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### Viewpoint

# Local actions for the common good: Can the application of the ecosystem services concept generate improved societal outcomes from natural resource management?

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### ABSTRACT

Nature provides a wide range of ecosystem services (ES) that are vital for human well-being and livelihoods. The supply of these services is being threatened by local and global pressures. Managing for the provision of ES can provide a range of benefits that, in economic terms, can be defined as, private, common or public goods. Inspired by the theme 'local action for the common good' of 7th Ecosystem Service Partnership conference held in Costa Rica, this paper examines the key issues in policy and management for production and management of ES in a way that meet the broader common good. The ES approach is not widely understood by policymakers, the general public and the private sector. While the approach is a promising contribution to providing for common good outcomes from the management of natural resources, much needs to be done to ensure that it achieves the dual purposes of maintaining and enhancing the supply of different services and improving the livelihoods of the rural poor in developing countries. Critical areas for further attention are assessments of ecosystem services in developing countries that incorporate local and indigenous knowledge, clear links to policy and decision making, public education and engagement about the value of ecosystem services and payment mechanisms that drive local actions and contribute to local livelihoods.

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## 1. Introduction

Nature provides a wide range of ecosystem services (ES) that are vital for human well-being and livelihoods. Most of these services can be described in economic terms as "common goods" (CGs) – where enjoyment or use cannot be easily excluded – although some provisioning services such as wood, food and fibre are privately owned and controlled, where use by one party will affect the capacity for use by others. These CGs or ecosystem services are often the product of "common pool resources," comprise a wide variety of natural or human-made resources, and can include village pastures, natural grassland, shrubland, forests, ponds, rivers, lakes and oceans (Ostrom, 1990). Globally and locally, communities, natural resource managers and policymakers face challenges in decision-making that can alter the flow of benefit from ecosystem goods and services necessary for livelihoods, human survival and

reducing negative impacts on the environment (Daw et al., 2011, 2015; Lü et al., 2012).

The 'common good', on the other hand, and paraphrasing 18th century British economist Jeremy Bentham embodies the concept of providing for the 'greatest good for the greatest number of people'. In the context of natural resource management, this concept was taken up by the founder of the US Forest Service, Gifford Pinchot, who argued that 'where conflicting interests must be reconciled, the question shall always be answered from the standpoint of the greatest good of the greatest number in the long run' (Pinchot, 1910). According to the Helfrich (2012), common goods are those goods that we compete for their use. Gareth Hardin's (1968) seminal paper 'The Tragedy of the Commons' drew attention to the plight of many CGs that are threatened through uncontrolled and competitive over-exploitation. While many argued that these situations can be rectified through control by governments or by transferring use rights into private hands, Ostrom (1990), and later Agrawal (2001) argued that coordinated local actions and the development of local rules could avoid over exploitation and provide ongoing benefits to local

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populations. Local knowledge, local institutions and local actions are therefore of great potential value in managing and using CGs (Agrawal and Chhatre, 2006; Dressler et al., 2010; Ostrom, 2009). However, in many situations, this tragedy is a continuing reality for people whose livelihoods depend predominantly on the availability of CGs and where there is continuing over-exploitation of the resources that supply them (Bezlepkin et al., 2014).

Most of authors define 'ecosystem services' or 'ecosystem goods and services' as the benefits that humans derive from nature. According to TEEB (2010) ES are considered as 'direct and indirect contributions of ecosystems to human well-being'. The ES approach provides a different perspective to traditional thinking on the management of natural resources by recognizing, categorizing and quantifying services provided by man-made and natural ecosystems (Bennett et al., 2015). By assessing and valuing these services, their provision can be incorporated into natural resource management.

Local actions are important in enhancing the supply of services that are vital to provide a healthy environment for human well-being. Inspired by the 7th Ecosystem Services Partnership (ESP) Conference, 2014 with the theme 'Local Actions for the Common Good' this paper examines the link between rural livelihoods, management of ecosystem services and the common good and suggests policy options for implementing the ES approach at a local level (ESP, 2015). While drawing on ideas raised at the conference, the viewpoint represents our thinking.

## 2. Ecosystem services, common goods and local livelihoods

As the human population increases, the demand for almost all ES is escalated. In recent years a significant change has occurred in land use to meet the demands of society (Baral et al., 2014a; Carpenter et al., 2009; Wang et al., 2012; Zhen et al., 2014), with a focus on increasing the supply of 'provisioning services' such as wood, food, fibre and materials (Costanza, 2008; de Groot et al., 2002, 2010). In economic terms, these are largely categorised as 'private goods' where individuals or private enterprises control the means of production and supply chains and the use is exclusive and rivalrous (that is, use by one party means that another party cannot benefit (Fig. 1).

Unregulated multifunctional landscapes also provide common goods, such as timber, fodder, grazing, clean water, fuel, fish or minerals, where the use may not be excludable but the use by one party means that others cannot benefit (Costanza, 2008; Helfrich, 2012), or their benefits are diminished (Fig. 1). Large populations throughout the world depend on these CGs for their livelihoods, food security and rural economies (Villa et al., 2014). CGs are particularly important in subsistence economies, where they provide benefits for many millions of rural people.

Other ecosystem services can be categorised as public goods, goods for which general use cannot be excluded but which are 'non-rivalrous' meaning use by one person does not affect the capacity of others to benefit (Costanza, 2008). Such services can include certain regulating services, such as carbon sequestration, or cultural services.

Many studies indicate that, due to the focus on production of private goods, there is unprecedented loss and degradation of other ES provided by natural environments, such as regulating, cultural or aesthetic services (Inge et al., 2013; MEA, 2005; Wunder et al., 2008). These impacts can have severe consequences for the well-being and livelihoods of many people who are highly dependent on these services (Sunderlin et al., 2005).

## 3. Implementing the ES approach for common or public goods

Recently, significant concerns about ES and livelihoods have been raised and calls made for urgent attention and actions from government and international agencies to focus on the provisions of ES at local to global levels. The Millennium Ecosystems Assessment (MEA) (2005) and The Economics of Ecosystem and Biodiversity (TEEB) (2010) reports drew attention to the economic benefits derived from ecosystem services and biodiversity (Costanza et al., 2014; TEEB, 2010), a scientific approach to quantification and analysis of ES has been promoted (Villa et al., 2014) and the value of local actions in improving the provision of services has been highlighted.

Managing human-dominated landscapes where there are often competing demands for different goods and services is challenging (Felipe-Lucia et al., 2014). Different types of landscapes provide ecosystem services with different qualities and quantities; however, many of those services are yet to be incorporated into natural resource management decisions (Bateman et al., 2013). Capacity to supply some of these services is being degraded due to a lack of understanding of their value for sustainable livelihoods (MEA, 2005). Can the ES approach be part of a larger solution to global and local environmental challenges? While many suggest it can (TEEB, 2010; Buscher, 2012; Costanza et al., 2014), others critique the ES approach as mainly theoretical, difficult to translate into economic frameworks and costly to implement (Farley, 2012; Lele et al., 2013; Liverman, 2004; McCauley, 2006; Muradian et al., 2010; Nahlik et al., 2012) or that it is just an eye-opening metaphor to complexity (Norgaard, 2010), which continues to promote an exploitative human-nature relationship in a different form (Schroter et al., 2014) and obscuring certain types of values and masking unevenness in the distribution of costs and benefits of resource management decisions (Jax et al., 2013).

### 3.1. Trade-offs between ecosystem services

While there may be synergies in the production of ecosystem services, managing multiple ES often requires trade-offs in the management of natural resources in the provision of different types of ecosystem services (Daw et al., 2015; Raudsepp-Hearne et al., 2010) that need to be incorporated into resource management and decision making. Resolution of some trade-offs is relatively straightforward, and the methods to compare them are well understood, for example, the choice of producing certain private goods can be resolved through economic analysis using a comparison of measures such as internal rates of return or net present value.

Providing the basis for analysis of trade-offs between the private or club goods provided by ecosystems (for example provisioning services such as wood, food and fibre) and the wider public benefits of common good services like clean water or carbon sequestration is a key theme in promoting the application of the ES approach. Using an ES approach can support the inclusion of previously unrecognised services into land use and management decisions and identify opportunities for synergies or the requirement for trade-offs between the production of private goods, common goods and public goods (Baral et al., 2014a).

Consideration of trade-offs when there is a reduction in one common good in favour of another—for example, reduced water yields when carbon sequestration is increased due to afforestation (Baral et al., 2013, 2014b) can be more challenging, and the assessment of such trade-offs in complex landscapes is generally poorly understood (Carpenter et al., 2009).

However, these types of studies have largely been undertaken in developed countries with well-established markets (Bennett et al., 2009; Daw et al., 2015; Haase et al., 2012; Maes et al., 2012; Raudsepp-Hearne et al., 2010) and there has been limited

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