Livelihoods and Ecosystem Services in Social Impact Assessments

By Hannah Mills, Marielle Rowan, and Marianne Lupton**

Introduction

The concept of ecosystem services was introduced into the IFC Performance Standards (PS) in 2012 and has recently been included within the World Bank's updated Environmental and Social Framework (2016). Ecosystem services are the benefits that people derive from ecosystems including products such as food, timber, fibre, and freshwater, termed 'provisioning services'[1]. Livelihoods are defined within IFC PS5 on land acquisition and involuntary resettlement as "the full range of means that individuals, families, and communities utilise to make a living, such as a wage-based income, agriculture, fishing, foraging and other natural resource-based livelihoods, petty trade and bartering". IFC PS5 identifies provisioning services as the same as natural resource assets, which contribute to livelihoods. There is varying analysis of the cross-cutting nature of livelihoods and ecosystem services within environmental and social impact assessments (ESIAs) and guidance literature. The analysis and discussions tend to focus on the biodiversity aspects rather than socio-economic implications. To contribute to addressing this gap, this paper presents ways to incorporate livelihoods and ecosystem services into the key stages of the social impact assessment (SIA) process based on the World Resource Institute's methodology.

The World Resources Institute (2013) methodology for incorporating ecosystem services into ESIA proposes the following key steps: (i) identify possible project impacts and prioritise ecosystem services for further study (scoping); (ii) establish the baseline of natural resource use; (iii) assess the significance of impacts; and (iv) identify mitigation and enhancement measures. Due to data limitations in the international context, budget and time constraints, the focus of ecosystem services work relating to livelihoods tends to focus on provisioning services that support livelihoods. Wherever provisioning services support natural resource-based livelihoods (including sustenance, fuel, building materials, medicines or ornamental purposes) then socio-economic impacts may occur.

During scoping, ecosystem services likely to be present within the area of influence are identified. The global oil and gas industry association for environmental and social issues (IPIECA) checklists (2011), describing various habitats, are a useful starting point. Questions answered for each service are: 1) Could the project change the quality or quantity of this service? 2) Who is impacted?

The next step identifies, through professional judgement of social scientists and ecologists, ecosystem services that could impact livelihoods. These services are then confirmed or amended through engagement with affected parties to ensure that priorities are correct and important services are not missed. The following questions are considered: 3) Could the project affect others' ability to benefit from the ecosystem service by tipping use over a threshold, triggering a regulatory response, or changing perceptions around availability or quantity? 4) Is the service important to people's livelihoods? 5) Are viable alternatives available? If answers to questions 3 and 4 are yes and the answer to question 5 is no, then the ecosystem service is assigned as a priority.

[1] The World Resources Institute identifies the full range of ecosystem services: provisioning services – defined in text; regulating services – the ecosystem's control of natural processes, such as climate regulation and erosion prevention; cultural services – nonmaterial contributions of ecosystems to human well-being, such as spiritual values and aesthetic enjoyment; and supporting services – natural processes that maintain the other services, such as nutrient cycling.

The paper describes methods for characterising baseline to better understand existing nature-based livelihoods; explains how significance can be attributed to impacts; and suggests mitigation and enhancement measures to better address livelihoods impacts. In particular, the importance of identifying ways to support livelihood restoration is considered. Case studies from Mott MacDonald's (a global consultancy) assignments accompany the analysis. The paper concludes that improved understanding of impacts to ecosystem services increases the likelihood of effective livelihood strategies being included in resettlement plans and other project management plans, therefore helping to safeguard the economic wellbeing of project-affected communities.

SIA Baseline

The objective of providing baseline is to help identify and monitor impacts by comparing pre- and post-project conditions of ecosystem service resource availability and access as well as livelihoods. Primary data is collected through field surveys, focus groups, measurements, observations, and consultations. Secondary data about natural resource use, shocks and trends provide a useful supplement to the season-specific timing of primary data collection. Typical secondary data sources for livelihoods and ecosystems are government socio-economic policies, censuses, ecological studies, civil society, and business reports. See a case study below that combines primary and secondary data for reporting natural resource-based livelihoods.

Baseline sections on economic context detail economic growth, per capita income, employment and unemployment rates, and livelihoods. Natural resource use descriptions should consider activities relying on land, ecology, water, and geology. Details of tenure (ownership systems) including rights to use, control, and transfer of land provide insight into groups who may be vulnerable from a lack of control of resources. Legacy and existing issues of conflict or struggles for land, water or other natural resources should be recognised if the project will exacerbate or change them.

Case Study for a multipurpose dam ESIA in West Africa: For a recent ESIA assignment, Mott MacDonald's SIA team considered the full range of natural resource-based livelihoods likely to be impacted: shea nut collecting, basket weaving, pito brewing, charcoal burning, honey making, farming, fishing, livestock managing, bushmeat collecting, and small scale mining. For each livelihood, focus groups were organised using the same participatory format based on the British Department for International Development (DFID's) sustainable livelihoods theory. The groups used brainstorming, ranking and categorisation activities to gather data on: (i) vulnerability context, shocks, stresses and critical trends; (ii) livelihood assets and outcomes; (iii) seasonal and gender aspects; (iv) access to assets.

To report the livelihoods baseline, a summary table was prepared using primary data from the focus groups and secondary data. Livelihood aspects encapsulated in the table were a) contexts, conditions and trends; b) livelihood resources; c) institutional processes and organisational structures; d) livelihood strategies; and e) sustainable livelihood outcomes. The focus group information was presented showing assets and resources required, enabling and restricting factors, shocks and other details including income and expenditure.

After the baseline on livelihoods, the SIA presented a cross-referenced baseline on ecosystem services. The SIA team asked ecologists to plot species providing services against uses amongst affected communities. This section also described responses to household surveys about the contribution of natural resources to livelihoods and which resources were consumed or traded.

SIA Significance

Using the baseline data and the relative importance of various natural resources amongst affected communities, the SIA team then considers how pre-construction, construction, operation and decommissioning of the project will cause social changes from the pre-project baseline. Typical activities that could lead to economic impacts and displacement include land acquisition or land use rights transfer (and related loss of farmland, crops, trees, and access to other natural resources); increased use of concrete leading to erosion and surface runoff; water extraction; reduction of river flow caused by large dams; and effluent and warm water discharge.

Assessing the significance of impacts involves reflection on the sensitivity of affected communities based on concepts of vulnerability and resilience; essentially their capacity or lack thereof to absorb changes caused by the project. If an ecosystem service is assigned as a priority (see World Resource Institute methodology at beginning) then it is considered a highly sensitive receptor. Significance is assigned adverse or beneficial and then major, moderate, or minor according to the interaction between sensitivity and magnitude of the impact. Impact magnitude is based on likelihood, duration, extent, reversibility, and its effect on wellbeing. Subsequently, mitigation and management for significant (moderate and major) adverse impacts and, as best practice, enhancement measures for any beneficial impacts need to be incorporated into the project's environmental and social management plan.

A key methodological issue that must be addressed through the ESIA manager is whether and how other aspects of the ESIA, such as sections on ecology or resettlement, also consider the same impacts identified within the ecosystem services and livelihoods assessment. Double counting must be avoided.

SIA Mitigation and enhancement

Mitigation of livelihood impacts is addressed as part of an SIA and within resettlement planning. Focus in the SIA process is on protecting or replacing lost provisioning services. Protection happens at project design and at impact mitigation by adjusting the location, or modifying project infrastructure. Examples are:

- producing Biodiversity Action Plans
- including clauses in the Workers' Code of Conduct about not poaching animals, cutting trees, or setting fires
- information in worker and visitor inductions about movement restrictions or respect in areas where livelihoods rely on forestry products
- adding fish ladders to dams
- ensuring replacement (and more) of lost trees
- careful consideration of water supply, irrigation needs, tourism uses, navigation, fish ladders and flood management in development of hydropower projects

Project benefits are usually incorporated into the design or the SIA after a request from the developer, government, or lender. They can also be a response to needs identified in the local community, such as employment training for the whole community.

Resettlement action plans (RAPs) or livelihood restoration plans (LRPs) are expected to restore the living standards of displaced people[2], if not improve them. Provisioning services losses are often overlooked in RAP and LRP preparation. Issues can arise when developers fail to calculate the actual impact of livelihood losses, do not consider loss of priority ecosystem services, or incorrectly calculate the value of lost livelihoods. See the Indonesia case study.

Case Study: Coal Fired Power Plant in Indonesia Almost all agricultural land available to three villages was acquired and access to fishing waters was restricted. However, the original measures included in the LRP were to increase agricultural production and provide fishing supplies, which were inappropriate. Identification of use of ecosystem services could have resulted in better livelihood restoration activities.

Further livelihood restoration activities included women-focused small businesses including tailoring, bag making and snack making. While the initiatives were well organised, the incomes generated were 10% of those earned previously through agriculture. A study of livelihoods and incomes could have enabled identification of improved livelihoods strategies.

Livelihood restoration provides an opportunity to improve displaced persons' conditions (see the Pakistan case study.) The mitigation measures in each LRP must reflect the specific context and affected community. Consultation is crucial for gaining community buy-in for the initiatives and improving chances of success. Training, particularly to encourage wise use of compensation, and skills development to provide access to employment, are common mitigation measures that are often well received by developers. Small business creation is another option and functions more sustainably if the developer also arranges the purchase of goods or services over the long term (as per the Indonesian case) and provides trainers and equipment.

Case Study: Hydropower Plant in Pakistan Livelihood restoration measures were proposed including: training; skills development; crop and health insurance; relocation packages including livelihood related items; and earthquake resistant housing designs. The project developer elected to adopt only the training and skills development components. While this was accepted by the lender, further actions could have enhanced livelihood outcomes for the affected households.

Other livelihoods strategies that can be considered in SIAs include:

- microfinancing
- small scale insurance policies
- productivity-enhancement such as agricultural efficiency through rural extension services
- scholarships for selected displaced persons

Conclusion

Social impact practitioners guided by good international practice, lenders' standards and professional values seek to put in place measures through SIA, social management plans, RAPS and LRPs that best address the adverse effects of projects and enhance or induce beneficial effects where possible. This paper has explored the linkages between ecosystem services and natural

[2] Either physically or economically.

resource-based livelihoods. Understanding the baseline is a critical part of predicting impacts. Livelihood restoration needs to involve recovering or replacing priority ecosystem services. Failing to understand the connections between losses of ecosystems services and livelihoods can lead to ineffective management strategies. Employing SIA processes that facilitate the participation of affected communities can lead to improved identification of livelihood management strategies, more safeguarding of natural resources needed for household well-being, reduced vulnerability, and better resilience to change amongst project-affected people. Robust SIAs that effectively address ecosystem services and their linkage with livelihoods support can help projects move ahead with more broad community support and fewer conflicts, saving project sponsors, the government and the communities time and money.

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**All three authors are members of Mott MacDonald's Social Safeguards Team. The authors routinely undertake social impact assessments, social due diligence reviews, resettlement planning and construction monitoring of international infrastructure projects. Their contacts are Hannah.mills@mottmac.com; Marielle.rowan@mottmac.com; Marianne.lupton@mottmac.com