



Case Study

Applying the ‘Ecosystem Service Opportunities’ framework in Karak, Jordan

How to find appropriate (economic) instruments for ecosystem service protection based on location-specific opportunities

In a nutshell

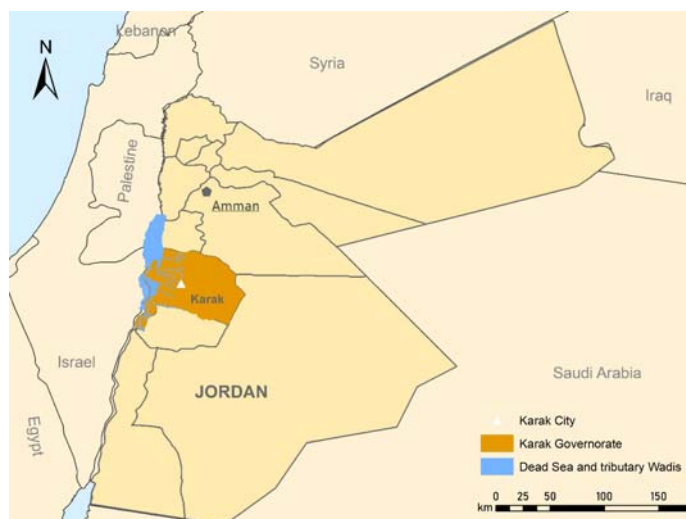
Water scarcity and water pollution present the biggest threats to farmer livelihoods in the arid region of Karak. By applying the ‘[Ecosystem Service Opportunities](#)’ (ESO) framework to the watershed of Wadi Karak in central Jordan, we found four suitable instruments to enhance awareness and stewardship for critically important local ecosystem services (ES). The framework guides a qualitative ecosystem service assessment and stakeholder interviews. Results suggest: Instruments that include i) green market approaches, ii) associated labeling, iii) green credits and iv) educational programs have the potential to effectively improve the situation. The idea behind these measures is to support stewards of ecosystem services financially and to encourage transitions towards innovative green businesses by funding or knowledge transfer.

1. Background of the ecosystem services assessment

Within the environmental portfolio of the German Corporation for International Cooperation (GIZ) the “Sustainable use of ecosystem services in Jordan – Energy and Climate Fund” (EKF-ESS) project aims at improving the sustainable use of ES in Jordan. The area of the case study in Karak Governorate in central Jordan (map) has arid to hyper-arid climate. At the same time, it is economically dominated by water-intensive crop production or animal husbandry that relies on grazing. To make things worse, the insufficient operations of the local wastewater treatment plant caused controversy with regard to the cleanliness of the treated water and overflow of untreated wastewater, thus threatening the environment.

Consequently, the main objectives of the project were to promote a more sustainable distribution and consumption of water combined with improved wastewater treatment.

Farmers, herders and community-based agricultural organizations are highly affected by variations in ES provision because their livelihood directly depends on ecosystems: Clean water, the resilience of crop plants to pests and climate stress as well as the presence of “healthy” biodiversity enable local people to maintain professional and private agricultural activities.





2. Analysis of ecosystem service opportunities

As the scoping process was based on the ‘Ecosystem Service Opportunities’ (ESO) framework (Rode et al., 2016) the research questions reflected the guiding questions of the ESO guideline document. Why was this framework chosen for the issue at hand in the first place?

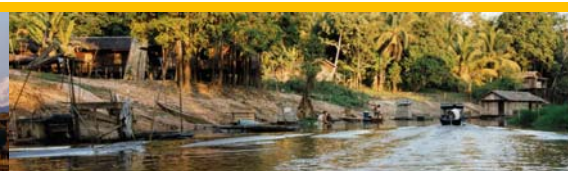
The ESO framework is designed to work out potentials and limits of economic instruments while focusing on well-being and livelihood of the stakeholders. It thus is well suited for a situation, which focuses on stakeholder engagement and has a non-expert target group for future on-the-ground implementation.

The guideline's central question is how to motivate stakeholders to take action for ecosystem service protection, or more boldly put to ask: "why and how could an instrument change people's motivation?" A central element of the ESO framework is a decision-making guide to find out the best-fitting policy instruments for a certain situation, following steps 3 and 4 of the ESO guideline.

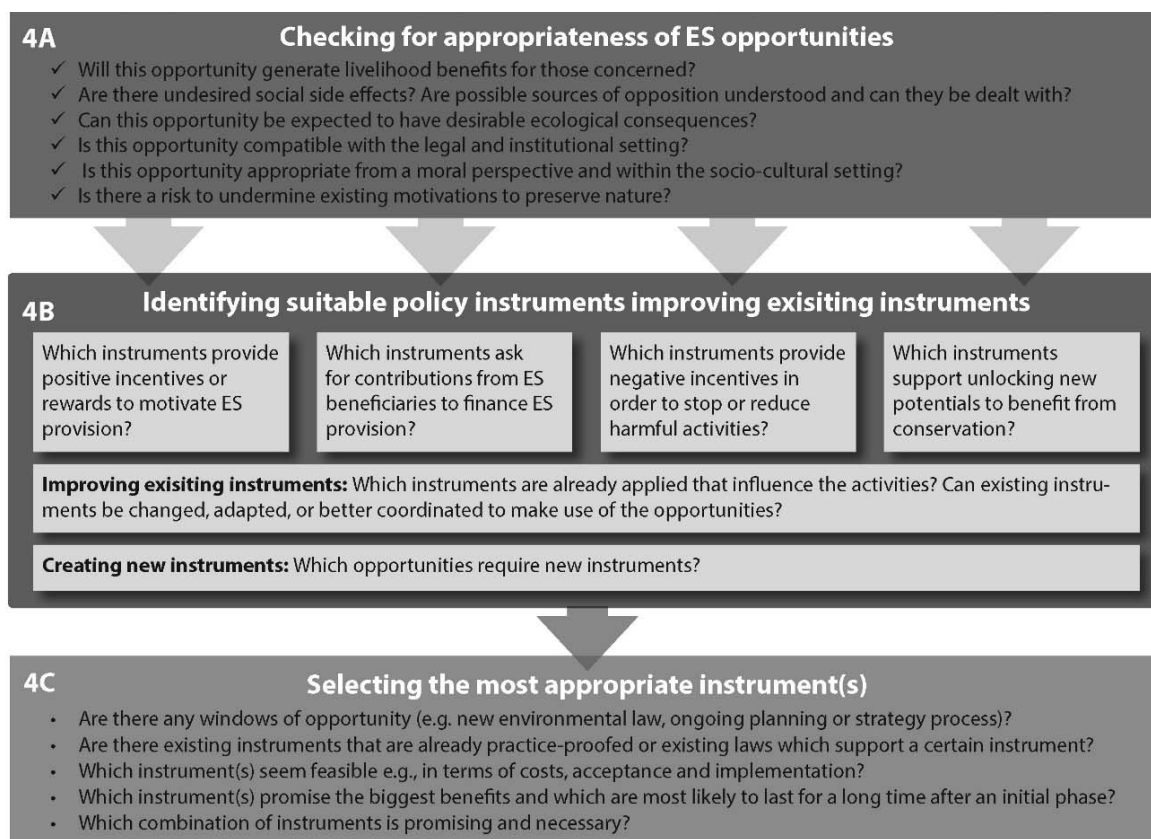
The guide recommends to start off the decision making process with the ecosystem service assessment (3A), the stakeholder scoping (3B) and the classification of potentials or opportunities according to 4 principles (3C).

The ecosystem service opportunities framework





After checking for appropriateness, including especially cross-checking for trade-offs of opportunities (4A), new policy instruments can be identified (4B) and new ones selected (4C) by consulting the comprising overview of policy and financing instruments from the ESO guideline - an online version is available [here](#).



When tackling the Karak case study, a scoping phase with the participation of local stakeholders at a workshop and a literature research provided an overview of the environmental and socio-economic conditions. In addition, 15 semi-structured interviews with local stakeholders and authorities revealed their perception of ES issues. A first array of questions (No. 1-6) asked which needs for environmental stewardship people recognize and how they could imagine a positive change to take place. Further questions (No. 7-9) assessed the people's willingness to contribute to ecosystem protection and collected their ideas for the design of financing or policy instruments. All stakeholder interviewees were asked the same questions (see Table 1) following a standardized guidance document.

The interviewer and the English-Arabic-translator were familiar with the ES concept and thus ensuring comparable answers. Questions were only reformulated in case respondents misunderstood them or were not familiar with the terminology.



Out of 15 interviews six took place with employees of government authorities, another four with land users (e.g. land owners, farmers, herders) and four with stakeholders managing ES (e.g. CBOs, NGOs, initiatives). The last interview was an expert interview, the interviewee being a local conservation expert working for GOPA Consultants.

Standardized Guiding Questions

*Where do they perceive need for environmental change and for which reason?
Awareness?*

1. How do you perceive the situation of Karak's Ecosystems? What is the most important issue here?
2. Why is nature around your community important? Are you aware of Ecosystem Services you benefit from?
3. How can you (your company/organization) improve Karak's Ecosystems, especially water bodies? Who else?
4. How do you care about the amount of water used in your company/ organization/ household?
5. Who can protect the ES?
6. Who poses risks to ES?

What could be a motivation and proper context to contribute to ecosystem protection and how?

7. Are you willing to contribute to the preservation of ES? More likely with actions or by monetary contribution?
8. What would it need to convince you/people to pay for ES? Mandatory or voluntary schemes?
9. Do you think a fund scheme could be successful and how? Which Authority should do the administration?

3. How was the process organized?

Before the ESO process started, GIZ and GOPA project teams had done the logistical organization, including a work plan and defining vision and aims (step 1). The scoping of context and stakeholders (step 2) was existent too but from the beginning, local stakeholders were integrated in the scoping process as well.

Beside farmers and herders, the local authorities and NGOs took part in a comprising one-week stakeholder workshop in Karak, as it was important that all of these groups participated in the ES assessment. Also when running the decision making process according to the ESO guideline, they were all included. While doing so, communication gaps between the various socio-economic groups became apparent and had to be addressed. Not only did the private citizens feel left alone by their administration and were thus not on good



speaking terms with them, but also did the farmers among themselves lack useful communication about the sustainable management practices for shared ecosystems. Social barriers between different ethnic groups caused challenges for the successful inclusion of all stakeholders. Members of traditional Bedouin tribes tended to distance themselves from immigrated people of Palestine origin. Bedouins are more involved in agriculture, thus they often see themselves as entitled stewards or owners of the land. Then again, both groups marginalize a group of sub-Saharan-African immigrants who arrived centuries ago, but still are considered as workers of the lowest social standing. Authorities and staff of development agencies had problems to bring these groups together for joint events.

Other GIZ-workshops, based on the materials developed by ValuES (aboutvalues.net) taught methods for policy-relevant assessments of ecosystem services to stakeholders and thus, enabled them to take part in the ES assessment. The international ValuES project provides methods, tools and examples to integrate ecosystem services into policymaking and transfers knowledge to local people. The stakeholder's own findings within workshops and the stakeholder interviews revealed the desired ES benefits and showed possible trade-offs between conservation goals and other objectives. The determination of relevant actors and the finding of imbalances between provision and use of ES resulted from ESO step 3 (first half of the decision-making guide). From consulting additional experts and by interpreting the results of step 3, we found ES opportunities and developed ideas for economic instruments (step 4, second half of the decision-making guide).

4. Results of the study

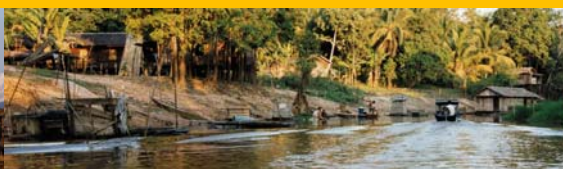
By following the tasks of the ESO framework and thoroughly analyzing the overall situation, two types of 'ecosystem service opportunities' were selected:

"Enhancing stewardship" by compensating costs that occur to ES providers and thus encourage the use of sustainable practices and

"Supporting innovation" by enabling people through knowledge-transfer and funding to access or create new green markets while at the same time preserving ES and biodiversity.

The other two of the 4 categories of opportunities, "beneficiary pays" and "polluter pays", were not selected. To ask beneficiaries or polluters for payments considering the present lack of awareness for environmental issues seemed less suitable. The policy instruments presented below can be financed by available development aid funds and over time should improve the environmental awareness.

The plan for a "green fund" to which users of ES pay fees and from which stewards of ES receive subsidies is currently developed by the local NGO "Jordanian Hashemite Fund for Human Development". Led by a local NGO or a board of authorities and stakeholders, instruments of local extent could be realized. By introducing a communication platform (or even an association for ecosystem service issues) for producers and other stakeholders, innovative instruments like "eco-labeling" are feasible on a small scale.



To create financial instruments (e.g. credits & loans), local authorities have to be addressed and asked to promote these ideas at the ministries, respectively on a national level. Here also, the formation of a stakeholders association seems sensible in order to give single actors a stronger voice.

5. Practical applications within the case study area

[The table below](#) lists the selected instruments with possible applications. It also states in which respect stakeholders could need further support. All organizations or initiatives mentioned did already exist before the ESO guideline's application. The instruments enhancing "green products" and "environmental education" were being applied already but can be improved by better coordination between stakeholders and authorities. In addition, their impact could be increased by gearing them more explicitly to an ecosystem services perspective. "Certifications & eco-labeling" or "credits & loans" are not in use yet. Thus, new instruments would need to be created to make use of these opportunities.

The theoretical designs of possible instruments were used by GIZ in their further work with local stakeholders as ideas or starting points. Scientific outcomes of the socio-economic scoping informed the ongoing policy process on environmental protection. For example, GIZ accompanied the development of national guidelines for ecosystem assessment and valuation. Therefore, the obtained insights from the ESO framework application were helpful. In the near future, the results of the study may be helpful for farmers and residents, when local authorities and NGOs manage to set up a green fund or similar. The complete results of the research were made available to GIZ and GOPA.

Instrument (based on opportunity)	existing initiatives and potential improvements
<p>i. Green products & markets to generate an alternative income from sustainable products and services and to raise awareness for ecosystem services among buyers. <i>(supporting innovation)</i></p>	<p>The 'Numeira Environmental Association' (NEA) combines agricultural practice with mainstreaming of green knowledge. Supported by GOPA they built up a community center where local people take part in self-sufficiency farming.</p> <p>The NEA needs further support for a better marketing of their green products and services by stressing the unique characteristics of their products (i.e. completely home-grown and without pesticides)</p>
<p>ii. Certifications & eco-labeling that build on the first instrument to help local producers to enter the market or reach higher price levels. <i>(supporting innovation)</i></p>	<p>A women's initiative in Ghor Mazra grow a large variety of different fruit, vegetables and crops on a relatively small cropland.</p> <p>Their main problem is a lack of market access that could be improved by labeling their products for their sustainable production methods and maybe with a label for "women-produced products".</p>



Instrument (based on opportunity)	existing initiatives and potential improvements
<p>iii. Credits & loans to support innovators who fulfill the specifications for ecosystem-supporting market activities. <i>(enhancing stewardship & supporting innovation)</i></p>	<p>Initiated by the Mumia CBO, a tourist accommodation is under construction already. The members of the CBO contribute to the enterprise with their own workforce (especially by building the accommodation).</p> <p>To start up their enterprise they need financial support to buy building materials and to develop their services. The use of traditional materials like reed, in combination with traditional handcraft building techniques, makes them worthy of receiving credits or loans.</p>
<p>iv. Environmental training & education to accompany the efforts for ecosystem protection at a theoretical level and to raise awareness for sustainable consumption and behavior. <i>(enhancing stewardship)</i></p>	<p>NEA also offers environmental classes for pupils of nearby schools. Once a week the students visit the community center to learn about sustainable agricultural practice.</p> <p>NEA's teaching efforts heighten the environmental awareness and thus improve NEAs market success. But NEA needs help to expand and enhance this teaching with better materials, methods and demonstration sites.</p>

Table: Examples of possible applications of the identified opportunities and associated instruments

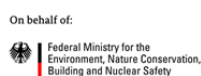
6. Further readings/reference

ValuES method data base and case studies at aboutvalues.net

Rode, Julian; Wittmer, Heidi (2015) Acting on Ecosystem Service Opportunities – Guidelines for identifying, selecting and planning economic instruments to conserve ecosystems and enhance local livelihoods. Helmholtz-Centre for Environmental Research GmbH – UFZ. Leipzig.

Rode, Julian; Wittmer, Heidi; Emerton, Lucy; Schröter-Schlaack, Christian (2016) 'Ecosystem Service Opportunities': a practice-oriented framework for identifying economic instruments in order to enhance biodiversity and human livelihoods. Journal for Nature Conservation 33, 35-47.

Flinzberger, Lukas (2018) Identifying Economic Instruments for Ecosystem Service Protection in Karak, Jordan. Leopold-Franzens-University. Innsbruck.



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[ValuES](http://aboutvalues.net) is coordinated by the Gesellschaft für Internationale Zusammenarbeit ([GIZ](http://giz.de)) and implemented in partnership with the Helmholtz Centre for Environmental Research ([UFZ](http://ufz.de)) and the Conservation Strategy Fund ([CSF](http://csf.org)). ValuES is a project with a global focus. We work in close collaboration with partner countries in the integration of ecosystem services into policy, planning and practice. ValuES is funded by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety ([BMUB](http://bmub.de)) through its International Climate Initiative ([IKI](http://ici.de)).