PAPERS

Towards cost-effective social impact assessment of REDD+ projects: meeting the challenge of multiple benefit standards

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SUMMARY

This paper describes some of the challenges of meeting standards for multiple benefit forest carbon and other land use based carbon projects. There is considerable current controversy about the social and equity impacts of such projects. The authors argue that a combination of more robust standards, such as the Climate Community and Biodiversity (CCB) Standards, for assessing the social performance of projects, and cost-effective impact assessment methods can do much to ensure positive outcomes for local people or communities, and greatly reduce the risk of negative ones. The paper is structured around the following main themes: what is meant by social impact assessment (SIA); a discussion of the requirements of the CCB Standards as regards SIA; key challenges to measuring the social impacts of land use based carbon projects; presentation of seven proposed SIA stages contained in a Manual for SIA released by four prominent non-governmental organisations; and some 'good practice' principles for cost-effective SIA.

Keywords: social impact assessment, forest carbon projects, standards, community benefits, manual, REDD+

Hacia la evaluación más costo-efectiva de los impactos sociales de los proyectos de REDD+: respondiendo al desafío de los estándares de beneficios múltiples

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Este estudio describe algunos de los desafíos de cumplir con los estándares de beneficios múltiples en proyectos de carbono forestal y de otros proyectos basados en uso de la tierra. Existe actualmente una polémica considerable acerca de los impactos sociales y de equidad de estos proyectos. Los autores proponen que una combinación de la aplicación de estándares más robustos como los Estándares de Clima, Comunidad y Biodiversidad (CCB), para valorar el rendimiento social de los proyectos, y el uso de métodos más costo-efectivos de evaluación de impactos, pueden aportar mucho para asegurar resultados positivos para las comunidades locales y para reducir significativamente el riesgo de resultados negativos. El estudio está estructurado alrededor de los siguientes temas principales: el significado de la evaluación de impactos sociales (EIS); una discusión de los requisitos de los Estándares de CCB en cuanto a la EIS; los desafíos principales de la medición de los impactos sociales de los proyectos de carbono terrestre; la presentación de las siete etapas de EIS propuestas en un Manual para EIS publicado por cuatro organizaciones no gubernamentales prominentes; y algunos principios de "buena práctica" para asegurar una EIS costo-efectiva.

Aller vers une évaluation efficace financièrement de l'impact social des projets REDD+: faire face au défi des standards à bénéfices multiples

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Cet article décrit certains des défis rencontrés dans l'effort de parvenir à atteindre les standards dans les projets de carbone forestier à bénéfice multiples, et dans ceux basés sur d'autres utilisations de la terre. Il existe actuellement une controverse considérable quant aux impacts sociaux et équitables de ces projets. Les auteurs démontrent qu'une combinaison de standards plus robustes, tels que les standards climatiques communautaires et de biodiversité (CCB), pour évaluer la performance sociale des projets, et de méthodes d'évaluation de l'impact efficace financièrement, est à même de faciliter vraiment l'obtention de résultats positifs pour les populations et les communautés locales, aini que de réduire énormément les aboutissements négatifs. L'article est structuré autour des thèmes principaux suivants: la signification de l'évaluation de l'impact social (SIA), un débat sur les demandes de CCB appliquées à la SIA, les défis clé pour mesurer les impacts sociaux des projets de carbone basés sur l'utilisation de la terre, la présentation de sept stages de SIA contenus dans un manuel de SIA produit par quatre organisations non-gouvernementales de premier plan, et quelques principes de "bonne mise en pratique" pour un SIA financièrement efficace.

INTRODUCTION

Greater emphasis in these early years of the carbon markets (at least as regards the forest sector) has been on assuring the integrity of project emission reductions; methods to accurately assess the social and environmental impacts have received much less attention. But the balance is changing, as the so-called social and biodiversity 'co-benefits' are attracting many offset buyers to forest carbon projects; a survey undertaken in 2010 found that the co-benefits were the most important motive for carbon offset buyers to choose forest carbon projects (EcoSecurities 2010). Just as these buyers seek assurance that the offsets they buy represent real emissions reductions, they also want to know what the real impact of a project is on local people. Thus pressures have increased for the co-benefits to be (like carbon) real, 'additional' and measurable; a prominent auditor (Jeff Hayward, Rainforest Alliance) of multiple-benefit carbon projects recently stated in a public meeting that "getting the social methodology right is just as important as getting the carbon methodology right."

"Getting the social methodology right" is necessary in part to ensure carbon market confidence, but primarily on ethical or equity grounds – land-based carbon projects must at the very least 'do no harm' to local communities, and if possible, should achieve net positive poverty reduction and other social benefits. This pressure has been heightened by the explicit inclusion of social and environmental safeguards in the recent decision[1] on Reduced Emissions from Deforestation and forest Degradation (REDD+) at the United Nations Framework Convention for Climate Change (UNFCCC) meeting in Cancun.

A review of social impact assessment (SIA) methods by Forest Trends (Richards 2008) identified that, while there are some excellent social monitoring and evaluation (M&E) manuals (e.g., CARE 2002, IFAD 2009), none are specifically designed for carbon projects. Further analysis of current practice by carbon project developers also revealed that many projects were uncertain about what constitutes a credible SIA methodology. This may be partly due to a reluctance to increase transaction costs, but discussions with project managers revealed that it was also due to the lack of accessible and focused guidance on how to undertake SIA. In response to this problem, the Katoomba Ecosystem Services Incubator of Forest Trends teamed up with the Climate, Community and Biodiversity Alliance (CCBA), Rainforest Alliance and Fauna and Flora International (FFI) to develop a Manual on SIA for carbon project developers. Version 1.0 (English and Spanish) of the 'Manual for Social Impact Assessment of Land-based Carbon Projects' (http://www.forest-trends.org/publication_details.php?publicationID=2436) was released in 2010. Following field testing, a modified Version 2.0 will be published in 2011.

The SIA Manual is based on the view that robust standards for assessing the social (and biodiversity) performance and the use of credible SIA methods will do much to ensure positive outcomes for local people, and greatly reduce the risk of negative ones. It is particularly designed to complement the Climate Community and Biodiversity (CCB) Standards, which are currently the most widely used multiple benefit standards for land-based carbon projects. The SIA Manual aims to improve the capacity of projects to design and implement credible and cost-effective SIA methods. The Manual should also increase the capacity of auditors of multiple-benefit carbon projects to assess the quality of impact assessment methods.

This paper is structured around the following main themes: defining what is meant by social impacts and SIA; discussion of the requirements of the CCB Standards as regards SIA; consideration of the main challenges in measuring social impacts; an overview of seven proposed SIA stages that project proponents can use to meet the social criteria in the CCB Standards; and an initial list of 'good practice' principles for cost-effective SIA.

WHAT IS MEANT BY SOCIAL IMPACT ASSESSMENT?

A clear understanding of SIA requires clarifying what is meant by 'social impacts'. A representative definition of social impacts is that:

> *"By social impacts we mean the consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs, and generally cope as members of society. The term also includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society" (Interorganizational Committee on Guidelines and Principles 1994)*

A more detailed definition by the International Association of Impact Assessment (IAIA 2003) draws on rights-based approaches (Box 1). A key distinction is between a social impact or change and the process causing the change. For example, improved community organization, employment, household income or even a change of livelihood (e.g., bee-keeping instead of 'bushmeat' hunting) due to a carbon project is not a social impact in itself. But improved family health as a result of being able to afford a healthier diet due to (e.g.) honey sales would be a social impact. Similarly, a change in community organization or household income could be a project *outcome* but is not an *impact* since it does not *per se* alter human behaviour for better or for worse (the

[1] This states that *inter alia* REDD+ activities "should be implemented in the context of sustainable development and poverty reduction", includes strong wording around the rights, knowledge and "full and effective participation" of indigenous peoples and local communities, and encourages countries to develop "a system for providing information on how the safeguards . . . are being addressed and respected" (Draft decision of AWG-LCA Decision CP.16: http://unfccc.int/files/meetings/cop_16/application/pdf/cop16_lca.pdf)

BOX 1 IAIA Principles for Social Impact Assessment (based on IAIA 2003)

According to the International Association for Impact Assessment (IAIA), social impacts, for the purpose of SIA, can be defined as changes to one or more of the following:

- People's way of life – that is, how they live, work, play and interact with one another on a day-to-day basis;
- Their culture – that is, their shared beliefs, customs, values and language or dialect;
- Their community – its cohesion, stability, character, services and facilities;
- Their political systems – the extent to which people are able to participate in decisions that affect their lives, the level of democratization that is taking place, and the resources provided for this purpose;
- Their environment – the quality of the air and water people use; the availability and quality of the food they eat; the level of hazard or risk, dust and noise they are exposed to; the adequacy of sanitation, their physical safety, and their access to and control over resources;
- Their health and wellbeing – health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity;
- Their personal and property rights – particularly whether people are economically affected, or experience personal disadvantage which may include a violation of their civil liberties;
- Their fears and aspirations – their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

key distinction between *outcomes* and *impacts* is further explored below).

The IAIA furthermore defines SIA as: *"the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment . . . impact assessment is . . . the process of identifying the future consequences of a current or proposed action. The "impact" is the difference between what would happen with the action and what would happen without it." (www.iaia.org)*

There is considerable overlap between the concepts of SIA and M&E. The latter is a broader concept than SIA, for example, much of M&E is about improving the efficiency of internal management systems, and M&E is not confined to social issues. But the two concepts have a lot in common, and a significant part of the SIA challenge is about how to develop a cost-effective social or community impact monitoring system.

DIFFERENT TYPES OF SOCIAL BENEFITS AND COSTS

Social impacts can be direct or indirect, intended or unintended, and positive or negative. Indirect or secondary impacts are the result of direct impacts – an example could be children spending longer at school as a result of an improvement in family income. Direct and intended impacts of project activities are much easier to measure and 'prove', but it is also essential to track and attempt to 'measure' indirect and unintended consequences of project actions, including those involving negative social impacts (e.g., a worsening of gender inequalities).

An important type of indirect benefit is the social impact of environmental improvements due to a forest carbon project. For example, better quality water or improved dry season flows resulting from a REDD project could improve the health of downstream communities; another example could be where an Afforestation/Reforestation (A/R) type woodlot or agroforestry project provides a 'shelter belt' or windbreak for farming: this can increase household income and improve the family diet. But many environmental or indirect benefits are difficult to 'prove'.

As regards negative social impacts or outcomes, the critics of A/R projects, especially those involving plantations, monocultures and exotic species (although these are less likely to claim positive co-benefits), point to the possible trade-offs between mitigation objectives and co-benefits. For certain types of REDD projects, a potential trade-off is the loss of income or consumption benefits derived from current livelihoods. More indirectly, some observers point to the danger that a large REDD project which restricts agriculture could lead to higher local land or food prices (Grieg-Gran *et al.* 2005).

Another key aspect of 'social impacts' is income distribution or equity. 'Multiple benefit' carbon projects may aim to improve the relative welfare of the rural poor both between and within communities, and at the intra-household level. These are key aspects of criteria in the optional Gold Level of the CCB Standards, that require projects to deliver benefits to poorer and more vulnerable groups.

WHY IS SOCIAL IMPACT ASSESSMENT NECESSARY?

The literature on social impacts of forest carbon projects (also reviewed in the 'Toolbox' section of the SIA Manual) reveals that there have been very few systematic project-level studies of social impacts of either forest carbon or payments for ecosystem services (PES) projects, and even less using a credible methodology, for example, one that establishes a clear counterfactual or 'without project' basis (Jagger *et al.* 2010). Most

published evaluations of PES projects are qualitative case studies using key informant interviews, rapid field appraisals or are ex-post (Pattanayak *et al.* 2010); other reviews focus more on the likely equity impacts and measures to promote pro-poor REDD+ (Peskett *et al.* 2008). Another obvious reason for the lack of data is the relatively short history of forest carbon.

Notwithstanding its limitations, the literature suggests that to date PES projects have often had modest positive benefits for communities, but that these are mainly indirect benefits associated with social capital or institutional development rather than direct benefits (Wunder 2008). It also emphasizes the equity risks of poorly designed projects, or projects implemented in situations with major governance and policy failures (such as insecure or unclear land tenure and carbon property rights). We should also recall the slightly sobering history of participatory forest management (PFM) as regards equity aspects – it has normally only been pro-poor when it has specifically targeted poor or marginalised groups and there has been a tendency to elite capture (McDermott and Schreckenberg 2009). Projects should also bear in mind that it is usually the poorest who depend most on resource degrading activities, and these are the most obvious target for a REDD project.

The clearest message of this body of literature is that REDD+ projects have the potential for positive social impacts, but that if poorly designed or conceived, or implemented in a difficult governance and policy framework, can leave the poor worse off than before. It is these risks that have driven the development of the CCB Standards, promotion of free prior and informed consent (FPIC) as good practice for communities, inclusion of social safeguards in the Cancun REDD+ agreement, and the need for credible SIA methods.

WHAT DO THE CCB STANDARDS REQUIRE?

The CCB Standards (Second Edition) require that projects *generate "net positive impacts on the social and economic well-being of communities, and ensure that costs and benefits are equitably shared among community members and constituent groups during the project lifetime"* (Concept CM1, CCBA 2008 p.25). Determining what these impacts are, and that they are on balance positive and 'additional', requires several steps including:

- an accurate description of the project area conditions before the start of the project;
- a projection of how these conditions would change if the project was never implemented (the 'without project' scenario);
- description and justification of the likely social outcomes and impacts of the project, including why they can be ascribed to the project (the 'with project' scenario);
- development of a social or community monitoring plan within 12 months of CCB validation or six months from project start-up;
- measurement of social outcomes and impacts over time so that some credible data can be presented at the CCB verification audits every five years.

Therefore in order to obtain CCB validation, project developers must make a coherent case that the 'with project' scenario (as regards community, equity or social results) represents a significant improvement over the 'without project' scenario, and that this improvement will be due to the project or 'additional', as shown graphically in Figure 1.

KEY CHALLENGES FOR SOCIAL IMPACT ASSESSMENT OF CARBON PROJECTS

Showing attribution

Showing 'attribution' or cause and effect is the main challenge for any kind of impact assessment (Tanburn 2008). This is also vital in this situation since the CCB (and other standards) require that the claimed net social benefits are 'additional', i.e., they are due to the project and would not have happened anyway. These challenges are expanded in Box 2.

Cost-effectiveness of SIA

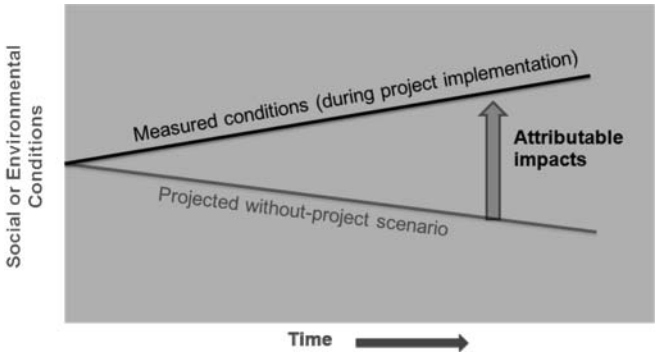
For project developers, SIA may be perceived as an additional transaction cost, thereby affecting both the viability of the project and returns to key stakeholders. It is important to clarify that the SIA Manual merely presents some possible methods and tools to help project developers meet already existing multiple-benefit standards, and does not of itself

BOX 2 Additionality and attribution

Just as carbon gains must be additional in order to be converted into carbon credits, social benefits must also be additional. If the social benefits would have happened anyway (in the 'without project' situation), they are not attributable to the carbon project. For example, if social benefits were to arise due to an NGO health project or a policy change, carbon project developers cannot claim credit for the benefits and nor should offset buyers have to pay for them.

Attribution is a big challenge for all types of impact assessment, and especially when considering indirect impacts, e.g., an improvement in school enrolment or child nutritional status, when the project could be one of several contributory factors. Attribution is less problematic when considering direct outcomes or impacts, for example, an increase in income as a result of a REDD+ project. Therefore projects that specify direct social impacts, rather than indirect or downstream ones, will find it easier to present convincing evidence of social benefits to auditors.

FIGURE 1 *Graphical representation of the CCB Standards requirement to generate net positive social and environmental benefits in comparison with the without-project scenario. The without-project scenario is shown to be decreasing in this scenario but could also increase or be stable, and is not necessarily linear.*



add any requirements or costs to projects. Secondly, what is required for credible SIA is *not* an additional cost to what is required by the CCB Standards (see, for example, CCB Concepts G1, G2, G3, CM1, CM2 and CM3). Thirdly, higher quality or 'good practice' SIA is not necessarily more expensive to undertake than a 'lower quality' assessment, and should reduce project implementation and transaction costs due its beneficial effects on project design, adaptive management capacity and stakeholder relationships, as well as early identification of problems before they become expensive and difficult to resolve.

The 'bottom-line' aim of the SIA Manual is to identify approaches and methods for undertaking SIA which represent the minimum cost of achieving a basic or minimal level of credibility. It is therefore partly a case of looking at the relative cost of different credible SIA approaches. Traditional approaches to SIA such as 'matching methods' (experimental and quasi-experimental methods) are very expensive – the literature reports a typical cost of US$ 50–150 thousand per project depending on a range of factors (Richards 2008). The main rationale of matching methods is to tackle attribution, but as noted in Box 3, they face significant implementation difficulties especially in the selection of controls.

A key question as regards cost-effectiveness of SIA is who undertakes it. The high cost noted above refers to independent studies by consultants. Therefore it is important to have an SIA approach which can be undertaken by the project team or local NGO/consultant following a modest advisory or training input. Participatory data collection methods are also essential for a credible and cost-effective SIA process. Using university students (preferably Masters or PhD level) can lower costs, but project proponents should ensure that academic objectives and time horizons are aligned with the project's.

Input from an expert in SIA, as early as possible in the process, is strongly advised to help design the SIA system. It can be a false economy to 'go it alone' or to try and get by without a clear SIA methodology which would likely be 'found out' at the verification stage. The verification auditor should detect that the evidence for 'net social benefits' is weak or inconclusive, and may say that an (expensive) independent study is required. The most important tasks for external support are to help a project decide on the most appropriate methodological approach; to train project staff and a few key stakeholders in the selected methodology; and, depending on the complexity of the methodology, to facilitate development of a social or community impact assessment plan, including identification of indicators and data methods (as discussed below). External support may also be necessary at the data analysis stage prior to a verification audit (every five years in the case of the CCB Standards), but should not be necessary for data collection and processing.

Another important way of keeping costs down is to integrate SIA with other aspects of project design (e.g. analysis of agents and drivers of deforestation, leakage analysis, etc.), as well as with the activities and process of undertaking biodiversity impact assessment.

BOX 3 Matching methods – costs and challenges (based on Jagger *et al.* 2010, La Rovere and Dixon 2007, Richards 2008, Tanburn 2008, Snodgrass 2006)

The essence of 'matching methods' is to make comparisons between 'control' and 'treatment' groups – statistical comparisons in the case of an 'experimental design' and non-statistical comparison in the case of the cheaper and more common 'quasi-experimental' design. Controls are non-participants with similar 'observable' (age, income, education, gender, etc.) and 'unobservable' (attitudes, risk taking, entrepreneurship, etc.) characteristics to 'treatment' (project) participants. If the comparison results in significant differences between the two groups, the differences are regarded as attributable to the project rather than to other influences.

But it can be difficult to find suitable controls: while their observable characteristics may be similar to participants, they may have different unobservable characteristics (e.g., attitude to risk); if they are close by there is a risk of project spillover effects, e.g., altered behaviour after obtaining project information; and if more distant controls are selected, they are more likely to be different due to market access, influence of other projects, etc. Other problems with control groups include their low motivation to cooperate, the tendency for people to change behaviour when studied, and a major ethical problem – controls cannot participate in future project expansion.

A cheaper matching method is a 'before and after project' comparison made by project participants known as 'reflexive comparison'. This is less reliable, especially if it relies on memory recall, but can be useful for triangulation.

Social impacts are long-term and difficult to measure

By definition, social impacts mainly refer to long-term changes and are often not very tangible – it is hard and unrealistic to identify them in the short to medium-term (the first CCB verification is done in the first five years), and they can be subtle and difficult to measure. For these reasons it is more practical to try and identify short to medium term social effects in the form of project outputs and outcomes, and then to examine the linkages and assumptions between the outputs, outcomes and longer term social impacts, rather than to attempt to measure the latter from the outset.

This is the basis of the 'causal model' or 'theory of change' discussed below (SIA Stage 3). It is also the approach adopted by the micro-finance sector. Having found that traditional approaches to SIA were too expensive, the approach of micro-finance institutions (MFIs) has been to evaluate success according to their 'social performance' rather attempt to directly measure social impacts. Social performance is defined as the effective translation of an institutional mission into practice – the better it is, the more likely it is that the (measurable) short to mid-term outcomes will lead to longer term 'social value' (or impacts). Qualitative methods are used to explore 'plausible links' between outcome indicators and poverty impacts (SEEP Network 2006).

Lack of research data on social impacts of land-based carbon projects

The lack of research data on social impacts of land-based carbon projects is inevitable given the short history and small number of operational projects. This makes it difficult to draw on comparative analysis when discussing likely social impacts of different project strategies or activities. The introduction of more systematic SIA methods will however gradually increase the body of understanding of the social or poverty consequences of forest carbon projects, and make future SIA slightly easier.

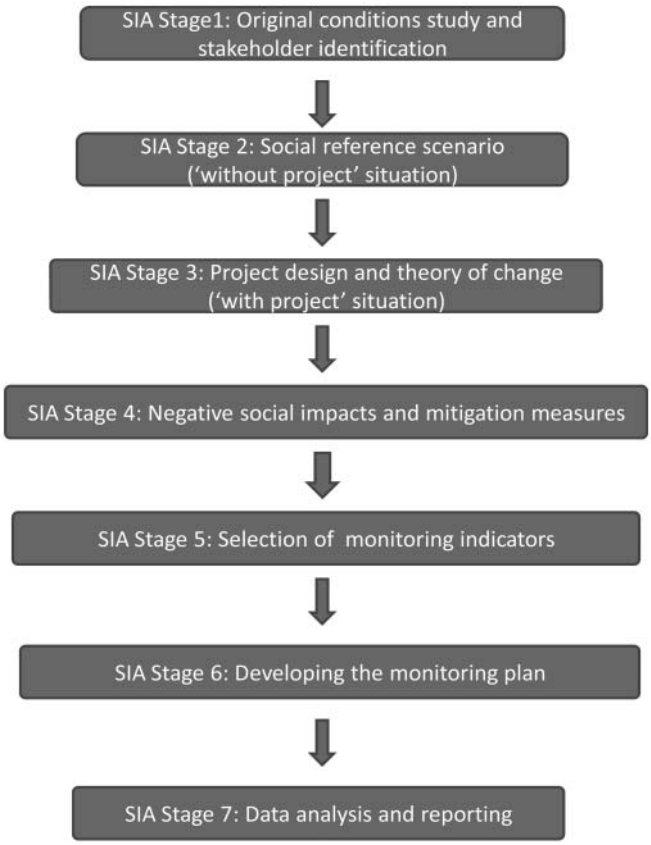
Diversity of terrestrial carbon project types

There is a large diversity of land-based or terrestrial carbon project types: large and small projects; REDD and A/R projects; forest management, forest conservation, forest restoration, agroforestry, agricultural or soil management projects; projects with relatively few social impacts, possibly due to being in a remote area with few stakeholders; community-based projects with a range of stakeholder groups; private or single landowner projects; etc. This means that there can be no 'one size fits all' approach to SIA – project proponents need to select the approach and methods most appropriate to their project context.

PROPOSED SEVEN STAGE APPROACH TO COST-EFFECTIVE SOCIAL IMPACT ASSESSMENT

The SIA Manual proposes seven SIA Stages (Figure 2). Table 1 provides a brief description of each SIA Stage, lists some of the main methods or actions required, and shows how these relate to the CCB Standards. Although the SIA Stages are presented linearly, SIA is very much an iterative process, for example, SIA Stages 3, 4 and 5 should shed light on key social change processes causing a revisiting of the 'without project' analysis (SIA Stage 2).

FIGURE 2 *Seven proposed Social Impact Assessment (SIA) Stages*



SIA Stage 1: Original conditions study and stakeholder identification

The 'original conditions study' is essential for SIA since it provides the basis for the 'with' and 'without project' scenarios. The CCB Standards suggest that original conditions data include:

- Basic socio-economic information of communities in the project zone, including land use and livelihood systems, especially where linked to natural resources; community infrastructure (health clinic, school, wells, meeting centres, etc.); on and off-farm employment; transport infrastructure and market access; location of villages and hamlet; children at school; etc.
- Basic cultural and demographic information, including cultural diversity, minority groups, population, gender (e.g., female headed households), migratory trends, etc.

TABLE 1 *Summary of proposed Social Impact Assessment (SIA) Stages*

SIA Stage	Brief description	Main methods	*Relevant CCB Standards Concepts and Criteria*
SIA Stage 1	Description of socio-economic conditions before project start-up, and identification of all stakeholder groups that might be affected	PRA, household surveys, community maps, secondary data, wealth or well-being ranking, and stakeholder analysis	Concept G1 (especially Criteria G1.1, G1.2, G1.3, G1.5 & G1.6), Criterion G3.8
SIA Stage 2	Projection of social conditions and impacts assuming there is no project, and focusing on the variables and outcomes most likely to be affected	Stakeholder focus group discussions, expert opinion, problem trees, scenario analysis, etc.	Concept G2 (especially Criteria G1.1, G1.2 & G1. 4)
SIA Stage 3	Formulated description of how project proponents and stakeholders think the social objectives will be achieved, and identifying key assumptions between outputs, outcomes and impacts	Causal model or theory of change ideally developed at project design stage; multiple stakeholder group meetings to verify/modify project theory of change	Concept G3 (especially Criteria G3.1, G3.2, G3.3, G3.5, G3.7 & G3.8) Concept CM1
SIA Stage 4	Analysis of possible negative social impacts and cost-effective mitigation measures	Analysis of causal chains, stakeholder focus groups, PRA methods, regular meetings with stakeholders, stakeholder fora	Criteria G3.5, G5.4, G5.5, G5.6, and Concept CM2
SIA Stage 5	Identification of monitoring indicators to measure progress in achieving the desired social outcome & objectives	Indicators could be based on causal model or sustainable livelihoods framework	Concept CM3
SIA Stage 6	Design of the social or community monitoring plan, including data collection methods for measuring indicators	PRA, surveys, key informants, Basic Necessities Survey (BNS), Participatory Impact Assessment (PIA) & others	Concept CM3
SIA Stage 7	Analysis, reporting and verification of the SIA results with stakeholders	Stakeholder meetings and feedback workshops	Concepts CM3 and GL

- Land and tree tenure type and security, access rights to natural resources, customary rules and institutions especially over common pool resources, tenure conflicts or boundary issues, etc.
- Location of High Conservation Value (HCV) areas that are important for meeting basic community needs, e.g., essential food, fuel, fodder, medicines and building materials
- Governance systems and issues, e.g., decision-making structures, local government, crime levels, conflict resolution mechanisms, etc.
- Major development constraints, e.g., market access, credit, soil erosion, etc.
- Other key social problems, e.g., health, alcoholism, violence, etc.

Within this list, the SIA team should give most weight to processes and variables that are more likely to be affected by the project. For example, it may not be worth analyzing educational quality, if education is likely to be weakly impacted by the project. On the other hand, water quality and associated health problems could very be important for a forest carbon project. Obtaining a good understanding of governance, land and tree tenure issues, and dominant land uses and livelihoods, especially those associated with deforestation or degradation drivers, are high priority areas. Part II of the SIA Manual (Forest Trends *et al.* 2010) includes a review of likely social outcomes, impacts and change processes, which should help prioritize data collection.

A key component of the Original Conditions study is stakeholder identification and analysis. As pointed out in the CCB Standards, it is essential to differentiate local stakeholders according to their wealth or well-being (e.g., by using a PRA wealth or well-being ranking method), ethnicity, gender, age, tenure and land use or livelihood interests (e.g., livestock herders, non-timber forest product (NTFP) gatherers, etc.). This analysis provides the basis for identifying stakeholder groups and sub-groups. Stakeholder analysis (see CARE 2002) is a key tool for differentiating and describing stakeholders.

SIA Stage 2: Social reference scenario ('without project' situation)

The term 'social reference scenario' is used to refer to the social baseline projection required by CCB Concept G2. The concept is exactly the same as for a carbon baseline: a future projection of social processes and conditions assuming there is no project. This is often referred to as the 'without project' or 'counterfactual' analysis.

Data collection in SIA Stage 2 should therefore focus on the outcomes of processes or conditions most likely to be affected by the project – these are often linked to project-related land uses. For example, CCB Criterion G2.4 specifies the need to assess changes in water, soil and other locally important ecosystem services. Another example could be the predicted 'without project' availability of key NTFPs used in 'coping strategies' during bad years for food production.

It is essential that local project stakeholders participate in these projections, for example, getting them to discuss the main social change processes and causative factors leading to changes in social conditions, possibly in the form of a problem tree or scenario analysis. All assumptions made when predicting the without project social impacts must be made explicit.

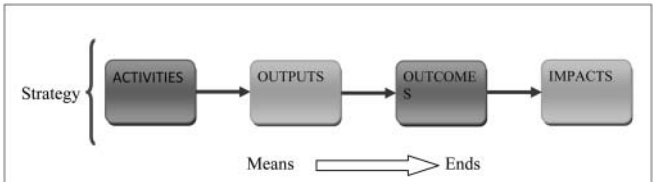
SIA Stage 3: Project design and theory of change ('with project situation')

Since the social benefits must be 'additional' to the 'without project' situation, the attribution problem in SIA must be tackled. Noting that the traditional 'matching methods' approach is unlikely to be viable for most land-based carbon project situations, a more cost-effective approach is through the *theory of change* or *causal model* approach. This is increasingly seen[2] as a credible approach to SIA, since it both tackles the attribution problem and provides a sound basis for indicator selection (SIA Stage 5), as well as, more broadly, project design (e.g., as in the 'Open Standards' approach of the Conservation Measures Partnership 2007).

The essence of this approach is that the project team and stakeholder representatives develop a hypothesis of how the project will achieve its intended social goals and objectives. It is the project's theory of how and why the social change will happen. To be convincing it should show how (at least in theory) short-term project activities and *outputs* will result in mid-term social *outcomes*, and thence how these should lead to longer-term social *impacts.* The activities and outputs can be considered as the means of achieving the project ends – and a causal chain built up as shown in Figure 3. It is advisable to first develop a causal model for the whole project, and then to focus in on social aspects.

The theory of change or causal model approach is implicit in CCB Criterion CM1.1: "A credible estimate of the changes must include changes in community well-being due to the project . . . based on clearly defined and defendable assumptions about how project activities will alter social and economic well-being . . . the 'with project' scenario must then be compared with the 'without project' scenario of social and economic well-being in the absence of the project."

FIGURE 3 *Project causal chain underlying the theory of change approach*



Source: reproduced with permission from Conservation Development Centre &GEF Evaluation Office, 2009. 'The ROtI Handbook: Towards Enhancing the Impacts of Environmental Projects'. Infodoc. #16, Global Environment Facility Evaluation Office, Washington, DC.

A key element of the causal model is the development of a set of IF . . . THEN statements that link project activities to outputs, outputs to outcomes, and outcomes to impacts. The IF . . . THEN statements should contain at least one cause and effect assumption (or linkage), distinguishing between 'internal assumptions' of the project's theory of change, and 'external assumptions' (factors or risks external to the project, e.g., the carbon price or government policies). The IF. . . THEN statements and causative linkages or assumptions must also be verified with the project stakeholders.

Variants of the causal model or theory of change approach of most relevance to forest carbon projects are found in Conservation Measures Partnership (2007), also backed up by on-line support (www.miradi.org), the Conservation Development Centre and GEF Evaluation Office (2009), and Douthwaite *et al.* (2008).

The challenge of constructing a causal model for a REDD+ project should not, however, be underestimated. This is because of the large number of potential variables, the complexity of the relationships and our limited understanding (to date) of the social or development impacts of REDD+ projects – our understanding of the theory (of change) is still weak, and many theories or explanations are contested (Jagger et al, 2010). It should also be noted that if actually implemented project activities differ from the project design, it would be necessary to revise the causal model for it to be valid for analysis at the verification stage.

SIA Stage 4: Negative social impacts and mitigation measures

As mentioned above a key challenge for SIA is how to pick up on unexpected negative social impacts, including equity and gender effects. Carbon projects with restricting land uses appear more likely to result in negative social impacts than those based on expanding land use or livelihood assets

[2] Versions of the causal model approach have been adopted by the Global Environment Facility (GEF) Evaluation Office, the World Bank's Independent Evaluation Group (IEG), the Conservation Measures Partnership (CMP), the United Nations Environment Program (UNEP), the World Conservation Monitoring Centre (WCMC), the Wildlife Conservation Society (WCS), UK DFID in its 'Integrated Impact Assessment Approach', GTZ with its 'Results Based Impact Chain', and the International Social and Environmental Accreditation and Labeling (ISEAL) Alliance.

(Wunder 2008). Negative impacts can also be indirect, for example, a large REDD project that restricts farming could cause higher land and food prices, and subsequent carbon leakage as neighbouring areas increase their food production (in response to the higher prices) by encroaching forest areas (Grieg Gran et al, 2005). Predicting negative social impacts is difficult and unpopular, since project proponents tend to be reluctant to discuss what might go wrong. However a failure to undertake this stage properly could make the difference between a project failing and one that is able to withstand unexpected challenges. Also if a negative impact is identified early on, it can be mitigated or counteracted before it gets out of control.

The causal model approach is very useful for predicting and monitoring potential negative social impacts: these may be more likely where the assumptions or linkages in the causal chain (or in the IF . . . THEN statements) for positive social impacts seem more tenuous. Thus the 'threat-rating approach' is recommended by Conservation Measures Partnership (2007). This involves identifying the threats to achieving social benefits, and then identifying the symptoms or 'observable change processes' that would indicate an increased risk of the threat (these can then become indicators).

In addition, monitoring for potential negative impacts should be based on regular meetings with project stakeholders to discuss what is working well or badly. For example, this could be in the form of a regular forum at which individual stakeholders are free to 'air their grievances' over project activities. This can be regarded as an extension of free prior and informed consent (FPIC). Another requirement of the CCB Standards, and a core element of good practice SIA, is to identify cost-effective mitigation measures, or possibly compensation (to disadvantaged stakeholders), for potential negative impacts.

SIA Stage 5: Identification of indicators

The selection of appropriate indicators is at the heart of SIA. Choosing indicators involves determining what indicators are best for assessing progress towards achieving a set of desired social outcomes, targets or objectives. The key question to be answered is "what would one expect to see if the objective is in the process of being, or has been, achieved?" Each objective or target should have at least one indicator, which should be as SMART (Box 4) as possible.

The causal model provides a sound basis for selecting (positive) outcome or impact indicators since 'attribution' or cause and effect is factored in – as noted by Snodgrass (2006), indicators should capture the key linkages in a project's underlying casual chain. Depending on the objective, and how easy it is to observe, the indicators could either be the objective itself or the linkages/assumptions between them, since these are likely to reflect a change process.

Provided that the IF . . .THEN statements of SIA Stage 3 are carefully constructed and verified with stakeholders, it should be relatively easy to identify appropriate indicators. For example, IF the income resulting from the sale of carbon credits (the *outcome*) is spent on schooling and more nutritious food, there should be a positive poverty outcome (*impact*). In this case the *outcome indicator* could be the net carbon income per family, and the *impact indicator* the proportion of it spent on poverty-related goods or services. The terms *output indicator, outcome indicator* and *impact indicator* help distinguish the different levels of the project logic.

The causal model is not however the only basis for selecting indicators; a popular basis for selecting indicators is the Sustainable Livelihoods Framework (SLF) or its derivatives. For example, the Social Carbon Methodology (SCM) uses a SLF type approach to identifying indicators (Social Carbon 2009); while the Landscape Outcomes Assessment Methodology (LOAM) is a useful SLF-based participatory approach for indicator selection (Aldrich & Sayer 2007). While an advantage of the SLF approach is that progress in indicator achievement implies progress towards project or livelihood sustainability, but a key disadvantage is that attribution is not factored in – therefore projects using this approach need another way of assessing attribution, e.g., the causal model or matching methods. Further discussion of the SLF approach and of other frameworks for SIA and indicator selection is found in Schreckenberg *et al.* (2010).

BOX 4 Desirable characteristics of indicators

Indicators should be as SMART as possible:

- **S**pecific: the indicator should be defined and understood by all stakeholders in the same way
- **M**easurable: ideally the indicator can record change quantitatively as well as qualitatively
- **A**chievable: the indicator should be realistic in terms of the cost and complexity of data collection
- **R**eliable: the indicator should give consistent answers or numbers
- **T**ime-bound: the indicator should have a time limit attached

Other key criteria of indicator selection are: the cost of associated data collection methods; the degree to which it can ascribe cause and effect; the extent to which local stakeholders were involved in choosing it; and its sensitivity – the indicator should change in proportion to changes in the condition or variable which it is designed to monitor.

SIA Stage 6: Developing a Community Monitoring Plan

SIA Stage 6 is mainly about appropriate data collection methods for monitoring or measuring the indicators. Whereas SIA Stage 5 responds to the "What to measure?" question, SIA Stage 6 focuses on "How to measure it?" Appropriate indicators and data collection methods are key components of the Community Monitoring Plan required under the CCB Standards, as well as operational, logistical and participation elements.

Data collection methods can be divided into general and specific SIA data collection methods. The former include household surveys, focus groups, PRA-type methods, use of key informants, etc. More specific SIA methods include the Basic Necessities Survey (BNS) (TransLinks 2007), a suite of participatory methods grouped under the name Participatory Impact Assessment (PIA) (Catley *et al.* 2007), and Quantitative Participatory Assessment (QPA) developed by James *et al.* (2003). These methods are described in the SIA Manual (Forest Trends *et al.* 2010), and also summarized by Schreckenberg *et al.* (2010).

While there is a role for household surveys, participatory monitoring methods are essential for credible and cost-effective SIA provided that due diligence is exercised as regards the dangers of strategic responses. Participatory methods are generally better for differentiation (e.g., for intra-community, gender and temporal issues), but need to be triangulated via another research method, which can also be participatory (Schreckenberg *et al.* 2010).

SIA Stage 7: Data analysis, reporting and verification with stakeholders

All the effort to design and implement a monitoring plan is only useful once the gathered information is synthesized into a form that is easily understood by the local stakeholders and other users of the monitoring data, including the verification auditors. SIA Stage 7 describes what to do with the data so that it can be used in a verification audit as well as contribute to adaptive project management.

For data analysis and reporting, the first requirement is a clear description of how the data was collected and analyzed, together with the summarized results. This transparency is essential if the monitoring results are to be convincing.The CCB Standards require that projects disseminate both the monitoring plan and the results of monitoring through the internet and in locally appropriate ways. Prior to a verification audit, project proponents must prepare a report including the monitoring results and describing how the project has met the CCB Standards. This report must be made public for a 30 day comment period before the verification audit.

The reporting requirements of the CCB Standards are designed to promote a high level of transparency and accountability. Project proponents have an ethical responsibility to share monitoring results with affected stakeholders, but the dissemination of results is also an opportunity to review the data collection process, and to check with project stakeholders whether the results seem to accurately reflect reality. During verification, the auditor will check whether all stakeholders have had the opportunity to review and comment on the monitoring reports.

CONCLUSIONS

The authors, and the NGOs supporting this process, believe that cost-effective SIA for land based carbon projects goes well beyond satisfying the CCB Standards or providing market accountability, and that it can improve project design, increase social benefits and reduce the risk of negative social impacts. Good practice SIA results in vital information for improved project design – most obviously in terms of ensuring the best combination of activities and outputs for promoting social benefits, and encouraging adaptive project management (as mentioned in the CCB Standards). SIA should also increase stakeholder involvement and improve project-stakeholder understanding and relationships, thereby contributing to project objectives. For example, the ability to successfully reduce deforestation or sustain new plantations depends to a considerable extent on positive relationships with local people.

Better project design resulting from good practice SIA should also raise social benefits and reduce the risk of negative impacts. It will facilitate the early detection of problems thereby enabling projects to take corrective or mitigation measures, so that the problems can be dealt with cost-effectively before spiralling out of control. This paper offers the following good practice guidelines or principles for cost-effective SIA:

- Invest in early technical assistance or training in SIA;
- Spend time clarifying project objectives and how it is hoped these will be achieved, including distinguishing between outputs, outcomes and impacts, and assessing the causative linkages between them, as in the theory of change or causal model approach;
- Invest time in the selection of appropriate indicators;
- Use participatory data collection methods as much as possible;
- Keep stakeholders informed of the SIA process and results, and give them the opportunity to question the findings – this is a form of ground-truthing: the verification auditor would anyway check SIA findings with stakeholder groups.

Finally, SIA for land-based carbon projects should be based on the principle of 'appropriate imprecision' (as opposed to 'inappropriate precision') as promoted in the participatory learning approach to rural development (Chambers 1983). It encourages the use of creative participatory techniques such as those described by Catley *et al.* (2009). The view here is that SIA is more of an art than a science, and a very new art for land-based carbon projects. At the end of the day, telling

a convincing story (or project theory of change) with some data from carefully chosen indicators to back it up is more advisable than trying to undertake a costly and sophisticated statistical analysis which attempts to generate more precise, but possibly less reliable, data.

ACKNOWLEDGEMENTS

We would like to thank World Bank PROFOR, Morgan Stanley, USAID-TransLinks, GEF-UNDP, the Moore Foundation and NORAD for their financial support in the process of developing the SIA Manual, as well as the Katoomba Ecosystem Services Incubator of Forest Trends, the Climate, Community and Biodiversity Association (CCBA), Rainforest Alliance and Fauna & Flora International (FFI) for their institutional support and inputs, although this paper does not necessarily reflect the views of these organisations. We also thank Mark Aldrich, Tom Blomley, Natasha Calderwood, Andrew Catley, Rob Craig, Joanna Durbin, Julie Fischer, Paul Francis, Phil Franks, Jeff Hayward, Viju James, Oscar Maldonaldo, Jacob Olander, Steven Price, Kate Schreckenberg and David Wilkie for their support, comments or information at different stages of this process. We also thank two anonymous reviewers for their constructive comments. The first author would like to dedicate this paper to the memory of Dr Maksha Maharjan, Forest Economist, latterly of CARE-Nepal.

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