



## Strengthening conceptual foundations: Analysing frameworks for ecosystem services and poverty alleviation research<sup>☆</sup>



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### ABSTRACT

A research agenda is currently developing around the linkages between ecosystem services and poverty alleviation. It is therefore timely to consider which conceptual frameworks can best support research at this nexus. Our review of frameworks synthesises existing research on poverty/environment linkages that should not be overlooked with the adoption of the topical language of ecosystem services. A total of nine conceptual frameworks were selected on the basis of relevance. These were reviewed and compared to assess their ability to illuminate the provision of ecosystem services, the condition, determinants and dynamics of poverty, and political economy factors that mediate the relationship between poverty and ecosystem services. The paper synthesises the key contributions of each of these frameworks, and the gaps they expose in one another, drawing out lessons that can inform emerging research. Research on poverty alleviation must recognize social differentiation, and be able to distinguish between constraints of access and constraints of aggregate availability of ecosystem services. Different frameworks also highlight important differences between categories of services, their pathways of production, and their contribution to poverty alleviation. Furthermore, we highlight that it is important to acknowledge the limits of ecosystem services for poverty alleviation, given evidence that ecosystem services tend to be more associated with poverty prevention than reduction. We conclude by reflecting on the relative merits of dynamic Social–Ecological Systems frameworks versus more static checklists, and suggest that research on ecosystem services and poverty alleviation would be well served by a new framework distilling insights from the frameworks we review.

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## 1. Introduction

Various research agendas have emerged from the Millennium Ecosystem Assessment (MEA), including one concerned with understanding more fully the links the MEA makes between ecosystem services and human wellbeing and poverty (Carpenter et al., 2009; Daw et al., 2011; Raudsepp-Hearne et al., 2010). Whilst ecosystem services concepts have become popular relatively recently, it is our contention that the ecosystem services and

poverty alleviation research agenda can draw much from existing scholarship. At this stage in the nascent research agenda, there is a particular need to review existing conceptual approaches. Conceptual frameworks are popular in natural resource aspects of international development, with Sustainable Livelihoods approaches adopted influentially in the 1990s, for instance. Frameworks are popular perhaps because they assist with multidisciplinary analysis to make sense of complexity in dynamic situations. The reliance on conceptual frameworks in this field means they are influential; at its simplest, a framework provides a checklist for what issues are considered, and by extension, what does not reach the agenda. The objective of this paper is to critically evaluate the contribution of various conceptual frameworks to understanding the relationship between ecosystem services and rural poverty alleviation. We start by reviewing the relationship between poverty and the environment.

Links have been made between poverty and environment because poor rural people in developing countries often have higher dependence on livelihood resources directly from nature. This relationship may also run in the other direction: poverty can

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be a driver of degradation of ecosystem services, for instance through the intensification of agriculture (for further discussion of the poverty/environment relationship, see [Duraiappah, 1998](#); [Gray and Moseley, 2005](#); [Reardon and Vosti, 1995](#)). Regardless of the direction of drivers, poor people are often disproportionately vulnerable to environmental change and stressors ([MEA, 2005b](#); [Poverty Environment Initiative, 2009](#)). In addition, the importance of the relationship between environment and poverty is heightened because poor people are commonly constrained in their ability to substitute natural capital for other forms of capital ([MEA, 2005a](#)). In contrast, wealthier people in industrial nations often reduce apparent dependence on the environment by substituting natural for manufactured capital and petrochemical energy.

Attempts to define poverty are confounded as it is multidimensional, context-dependent and subjectively experienced. Yet, the ‘voices of the poor’ research, spanning 23 countries ([Narayan et al., 1999, 2000](#)) highlighted components that poor people commonly invoke as constituting wellbeing. This work reflected a broader shift to the conceptualization of poverty as the profound deprivation of wellbeing, making a departure from monodimensional income or material asset-based notion of poverty. We adopt this conceptualization when referring to poverty and derivatives including ‘poor’. Narayan et al. identify five components of wellbeing:

- ‘the necessary material for a good life (including secure and adequate livelihoods, income and assets, enough food at all times, shelter, furniture, clothing, and access to goods);
- health (including being strong, feeling well, and having a healthy physical environment);
- good social relations (including social cohesion, mutual respect, good gender and family relations, and the ability to help others and provide for children);
- security (including secure access to natural and other resources, safety of person and possessions, and living in a predictable and controllable environment with security from natural and human-made disasters);
- freedom of choice and action (including having control over what happens and being able to achieve what a person values doing or being)’ ([Narayan et al., 1999; 2000](#), as represented in [MEA, 2003](#); 74).

The MEA’s ‘micro-level’ conceptual framework presents these aspects of wellbeing, linked to categories of ecosystem service (see [Fig. 1](#)).

This framework highlights links between ecosystem services and the basic material for a good life, security and health. Empirical work endorses the importance of these links, showing that the poor particularly prioritize provisioning services and also recognize regulating services ([Brown et al., 2008](#)). The MEA also links good social relations to ecosystem services, through the relationship between ecosystems and the expression of cultural and spiritual values ([2005a](#)). Clearly this link is not exclusive: non-environmental factors are also important in fostering good social relations. The framework links ecosystem services to ‘freedom of choice and action’ via other elements of wellbeing, suggesting that the ability to make choices over components of wellbeing actually constitutes wellbeing, with echoes of [Sen \(2001\)](#). Yet, ‘freedom of choice and action’ also links more directly with ecosystem services because the mechanisms by which rural people engage with the state are often in the context of the management of natural resources. Hence, [Ribot \(2006\)](#) urges environmentalists to work through democratic channels, [Brown et al. \(2002\)](#) argue that the forest sector can be the ‘crucible’ of wider governance reform, with lessons for other sectors, and [Mayers \(2007; 1\)](#) argues that forests can be associated with poverty reduction, through the extension of related ‘civil and political rights, voice and the rule of law’.

Hence, poverty and the environment are closely linked. Yet, it is worth questioning what scope there is for poverty to be alleviated by ecosystem services. [Angelsen and Wunder \(2003\)](#) consider that poverty alleviation incorporates poverty reduction and poverty prevention. Through poverty reduction, people move above a poverty line, whereas, in contrast, poverty prevention means that people maintain a minimum standard of living – surviving – although they may be below the poverty line ([Angelsen and Wunder, 2003](#)). The literature is better furnished with examples in which ecosystem services are associated with poverty prevention than reduction ([Angelsen and Wunder, 2003](#); [Béné et al., 2010](#); [Fisher, 2004](#); [Mayers, 2007](#)). Ecosystem services tend to provide ‘safety nets’ to depend on for subsistence in lean times or when crops fail, or they provide income ‘gap fillers’, by which a few products managed or cultivated make a small cash income ([Mayers, 2007](#)). The absence of these critical ‘safety-nets’ or ‘gap-fillers’ may lead to extreme poverty and ill being. Hence, it is perhaps useful to think about ecosystem services as preventing absolute poverty.

The paper proceeds as follows. The following methods section identifies a more precise definition of what type of conceptual framework we focus on, outlines the means by which we selected frameworks, and the process of appraisal. The review then proceeds to critically appraise each framework for research on ecosystem services and poverty alleviation. We conclude by discussing the commonalities between frameworks and how they inform a research agenda.

## 2. Methods: the selection of frameworks for review

Before outlining the process by which we selected frameworks to review, broader questions require attention as regards the purpose served by conceptual frameworks. Distinct traditions within environment-society research embody nuanced differences in how frameworks are used, with variable emphases on concepts and data. These differences are important to disentangle in the positioning of this review. We trace a broad, and not necessarily mutually exclusive, distinction between frameworks providing conceptual insight and frameworks designed to support data collection. This dichotomy is associated with, but does not strictly adhere to, familiar dichotomies of natural versus social sciences, or qualitative versus quantitative and modelling traditions.

In empirically-oriented traditions, frameworks tend to be operationalized through the collection of data. Frameworks therefore serve as data classification templates, to aid synthesis, particularly meta-analysis. Such an example is presented in [Ostrom \(2009\)](#). A second tradition of framework usage is as a presentation of key concepts and relationships, either as a ‘thinking-tool’, or as the preliminary stage of a model. Examples are identifiable within social science and policy-applied research where frameworks act as representations of key concepts and relationships between concepts. In a distinct tradition, modellers often use frameworks as systems diagrams, linking entities and processes. Such diagrams may have conceptual merit, for instance through the novelty of what is featured, and in the characterization of the relationships. What unites these modelling and social science applications of frameworks is that they are primarily conceptual, and loosely inform, rather than being a template for, data collection. We therefore highlight this distinction between empirical frameworks, and frameworks with conceptual insight.

For this review paper, we made a comprehensive selection of frameworks and bodies of conceptual literature focused on the environment-society interface. The list was compiled by the multidisciplinary team of authors and augmented with suggestions from peers in the Ecosystem Services for Poverty Alleviation research community with whom we consulted at a general meeting of this community in May 2011. There was considerable

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