300 km<sup>2</sup> in the Steppe areas and 20,170 km<sup>2</sup> in the Badia. For this total area of 23,470 km<sup>2</sup> the value of estimated forage production increases thanks to sustainable range management (SRM) would be **6.7 Million JD** on an annual basis. To this the value of **7.8 Million JD/yr** of enhanced ground water recharge can be added because of the same range management measures (Westerberg, 2014)<sup>5</sup>. Together this means that sustainable range management in ground truthing targeted areas<sup>3</sup> can potentially add around **15 Million JD/year of economic value to the economy**. This is a minimum estimate as this amount does not take into account that the same sustainable range management will also add value in terms of increased biodiversity, soil carbon sequestration and reduced siltation of water reservoirs.

### RANGELAND INVESTMENT PROPOSALS

In identifying investment proposals in the rangelands of Jordan, wide level consultations were carried out with key stakeholders in range management. From these consultations, it was proposed that in order to have sustainable range management in Jordan, substantial investments should be made in the following areas:

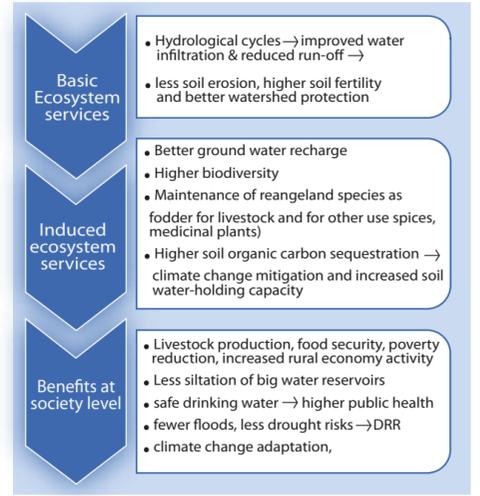
- **“Hima” Integrated Grazing Management**
- **Soil, Carbon & Water Conservation and improvement**
- **Improved Ecological Livestock Production**
- **Biodiversity, Medicinal and Aromatic Range Plant (MARP) Protection and Production**
- **Renewable Energy Sustainable Use**
- **Management of eco-tourism sites with historic and archaeological value**
- **Value Chain Development and Marketing**
- **Local community organizations as change agents for impact and sustainability**

To create the necessary synergy for high level impact, these eight investment components have to be combined in different overall “investment packages”. Although other combinations can be appropriate, dependent on local conditions and priorities, the following three investment packages have been further developed in this report:

- “Hima” Sustainable Range Management and Ecological Livestock Production
- “Hima” Sustainable Range Management and Production of Medicinal and Aromatic Range plants
- “Hima” Sustainable Range Management and Eco-tourism

In all three cases they would be complemented by further necessary investments in soil, carbon and water conservation and in renewable energy as wind and solar energy.

**Figure 1. The “value chain” of ecosystem service benefits and impacts**



### DIRECT LOCAL INVESTMENTS IN RANGELANDS

Local herder communities are most likely to make the best investments in rangelands because the range is their primary source of livelihood. Some of these investments relate to “Hima” Community-based Integrated Grazing Management; Soil, Carbon and Water Conservation and report to be realistically available for productive range Improvement; Protection and Production of Medicinal and Aromatic Range Plants (MARPS); and Local Eco-Tourism.

The geographic scope for such direct investment in SRM seems to be quite important; the area suggested in this management is about 25,000 km<sup>2</sup>. Nevertheless further economic analysis, following a value chain analysis, needs to be carried out for each selected specific area to determine financial and economic feasibility of these proposals and to see how profitable these activities indeed are for different actors in the value chain. Such specific areas could be targeted as Rangeland Ecological Economic Zones (REEZs). It has to be realized that where three of the four direct local investment components would in essence be economically feasible without subsidies and hence would contribute to GDP, this is probably not the case for interventions for Soil and Water Conservation that may not so easily provide economic returns on the short or mid-term, and hence may need government financial support.

This could be realized by channelling funding to livestock, Bee keeping and MARP cooperatives in charge of SRM through a Payment for Ecosystem Services modality in the form of Green Water Credits (as is discussed in full report section 5.4)<sup>3</sup>. The ecosystem service value of ground water recharge mentioned above could serve here as the rationale for such subsidies.

### LOCAL RANGE GOVERNANCE AND VALUE CHAIN DEVELOPMENT

Given the general consensus among different stakeholders from technicians to policy makers that local community organizations and more specifically livestock herders and women cooperatives need to be strongly involved and given an important role for SRM, these organizations/groups need also to be enabled to do so. This implies that they should be given a high degree of “ownership” over the management and investment measures preconized within the different local direct investments in the range. To be able to assume such “ownership” a number of preconditions need to be in place. These relate especially to access and use rights of the rangeland resources and shared benefit rights. It needs to be underlined that such “ownership” is different from land ownership. The stakeholder workshop in April spent

substantial time to elaborate on such preconditions. Although this is a first approximation only and further work needs to be done in participatory stakeholder planning processes for designated areas, the **Local Range Governance Tables** in full report<sup>3</sup> section 6.2 provide a first overview of what these preconditions can entail.

The identification of these preconditions is important as they will give guidance on what issues local range governance have to focus on. They can range from: designated range areas only for use by members of cooperatives/range user groups; set-up of grazing/ hunting fees and permits to be returned by government to range user groups/ cooperatives; ensure equality and equity in using the range resources by basic cooperative membership fees + benefits proportional to resource use; to organization of range users; strengthening, capacity building and vocational training of cooperatives and/or voluntary or agricultural societies; and the representative election of the administrative bodies of the cooperative to avoid dominance of specific groups. With important inputs from the stakeholder consultations the Local Range Governance Tables in full report section 6.2 provide a first identification of elements of local range governance systems to be set up to ensure impact and sustainability of the investments undertaken. As is emphasized in section 6.4 in-depth facilitation of a stakeholder process will be necessary to ensure adherence and commitment from local range users and endorsement from government agencies for such local governance systems.

These Local Range Governance Tables identify also the local actors that will most probably be involved in the different investment interventions as well as a whole range of supporting actors that need to be involved for technical, economic, institutional, and legal support to ensure that investments are feasible and made sustainable. Section 3.8 identifies the key Governmental Agencies that have an important role to play in future development of SRM investments.

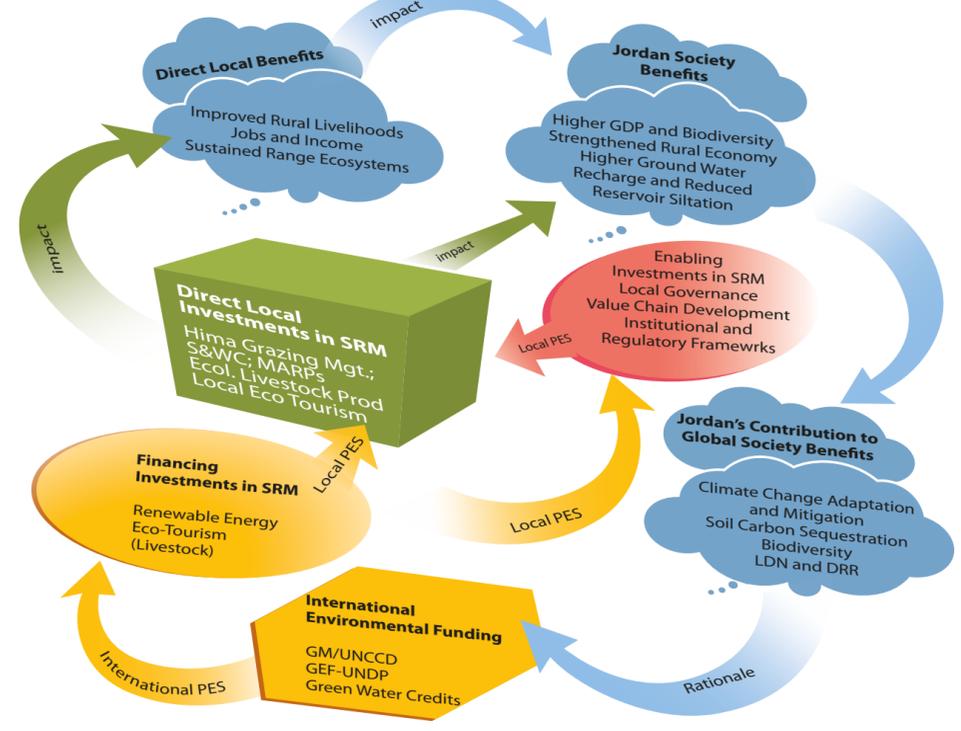
Another enabling investment has to be done in undertaking stakeholder-led value chain analysis and development activities to identify market demand, consumer preferences, bottlenecks, what parts of the different value chains (ecological livestock, MARPs, ecotourism) need to be supported, facilitated, possibly re-oriented and developed and how win-win arrangements among different actors in the value chain can be facilitated. This needs to go farther than a mere listing of value chain elements and related actors. It is anticipated that also here important investments in terms of staff, time and institutional resources are required.

### “FINANCING” INVESTMENTS

Two critical investment components; eco-tourism and renewable energy, are important to consider as they could provide strong leverage for funding of other proposed investments while providing avenues over channeling Payments for Ecosystems. Eco-tourism can be implemented as a direct local investment in sustainable range management through eco-lodges, bird observatories, and hunting facilities and guided eco-walks, much of the further value chain of eco-tourism provides potential to leverage payments that can be invested in SRM. For instance eco-tourism charges and fees as well as parts of eco-tourism operator licences can be levied in the form of a PES as a reward to the SRM cooperatives who ensure that the ecological capital that attracts tourists will be maintained. Eco-tourism will also initiate new and alternative activities that are important drivers for increasing rural economic development.

Renewable energy development in rural areas (wind, solar) in itself will be important from an environmental and rural economy point of view, they can be very well combined with many of the other investment packages proposed, providing cheap energy for cooperatives, storage (milk cooling), packaging and processing (slaughter houses) facilities. Taxes on investment and operational licences to local and national companies engaged in renewable energy delivery or to SRM value chain enterprises to install solar/wind energy plants at their premises could be charged by the Jordanian Government. The revenues of these charges and licences can then be used to finance other SRM investments. Renewable energy production and use should however be explicitly be marketed and labelled as an intrinsic production element of SRM products, be that ecological livestock, MARPs or ecotourism.

**Figure 2. Investment Financial Flows for SRM**  
SRM= Sustainable Range Management



<sup>1</sup>Only a part of Zarqa Watershed, one of the 16 watersheds, could be considered to be situated in the Steppe Area. It is in this part that the Bani Hashim Hima range site is situated.  
<sup>2</sup>IUCN ROWA Report on Mapping Rangeland Report in Jordan. Strengthening knowledge and capacity to close the policy implementation gap project and funded by DANIDA. [http://cmsdata.iucn.org/downloads/mapping\\_20rangeland\\_20in\\_20jordan\\_20gis\\_2015.pdf](http://cmsdata.iucn.org/downloads/mapping_20rangeland_20in_20jordan_20gis_2015.pdf)  
<sup>3</sup>Report on **Sustainably Investing in the Jordan Rangelands 2015** [http://www.iucn.org/about/union/secretariat/offices/rowa/iucnrowa\\_resources/our\\_publications\\_library/](http://www.iucn.org/about/union/secretariat/offices/rowa/iucnrowa_resources/our_publications_library/)  
<sup>4</sup>Ground Truthing of Rangeland Areas in Jordan with High Potential for Investment. Study in the framework of the “Sustainable Dryland Landscapes: Closing the Knowledge-Policy Implementation Gap” Project. [http://cmsdata.iucn.org/downloads/rangeland\\_20ground\\_20truthing\\_20report\\_20\\_20jordan\\_202015\\_1.pdf](http://cmsdata.iucn.org/downloads/rangeland_20ground_20truthing_20report_20_20jordan_202015_1.pdf)  
<sup>5</sup>Based on ArcSWAT model analysis that predicts a shallow aquifer recharge increase of 24.2 m<sup>3</sup>/ha/yr thanks to a Hima land use scenario against a Willing to Pay (WTP) value of 2 JD/m<sup>3</sup>.