



Rethinking economics, markets and incentives

Using economic tools at the landscape level



LIVELIHOODS AND LANDSCAPES STRATEGY – Working Paper n°1



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Executive summary

Based on a review of the experiences gained during the course of LLS, this paper documents insights and lessons about using markets and incentives to strengthen forest landscapes and livelihoods. It aims to interrogate just what a 'landscape approach' means in economic terms, to identify how markets can be used to generate incentives to share forest benefits more equitably and sustainably, and to highlight which kinds of approaches and 'packages' of interventions can assist in this.

The key findings and lessons learnt are:

Forest livelihoods and landscapes are under-valued in decision making. Conventional economic approaches tend to exclude the livelihood benefits and broader environmental values that forest landscapes yield – and as a result have often resulted in market, policy and management decisions that marginalize the groups that depend and impact most on forests. Economic analysis needs to account for local-level benefits and ecosystem services as well as commercial values, address the linkages and trade-offs between different uses, user groups and levels of scale, and consider both the distribution of values and the broader development impacts of different forest landscape management options.

Markets and prices often fail to capture sustainable forest values. The continuing low profitability of sustainable forest production and management, combined with difficulties in capturing value at the local level, act as major barriers to forest landscape conservation and poverty reduction. In contrast, developing and improving forest markets so as to help rural populations to better benefit from sustainable trade can act as a powerful incentive for long-term improvements in landscape and livelihood status.

Economic policies tend to discriminate against forest landscapes and livelihoods. Economic policies and instruments often make it more profitable for producers, consumers and investors to engage in environmentally-destructive activities, and favour sectors and markets to which the poor have no access. The removal of subsidies, unfair taxes and other perverse incentives can overcome many of the barriers to local market participation, and increase substantially the gains from sustainable forest management.

Market solutions, alone, are not sufficient to overcome economic barriers. Although what are essentially economic problems do require economic solutions, alone they are rarely sufficient. Arrangements must be in place to equip and empower producers, consumers and investors with the rights, responsibilities and information that will enable them to participate in these markets and gain from these incentives. Organizational and management capacity, information and awareness, and forest and land tenure and rights emerge as being particularly key to the success of market-based interventions.

About LLS

The Livelihoods and Landscapes Strategy (LLS) is a global project of IUCN's Forest Conservation Programme funded by the Directorate General for International Cooperation (DGIS) of the Netherlands Ministry of Foreign Affairs. Its first phase ran from 2007-2011. Its overall goal has been *"the effective implementation of national and local policies and programmes that leverage real and meaningful change in the lives of rural poor, enhance long-term and equitable conservation of biodiversity and ensure the sustainable supply of forest-related goods and services in line with nationally-defined priorities"*.

LLS was designed as a direct response to achieving two of the major challenges facing sustainable development at the time of its design in 2006:

- How to find practical ways to support governments and donors in ensuring that the benefits of national poverty reduction strategies reach the rural poor, and in particular those who are highly dependent on natural resources including forests and trees.
- How to reverse the current lack of momentum in implementing international commitments on sustainable forest use and conservation and therefore address the slippage of forest-related issues within international development.

The strategy is predicated on the belief that although these two challenges are inextricably linked, natural resource management and conservation organizations have yet to make a convincing case, on a large enough geographic or institutional scale, as to how improved resource use and conservation can make a difference to the livelihood security of the rural poor. It is hardly surprising therefore that ministries of finance and economic planning have tended to be unaware of the fact that forest goods and services remain as important as ever for many poor people and could be better harnessed to contribute to rural poverty reduction, as well as the national economy.

LLS has contributed to shaping a bold new vision of forests as multifunctional assets that can make a real difference to rural poverty, economic growth, environmental quality, human well-being as well as biodiversity conservation. It has promoted this vision among both the forest sector and decision makers in other sectors whose own goals and targets impact, or are impacted by, the state and integrity of forest resources. The strategy has four key thematic components, each addressed in a mutually integrated manner:

- i) forests and poverty reduction,
- ii) markets and incentives,
- iii) governance, and
- iv) transforming landscapes

Targeted geographic interventions in nearly 30 landscapes across 23 countries in Africa, Asia and Latin America looked at the linkages between the four themes and avoiding their treatment as stand-alone issues.

This paper is one of a series of thematic working papers exploring the cross-cutting operational components, and which draw on various aspects of landscape experiences to test some of the assumptions behind LLS, bringing together a host of its lessons and insights. The papers draw on data and information generated over the last 5 years and in most cases, at the time of publication, successes on the ground have continued into 2012, when the first phase of the project officially closes.

With sustainability integral to the LLS project design, the work of LLS will in effect live on in each landscape and often much more widely than that, influencing local, regional and international practice and policy in the manner already detailed and reported in the LLS Landscape Papers, Thematic Papers, Thematic Briefs and Research Papers.

What is a landscape?

A landscape is a mosaic of different types of land use such as agriculture, forests, pasture and conservation areas. Managed as a whole, a landscape serves a variety of needs for various stakeholders.

The LLS vision of a landscape is of multiple and complementary land uses based on negotiation rather than centralized planning. Landscapes do not exist in a vacuum, but are influenced by a wide range of external factors including policies and economic conditions generated far outside it, land use in adjacent landscapes and perhaps remote physical features such as dams.

Addressing landscape management issues always requires interventions outside as well as inside the landscape.

Introduction

The aim and scope of the paper

The ‘markets and incentives’ theme was one of the cross-cutting components of the LLS project. It was designed to examine and test approaches which would ensure that markets and incentives support more sustainable landscape management, while also increasing incomes and livelihood security among the rural poor (IUCN, 2006b). Economic and financial tools were applied in various ways in LLS project sites with the aim of contributing to these objectives at a landscape level. Activities focused on generating decision-support information about the costs and benefits of different landscape management alternatives, identifying and overcoming the barriers to trade and markets, and setting in place economic, fiscal and financial incentives for sustainable forest management and investment.

A defining characteristic of LLS was that it worked across many sites. The field projects spanned nearly 30 landscapes across Africa, Asia and Latin America. This was intended to enable scaling-up, and to promote a comprehensive approach to learning (IUCN, 2006a). As part of the process of defining the sorts of tangible changes that the initiative should expect to deliver, eight inter-related assumptions (or change hypotheses) had been formulated at the start of LLS. The LLS learning process aimed to test these assumptions and to investigate whether they hold true generally, or only in specific situations.

In line with this diversity of project contexts, the current paper takes a cross-country, comparative approach. Based on a review of field experiences gained during the course of LLS, it documents insights and lessons about using markets and incentives to strengthen forest landscapes and livelihoods. By so doing, it aims to generate learning about two key issues: to demonstrate just what a ‘landscape approach’ means in economic terms, and to test whether the assumptions that had been formulated at the start of LLS are borne out in practice.

Unpacking the assumptions

Two of the assumptions or change hypotheses that were developed at the start of LLS relate specifically to the markets and incentives theme (IUCN, 2006a), namely:

“the benefits that could accrue to the rural poor from greater access to natural resources or emerging markets for environmental services will be limited unless associated rights to markets, trade and the ability to retain earned income have first been clearly and equitably addressed”; and

“negotiated, non-regulatory mechanisms to promote best social and environmental practice among individuals, communities or private companies can result in tangible net benefits for both biodiversity and rural incomes”.

Both assumptions are predicated on the underlying hypothesis that participation in forest-based markets can provide both a means of strengthening the livelihoods of the rural poor, and offer incentives for people to use and manage forest landscapes more sustainably. However, importantly, they introduce two additional propositions or qualifiers. First, that associated rights, too, must first be established for the rural poor (A); second, that different players in the market should agree to engage in good social and environmental practice (B).

On the face of it, these assumptions appear to be self-evident, in the sense that they merely reiterate what has become received wisdom in the discourse that surrounds sustainable forest management. On the one hand, markets (and the income and other benefits they generate) have long been recognized as important tools for economic development, poverty reduction and forest conservation. The basic premise that good forest management is an essential part of the sustainable development process is not new, nor is recognition of the need to share forest benefits at the local level, preferably through community-based approaches (see, for example, Gregersen *et al.*, 1998).

At the same time, there is ample proof that additional mechanisms to promote best social and environmental practice are often required. In many cases the ‘invisible hand’ of the market does not, by itself, guarantee social

equity, environmental sustainability or benefits for the rural poor (see, for example, Trivedi *et al.*, 2008). It has been noted that forest markets have frequently served to further marginalize poor communities, and have contributed little to rural livelihoods (see, for example, Scherr *et al.*, 2003). However, it is also not self-evident that interventions in tropical forests can, in every case, contribute to poverty reduction (Wunder, 2001) – or, indeed, that deforestation is simply the result of a failure on the part of ‘the poor’ to capture sufficient sustainable values (such as from non-timber forest products (NTFP) or payments for ecosystem services) to balance the returns to more destructive land and resource uses (Dove, 1993).

It is clear that attention needs to be paid to establishing the enabling environment and conditions that will ensure that forest markets will also lead to gains for the poor and the environment, despite the limitations of the market. Examples include by addressing political-economic conditions, establishing rights and tenure or promoting ‘good’ social and environmental practice. The implication is that active interventions in markets, policies, laws and institutions are required to level the playing field, correct these failures and imbalances, and put forest livelihoods and landscapes back into the picture.

However obvious the underlying assumptions of LLS may appear to be, it remains a valuable exercise to examine them in some detail in this paper. After all, just because something is commonly accepted does not necessarily mean that it holds as a general principle. Sometimes the most (apparently) obvious assumptions are the most dangerous ones, if they are made unthinkingly and without a sound evidential basis. In order to interrogate the assumptions further, and draw out key lessons learnt from LLS, this paper widens the scope of analysis to overcome systemic barriers in landscapes. In the light of the economic and financial barriers that exist to locally-controlled forest management, it questions how markets can be used to generate incentives to share forest benefits more equitably and sustainably, and identifies which kinds of approaches and ‘packages’ of interventions can assist in reaching this goal. The intention is to generate learning about how economic considerations can be addressed within a ‘landscape approach’.

Factoring landscape and livelihood diversity into the design of market-based interventions

The preamble to this paper explained how the landscape approach has been interpreted and applied in the context of LLS. A key element is the recognition that while the whole is greater than the sum of the parts, any given landscape incorporates a multiplicity of uses and users pursuing a variety of (often competing) activities and objectives. From a management perspective, outcomes are therefore typically negotiated, based on many different constructs of how the landscape should be managed, and what it should yield. For LLS, sustainable and pro-poor landscape and livelihood development is the overarching objective that links these different trade-offs and levels of scale.

It was clear, from the start, that markets and incentives must form a key component of LLS. On the one hand, economic forces and factors formed a powerful driver of forest landscape and livelihood degradation in most LLS landscapes. These ranged from widespread poverty, through unsustainable land and resource uses, to the underlying economic policies and conditions that served as barriers preventing the rural poor from accessing sustainable livelihood opportunities. On the other hand, there is considerable potential to use economic and financial tools to strengthen locally-controlled, sustainable landscape management.

However, a key lesson learnt from LLS is that there is no single, ‘one size fits all’ approach to understanding, or acting on, markets and incentives. Although commonalities emerge, and many of the economic and financial barriers to more sustainable and equitable forest markets are repeated across LLS field sites, each landscape contains a wide variety of stakeholders, with differing economic circumstances, constraints and needs. It has been noted elsewhere that there is a high degree of variation in the nature of people’s relationships to forests and forest products, and in the impact on them of changes in economic, cultural and social conditions (Byron and Arnold, 1999; Carloni and Crowley, 2005). These observations are particularly pertinent to the goals and approach of LLS.

Rather than adopting an aggregated view of forest producers and consumers or of how people will respond to markets and incentives, it has been a guiding principle in LLS to recognize the diversity of trade-offs that are involved in designing and implementing interventions, and the variability in who will eventually emerge as winners or losers. From an economics standpoint, this requires taking a much more inclusive approach to recognizing,

counting and capturing forest values, and employing an integrated perspective which works to address the multiple economic, financial and market forces, factors and trade-offs that influence the status of forest landscapes and livelihoods at a local and landscape level and developing responses accordingly.

Applying economic approaches and tools in a landscape context

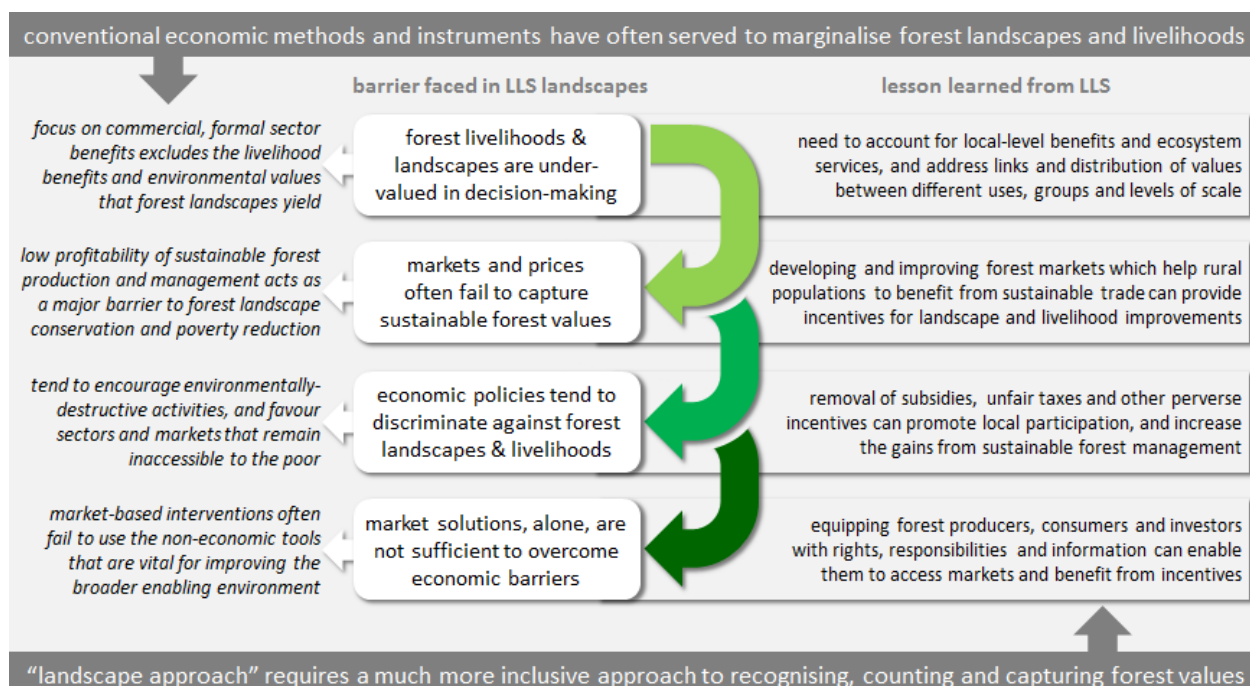
Implementing LLS required something of a paradigm shift in economic terms. As described in the paragraphs above, the initiative was based on understanding the linkages between different components of forest landscapes, while at the same time recognizing their diversity. The ways in which economic methods and instruments have conventionally been applied in the forestry sector have, however, proved themselves to be somewhat ill-equipped to deal with these nuances or the ‘bigger picture’ view that a landscape approach demands.

It soon became apparent that, while ‘utility’ or ‘profit’ maximization was of course a major concern to most stakeholders, in many LLS landscapes this extended far beyond the formal, organized (and usually commercial) forest markets and enterprises that have traditionally been the focus of forest economics. In fact, applying such a narrow view would serve to distract attention – or even undermine – the very goals that underlie LLS. These were to ensure that markets and incentives support more sustainable landscape management, while also increasing incomes and livelihood security among the rural poor. Applying a ‘landscape approach’ therefore required a much more inclusive approach to recognizing, counting and capturing forest livelihood and landscape values, and to understanding and acting on the financial and economic barriers that exist to sustainable, locally-controlled forest management.

The main body of the paper focuses on four issues that proved particularly important in the ‘landscape’ economics approach adopted by LLS:

- Forest livelihoods and landscapes are under-valued in decision making;
- Markets and prices often fail to capture sustainable forest values;
- Economic policies tend to discriminate against forest landscapes and livelihoods; and
- Market solutions, alone, are not sufficient to overcome economic barriers.

Using evidence from the literature and from field experiences gained during the course of LLS, the paper identifies how these translate into economic and financial barriers to strengthening forest landscapes and livelihoods. It describes how economic approaches were applied in a landscape context, and how project interventions used markets to generate incentives to share forest benefits more equitably and sustainably. Finally, the concluding section of the paper draws together these experiences and insights, in order to highlight the main lessons learned from LLS about the use of economic approaches, markets and incentives.



Lessons learnt: overcoming the economic barriers to sustainable forest livelihoods and landscape management

Forest livelihoods and landscapes are under-valued in decision making

Most decisions about forest management, whether made by households, companies or governments, are based on weighing up the relative benefits and costs of different land, resource and investment choices. Although economic values are by no means the only consideration in economic analysis and decision making, they tend to exert a particularly important influence on which forest management option is seen as being the most desirable one (Gregersen *et al.*, 1998).

LLS found that economic assessment, as it has traditionally been used in forestry and development sectors, did not lend itself well to landscape-level applications. Working at a landscape level requires a much more holistic and inclusive approach than conventional economic approaches allow. It is worth noting that this is a criticism that has been widely levied in the context of sustainable forest management more generally (Nasi *et al.*, 2002; Kaimowitz, 2002) and participatory forest management in particular (Davies and Richards, 1999). The overriding focus of conventional economic analysis has been on those commodities that can be easily valued and measured in quantitative terms – in other words products that have a clear price, and are traded in formal markets. Yet, across the world, priced and marketed goods and services typically represent only the tip of the iceberg as far as forest benefits and beneficiaries are concerned.

A first challenge was therefore to find the tools and methods that can be used to ensure that the total economic value of forests can be articulated, and represented in decision making. Over the last decades a suite of new tools and approaches have become available which extend the scope of forest valuation (see, for example, IIED, 2003; Pearce and Moran, 2004; TEEB, 2010). These proved key in designing, assessing and evaluating LLS activities. They address the fundamental problem that many of the most valuable goods and services in forest landscapes lie outside formal markets and pricing mechanisms. The most obvious omissions are subsistence-level production and consumption, and broader ecosystem values.

Taking a narrow approach to economic assessment not only underestimates the real economic significance of forest landscapes and masks the true distribution of costs and benefits (Kaimowitz, 2002), but also tends to marginalize the groups which depend and impact most on these 'hidden' values (Lette and de Boo, 2002). It does not allow decision makers to make informed trade-offs when they choose between different land, resource, policy and investment options or attempt to better capture forest values (IIED, 2003; Gregersen *et al.*, 1997).

Given the long history of forest landscape under-valuation, it is hardly surprising that decision makers have tended to be unaware of the fact that forest goods and services remain as important as ever for many poor people and could be better harnessed to contribute to rural poverty reduction, as well as the national economy. This has implications for the level of budgets that are allocated in support of forest conservation and development, the projects and investments that are undertaken, and the economic activities that take place in and around forests. In the worst case, under-valuation of ecosystem services and local-level benefits has resulted in forest management and investment decisions that are biased and not transparent (Simula, 1997), and have actually promoted the continued loss of forests and erosion of local livelihoods (Trivedi *et al.*, 2008). Because it is mainly the forest landscape values that accrue at the local level, especially to the poor and within informal markets, and the ecological services received by off-site populations, that remain unaccounted for, it is inevitably these groups that tend to lose out.

LLS's country experiences (below) point to several particularly critical issues that can arise when a narrow concept of value is applied, which need to be addressed in landscape approaches:

- As shown by the Mtanza Msona case, one issue concerns how values are articulated at the local level, and underlines the importance of incorporating an understanding of local livelihoods, especially those of

the poor, into economic assessment. Overlooking livelihood values runs the risk of diverting management attention from forest areas and resources which are critical to the functioning of local economies.

- The Miyun case relates to how values are framed across levels of scale, and underlines the importance of ensuring that economic assessment addresses the linkages and trade-offs between different uses and user groups. LLS experiences show that this is especially important when balancing the provision of broader forest ecosystem services with local livelihood values.
- The case of Liberia involves considering how values are perceived at the sectoral or macroeconomic level, and underlines the importance of ensuring that economic assessment considers the distribution of forest values and the broader development impacts of different policy or management alternatives. Omitting to account for the way in which local-level forest income and employment typically leverages much wider multiplier effects across the economy can lead to serious underestimates of the relative benefits of forest management and enterprise arrangements which involve rural communities as primary participants.

Articulating local-level values: the case of Mtanza Msona, Tanzania

In Mtanza Msona village, located in the Rufiji landscape in Tanzania, a more inclusive approach to economic valuation provided an important justification for promoting a form of forest management that is locally-controlled, and which recognizes local rights. The economic assessment explicitly considered non-market livelihood and ecosystem values, and paid close attention to how these were distributed between different households. It found that forest goods and services contribute an average of 40% of per capita GDP for villagers, rising to more than half for the poorest households. Overall, they yield products worth eight times as much as all other sources of farm and off-farm production, including medicines worth fifteen times as much as purchased drugs and wild foods worth fourteen times as much as bought provisions. A narrow conceptualization of value in terms of commercial potential alone would have led to the conclusion that village forests had low worth, and that there would be little benefit from taking active steps to improve their conservation or management. In contrast, a broader and more inclusive approach to forest valuation served to reinforce the decision to gazette village forest reserves, and initiate by-laws and a management plan to allow for sustainable harvesting and processing of key livelihood products.

Framing values across levels of scale: the case of Miyun, China

While the Miyun forest landscape in China protects Beijing's water supply, it also contains a large and economically impoverished human population. Ecosystem and livelihood valuation demonstrated the incremental benefits – to both local farmers and downstream populations – of pursuing a sustainable forest management regime in the upper watershed. The participatory 'close to nature' forest management approaches set in place in two upstream villages were demonstrated to generate local benefits which contribute almost 40% of household income for upstream farmers, while generating significant cost savings to downstream water users (estimated to be worth just under US\$25 million). These kinds of figures provided a convincing argument to high-level decision makers – in this case the Beijing Municipality authorities and State Forestry Administration – of the development benefits from investing in locally-controlled forest management, and scaling-up the sustainable forest management approaches piloted by LLS.

Expressing macroeconomic and sectoral values: the case of Liberia

One of the activities carried out by LLS in Liberia was to provide decision-support information for the development of a comprehensive and realistic national policy on sustainable chainsaw logging. Chainsaw logging currently accounts for the employment of several thousand people, generates up to US\$5 million wage earnings, and contributes almost US\$1 million in payments to government and local communities. Valuation of the commercial and socio-economic benefits of different production forest management options showed that current timber harvesting practices neither capture the full economic value potential of the

industry, nor optimize income across the broadest possible range of stakeholder groups. It demonstrated that support to small-scale harvesters would, over the immediate future, help to achieve market efficiency and ecological sustainability goals in the chainsaw logging sector, at the same time as leveraging considerable socio-economic benefits.

Markets and prices often fail to capture sustainable forest values

One of the practical implications of under-valuation is the tendency to favour forest management regimes and market development opportunities that focus only on maximizing large-scale, commercial (usually extractive, and often unsustainable) benefits. Yet there is evidence that small and medium-sized forestry enterprises both make up the majority of forest sector business in most developing countries, and leverage substantial economic and development benefits (Mayers, 2006). Although local-level trade and business, if run sustainably and democratically, can both avoid deforestation and pull people out of poverty (Macqueen, 2007), a host of barriers typically exist which hinder local entry into forest markets or minimize the gains received. Forest products trade tends to be characterized by a small number of buyers and a large number of sellers and exploitative marketing chains, meaning that primary producers receive a low share of the values generated (Angelsen and Wunder, 2003). Local players often do not have access to sufficient capital, market contacts and information, or technology to exploit new market opportunities or to be competitive in existing markets (Mayers 2006; Scherr *et al.*, 2011).

In addition to the barriers that exist to local entry into markets, an additional and important, factor which contributes to forest landscape and livelihood degradation is that sustainable land and resource use management often generates far lower profits at the private or household level than the activities which lead to deforestation (PROFOR, 2004). People engage in unsustainable land and resource uses because it is in their immediate economic interest to do so (Kaimowitz *et al.*, 1998). This too is symptomatic of the way in which markets and prices fail to capture sustainable forest values, or to optimize local benefits. Considerable attention has started to be paid over recent years to identifying ways of adding value to sustainable harvesting and production, and to finding profitable alternatives to unsustainable land and resource uses in forest landscapes. In developing countries, there has been a particular emphasis (including in LLS country projects) on strengthening markets for non-timber forest products, certification, and payments for ecosystem services (see, for example, Irvine, 1999; Nasi *et al.*, 2002; Neumann and Hirsch, 2000; PROFOR, 2004; Ruiz-Perez and Byron, 1999; Scherr *et al.*, 2003; Wollenberg and Ingles, 1999; Wunder, 2005).

A particularly critical issue, which was part of the learning that emerged over the course of LLS (and is embedded in the country experiences presented below), is the need to distinguish between the short-term and long-term impacts and outcomes of forest landscape interventions. These are often conflated when sustainable, pro-poor market opportunities are being identified and designed. It is important to be clear about the difference between strengthening forest markets as a means to alleviate poverty (in other words to fill immediate gaps in income and subsistence for the poor), and their development in order to reduce poverty (to effect long-term, permanent improvements in poor people's socio-economic status). In many cases, although access to forest products or markets is an important means of enabling people to survive in a situation of poverty, it may be less important in helping them to actually escape from the poverty trap (Arnold and Townson, 1998; Byron and Arnold, 1999).

If this distinction is not recognized, market interventions run the risk of merely serving to prolong people's participation in low-return economic activities, and perpetuate poverty. For example, the very characteristics that make non-timber products important and attractive to the poor in the first place (such as that they are easily accessible, and can be harvested and processed with low investments) have been argued to also often limit the potential for further income increases (Angelsen and Wunder; 2003). Similar concerns have, more recently, emerged in the context of the development of pro-poor payments for ecosystem services (Wunder, 2007). The general conclusion is that market intervention strategies need to recognize the distinction between those who are engaged in forest product activities because they lack alternative sources of income and employment, and those who are responding to new or profitable market opportunities; it may be more fruitful to help people engaged in activities with declining prospects to move into other more rewarding fields of endeavour, rather than seeking to raise their productivity in their current line of work (Arnold and Townson, 1998; Sunderlin *et al.*, 2005).

LLS's country experiences demonstrate a number of ways in which markets and prices need to be improved in order to better capture values for the benefit of forest landscapes and livelihoods:

- One lesson concerns the fact that existing markets often fail to capture values for rural populations, especially those in more remote forest areas.

- Experiences gained in the Bougnounou-Nébiélianayou landscape in Burkina Faso provide another example of how improving local access to existing markets can provide a means of catalysing substantial economic change.
- Another insight has been the importance of deploying tools to strengthen value-addition in market chains for sustainable forest products. This was a major focus of activities in the Reserva Extrativista Chico Mendes in Brazil.
- The case of Guatemala's Lachuá landscape illustrates how sometimes forest users and managers are not able to access the economic opportunities and markets that would enable them to shift away from unsustainable landscape management practices. With often pressing needs for income and employment, forest communities often have little alternative but to engage in unsustainable – but profitable – land and resource uses.
- Another area of learning under LLS, illustrated by the cases of Lachuá, Tacaná, and Miyun, was that markets for many forest goods and services simply do not exist – meaning that there is no way for forest managers to be rewarded for the economically valuable benefits they provide to others.
- An important lesson learnt was that the development of one forest market can also leverage entry into additional markets. This may occur because community empowerment and organization are strengthened, as a result of enhanced access to market information, due to the improved profile and visibility of a particular site, or through stimulating follow-up investments and external assistance (Angelsen and Wunder, 2003). This is illustrated by the case of REDD+ in Ghana, Guatemala, Sudan and Uganda. In LLS country activities, this largely took place as an unintended consequence of country-level activities: the knock-on benefits of market interventions had not been anticipated when project activities were designed.

Capturing existing market values for local populations: the cases of Champassak, Lao PDR

In Lao PDR's Champassak landscape *Scaphium macropodum* is a particularly high value tree, as it yields the commercially-important Malva nut (*Mak Jong*). As the tree cannot be successfully domesticated, it remains a wild species – and the wish to secure the value of the Malva nut therefore serves as a major stimulus for the conservation of natural forest areas. Yet markets and prices did not allow local populations to effectively capture these values: trees were an open access resource, harvested by more powerful outsiders who cut down whole trees, thus destroying the forest resource base. Low quality and immature nuts were being harvested, and so the market prices obtained were also low. The LLS intervention acted to create a management system which controlled access to the trees, instituted harvesting fees, and secured greater control – and value-added – for local villagers in this important market.

Capturing market values for local populations: the case of Bougnounou-Nébiélianayou, Burkina Faso

A major problem in the Bougnounou-Nébiélianayou landscape in Burkina Faso was that non-timber forest products had not been taken into account in forest planning and management practices. LLS interventions aimed to enable local communities, especially women, to capture income from honey, Shea butter, *soumbala* (a food condiment made from the fermented African locust bean) and grass fodder. Efforts were made to enable sustainable harvesting within forest reserves, improve access to markets and value-added opportunities (such as processing), and achieve better prices. Recent data show that not only has this substantially increased financial incentives for sustainable forest management in the locality, but it has also had an appreciable multiplier effect at the local level, leading to wide-scale improvements in socio-economic status. Women involved in NTFP marketing have for the most part invested the income earned on healthcare,

improved foods and their children's education – examples of the kinds of investments that can help local households to reduce, not merely alleviate, their poverty.

Strengthening value-addition in market chains: the case of Acre Province, Brazil

The Reserva Extrativista Chico Mendes in Brazil is a forest landscape that is managed both to protect the livelihoods and cultures of the people that live in it, and to ensure the sustainable use of its natural resources. Working with local cooperatives, LLS helped to strengthen and increase value addition in market chains for wood, rubber and Brazil nut. Interventions aimed at improving processing, production quality, sales volumes, marketing and management administration allowed the cooperatives to better access regional and global markets for certified timber and non-timber forest products. The concrete results of these activities include a 56% increase in returns from rubber production, a rise of 73% in average family returns from timber, and 50% addition to household income from rubber.

Providing economically attractive livelihood alternatives: the case of Lachuá, Guatemala

Sometimes forest users and managers are not able to access the economic opportunities and markets that would enable them to shift away from unsustainable landscape management practices. With pressing needs for income and employment, forest communities often have little alternative but to engage in unsustainable – but profitable – land and resource uses. The situation in Guatemala's Lachuá landscape was typical of that found in many other parts of the world. The key problem for local landholders was low returns from farming, combined with a lack of substitutes for environmentally-degrading economic activities. LLS interventions worked to promote a variety of new production alternatives which were both profitable and conservation-oriented. These included cardamom agroforestry, beekeeping, handicrafts, rice cultivation, ecotourism, reforestation and use of non-timber forest products. These provided an important means of livelihood diversification. At the same time, the project worked to create a business platform and foster strategic alliances with the private sector and cooperation agencies, to develop value-added in the production and marketing chain and increase the value of sustainable livelihood alternatives.

Creating new markets for forest services through PES: the cases of Lachuá, Tacaná, and Miyun

Over recent years, payments for ecosystem services (PES) have begun to emerge as an increasingly common response to the failure of markets and prices to compensate for sustainable forest management. LLS activities have supported efforts to create PES schemes in forest landscapes, particularly those associated with watershed protection. In both of the Guatemala sites, this involved helping forest communities to tap into national-level initiatives that provide concrete local incentives for forest landscape conservation. Households in Lachuá were assisted in joining the PINFOR (Programa de Incentivos Forestales) scheme, which uses a 1% share of public tax revenues to make flat-rate monthly payments to farmers to conserve forest plots. In the Tacaná watershed, small forest landowners with no legal property rights are now able to benefit from the PINPEP (Programa de Incentivos para Pequeños Poseedores) programme, which sets aside 0.05-0.1% of the national budget to make per-hectare payments for reforestation and forest regeneration, forest production and forest conservation activities. Support to the design of more effective PES mechanisms has also been a focus of activities in the Miyun landscape in China. Here, LLS has been working with the government to improve and extend the state-led 'eco-compensation' scheme, which rewards villagers for participating in forest protection and restoration activities in Beijing's watershed.

Leveraging broader gains from market integration: REDD+ in Ghana, Guatemala, Sudan and Uganda

The case of REDD+ provides a particularly good illustration of how opening up local participation in one set of income and employment opportunities helped community members to access additional markets. The project landscapes in Ghana, Guatemala, Sudan and Uganda have all been identified as potential REDD+ pilot sites. The fact that, within the context of LLS interventions, communities demonstrated their ability to successfully enter into new markets and businesses, helped to generate the publicity and confidence that was required to attract the attention of other agencies and outside investors.

Economic policies tend to discriminate against forest landscapes and livelihoods

Although it is of key importance to address the direct causes of landscape and livelihood degradation – for example agricultural encroachment, unsustainable logging or lack of alternative income and employment opportunities – it is also necessary to work on the structural factors that cause them to occur in the first place. Interventions which only deal with proximate causes may do little in terms of finding permanent solutions to the economic, policy and market failures that underlie forest loss, weak markets and insecure livelihoods (SCBD, 2001).

Governments use a wide range of economic, financial and fiscal instruments to stimulate particular investments in forest landscapes and to encourage certain and often unsustainable land and resource uses, so as to achieve a given set of policy goals. These economic policies were not working effectively to promote sustainable landscape management in many of the LLS sites. In the worst case, they were actively discouraging it, by making it more profitable for producers, consumers and investors to engage in environmentally-destructive activities, and favouring sectors and markets to which the poor had no access. For example, in Sudan, the excessive taxes being charged on forest and tree products acted as a disincentive to local entry into forest markets. A similar situation pertained in India's Orissa landscape, where local taxes on *Sal* leaf products undermined value-addition and made local traders uncompetitive as compared to neighbouring Jharkhand and West Bengal, which offered exemptions on sales tax. In Acre, Brazil, a history of subsidies to agriculture and cattle production had long been an underlying cause of deforestation.

It has long been recognized that economic policies constitute one of the most pervasive root causes of forest degradation (see, for example, Kaimowitz *et al.*, 1998; Reed and Sheng, undated). The removal of subsidies, unfair taxes and other perverse incentives can both overcome many of the barriers to local market participation and increase substantially the gains from sustainable forest management (see, for example, Macqueen, 2007; Scherr *et al.*, 2011). Acting on these higher-level policy failures, however, constituted a major gap in LLS. Activities did not for the most part focus on policy *formulation* or on changing the systems of perverse incentives that underlie forest landscape and livelihood degradation. They were concerned more with finding ways to counterbalance or correct for policy, market and price failures, and worked on improving the *implementation* of forest sector and other policies. The ways in which LLS interventions helped to foster the better application of current policies, markets and administrative arrangements is discussed in the next section of the paper.

Market solutions alone are not sufficient to overcome economic barriers

Economic forces and conditions remain a powerful cause of forest landscape and livelihood degradation. As described in the previous sections, LLS experiences demonstrate that what are essentially economic problems do require economic solutions. However, equally importantly, it has become clear that the success of interventions depends on there also being arrangements in place to equip and empower forest producers, consumers and investors with the rights, responsibilities and information that will enable them to participate in these markets and benefit from these incentives.

As has been noted by many other authors (see, for example, Davies and Richards, 1999; Gregersen *et al.*, 1998; Scherr *et al.*, 2011), market solutions are often necessary to improve the status of forest landscapes and livelihoods, but alone they are rarely sufficient. One very basic precondition that makes markets feasible and accessible to the poor is that ownership of forest goods and services must be enabled and defined (PROFOR, 2004). Without secure property and access rights, people have little incentive to invest in the forest management arrangements, technologies and markets that would potentially increase the returns from sustainable land and resource use (Angelsen and Wunder, 2003). Critical issues include the distribution of property rights, the ability of local people to claim and enforce such rights, market transparency, access to information, and the capacity to self-organize (Ruiz-Perez and Byron, 1999).

Most of the market-based interventions in LLS were enabled and reinforced by the use of non-economic tools aimed at improving the enabling environment. In the Champassak landscape in Lao PDR, for example, market and price interventions targeting the Malva nut were combined with work on developing management regulations for nut harvesting, and strengthening local organization. In Guatemala's Lachuá landscape, land tenure regularization was an important precondition to farmers taking up new livelihood alternatives and participating in PES schemes. In Brazil, work on timber and non-timber product certification and marketing was accompanied by support to the organization, administration and management of cooperatives, as well as training in new production techniques and technologies.

Experiences from other LLS field sites also illustrate the importance of combining different approaches so as to create both the necessary and the sufficient conditions for sustainable landscapes and livelihoods – and exemplify the way that economic and non-economic tools can work together to mutually reinforce each other. Three preconditions emerged as being especially important to the success of market-based interventions:

- Organizational and management capacity, as in the case of Gedaref and Kassala landscapes in Sudan.
- Information and awareness, as in the example of Mount Elgon, Uganda.
- Legal and regulatory frameworks concerning forest and land tenure and rights, as in the case of the Wassa Amenfi landscape, Ghana.

Strengthening business organization and market information: the case of Gedaref and Kassala, Sudan

The LLS project made significant steps forward in overcoming these market barriers in Sudan's Gedaref and Kassala landscapes, working on Gum Arabic, woodfuel, Doum palm leaves, and the fruits of *Balanites*, *Zizyphus*, *Adansonia*, Tamarind, and *Grewia tenax*. Micro-credit and small loans schemes based on a revolving fund proved to be particularly important in enabling farmers to access markets. However, market-based interventions, by themselves, were not enough. What enabled them to succeed was being able to overcome the structural reasons which were hindering people's access to markets: informational and technical aspects, and – perhaps most importantly – the organizational structures which would enable primary producers to cooperate in scaling-up production and sales, and negotiating the best prices for their products.

Securing rights to use and manage assets: the case of Mount Elgon, Uganda

The focus of LLS activities in Mount Elgon was on developing markets for locally-produced milk, honey and non-timber forest products, as a means of increasing the value-added that could be gained from small land areas in an ecologically sustainable way. However, without fundamental changes in the way that local people were permitted to use and benefit from lands and resources, it is doubtful whether these economic improvements could have been achieved. Governance and legal reforms were also required, in order for people to be able to access and benefit from markets. Of particular importance were the local by-laws that were formulated to govern land-use rights outside the forest, and the collaborative resource management agreements that were negotiated for resources inside the National Park.

Formalizing local control over productive resources: the case of Peam Krasop, Cambodia

While the causes of ecosystem degradation and loss in Peam Krasop wetland sanctuary were largely economic in nature – over-fishing, often using destructive equipment and techniques, combined with the clearance of mangroves and natural vegetation – a host of other factors prevented communities from participating in more sustainable economic activities. In particular, community members had no means of controlling outside use of local resources, or of enforcing sustainable management practices. With LLS support, a management and zoning plan for the sanctuary was developed with the active involvement of local villagers, formalizing community management and use of fishing areas, and securing better access to the emerging tourism industry. This, in turn, looks set to increase livelihood opportunities for poor local residents by supporting their entry into a more diverse and sustainable range of livelihood activities that can act to increase cash income, and reduce pressure on local fisheries.

Catalysing effective policy implementation: the case of Wassa Amenfi, Ghana

In Wassa Amenfi West landscape in Ghana, tree product marketing provided a potentially important economic incentive for forest conservation. Farmers' lack of ownership over trees on their land had, however, long been a problem. Responding to recent legal changes which allowed landholders to claim ownership over the trees that they had planted, LLS worked to support to farmers in registering their trees. A system for certifying private trees on private land was developed, meaning that farmers were willing to invest time and resources in tree planting. This was not motivated by the expectation of an immediate increase in income, but concerned the establishment of private trees which would be of considerable value when they mature and are harvested. It encouraged people to plant trees with economic value for the future.

Conclusions: using economics, markets and incentives at the landscape level

This paper aims to document learning in two main areas, through a review of experiences gained in different LLS countries and sites in Africa, Asia and Latin America: to investigate what the application of a 'landscape approach' means in economic terms, and to test whether the assumptions that had been formulated at the start of LLS had been borne out in practice. In the light of the economic and financial barriers that exist to locally-controlled forest management, the paper questioned how markets can be used to generate incentives to share forest benefits more equitably and sustainably, and which kinds of approaches and 'packages' of interventions can assist in this.

With regard to the development and application of economic aspects of the 'landscape approach', a number of common themes have emerged across different sites and countries. The overarching lesson learnt from LLS is that **conventional economic methods, instruments and policies have often served to marginalize forest landscapes and livelihoods**. This is because they give little emphasis to the costs and benefits that accrue outside formal markets. As a consequence, they also fail to consider adequately the groups that depend or are impacted by these values, especially the poor.

The paper has described how **under-valuation in decision making has acted against forest livelihoods and landscapes**. Conventional economic approaches tend to exclude the livelihood benefits and broader environmental values that forest landscapes yield – and as a result have often resulted in market, policy and management decisions that marginalize the groups that depend and impact most on forests. LLS's country experiences point to three particularly critical issues that can arise when a narrow concept of value is applied, which need to be addressed in landscape approaches. They show that economic assessment should account for local-level economic benefits as well as commercial values, address the linkages and trade-offs between different uses, user groups and levels of scale, and consider both the distribution of forest values and the broader development impacts of different management arrangements.

Market and price failures, especially as they relate to capturing sustainable forest values, have been highlighted as another barrier. The continuing low profitability of sustainable forest production and management, combined with difficulties in capturing value at the local level, act as major barriers to forest landscape conservation and poverty reduction. In contrast, developing and improving forest markets so as to help rural populations to better benefit from sustainable trade can act as a powerful incentive for long-term improvements in landscape and livelihood status. LLS's country experiences demonstrate five ways in which markets and prices can be improved for the benefit of forest landscapes and livelihoods. These are: helping rural populations to better capture values in existing forest markets, strengthening value-addition in market chains for sustainable forest products, enabling forest users and managers to access emerging economic opportunities and markets that would enable them to shift away from unsustainable landscape management practices, creating new markets for forest goods and services which reward for conservation-oriented practices, and using market development to leverage other investment and market flows to the rural poor.

The ways in which **economic policies discriminate against sustainable land and resource uses, and often undermine the livelihoods of the poorest**, have also been described. Economic policies and instruments often make it more profitable for producers, consumers and investors to engage in environmentally-destructive activities, and favour sectors and markets to which the poor have no access. The removal of subsidies, unfair taxes and other perverse incentives can overcome many of the barriers to local market participation, and increase substantially the gains from sustainable forest management.

The fact that **market solutions, alone, are not sufficient to overcome economic barriers** has been an important conclusion of the paper. Although what are essentially economic problems do require economic solutions, alone they are rarely sufficient. Arrangements must be in place to equip and empower producers, consumers and investors with the rights, responsibilities and information that will enable them to participate in these markets and gain from these incentives. Experiences from LLS field sites illustrate the importance of combining different approaches so as to create both the necessary and the sufficient conditions for sustainable landscapes and livelihoods – and exemplify the way that economic and non-economic tools can work together to mutually reinforce each other. Three preconditions emerged as being especially important to the success of market-based

interventions: organizational and management capacity, information and awareness, and legal and regulatory frameworks concerning forest and land tenure and rights.

The implication is that much of the rather narrow economic thinking that has traditionally informed forest sector policies, investments and management approaches has at best been based on only partial information, and in the worst case has been fundamentally flawed in terms of the options and choices that it points to as being the 'best' or 'optimal' in conservation and development terms. The resulting market, price and policy conditions do little to provide incentives for more equitable and sustainable development, and may even incur substantial economic costs and losses – often to the poorest and most marginal groups in the economy. **Clearly, a much more inclusive approach to recognizing, counting and capturing forest values is needed. This is what a 'landscape approach' requires, and implies, in economic terms.**

Experience at the site level shows us that radical changes are sometimes required to put forest livelihoods and landscapes on the economic map. Major legal, policy and governance reforms are undoubtedly still required. But, in many cases, a great deal can be done to foster better application of existing policies, prices and markets. Relatively small investments in breaking down the economic and financial barriers to more sustainable forest management and livelihood development can catalyse substantial gains – as is amply demonstrated in many of the LLS country projects. An important lesson is that **interventions in markets and incentives at the local level can leverage significant improvements not just in the status of forests and livelihoods of forest-dependent populations, but also for many other groups and sectors, at multiple levels.** Along the same lines, experiences gained in many of the LLS sites indicate that failing to invest in locally-controlled forestry may ultimately undermine broader, economy-wide, poverty reduction and sustainable development goals.

LLS activities have demonstrated the need to get the markets and incentives that shape people's economic behaviour and opportunities 'right'. However, they also underline the importance of non-economic factors in enabling particular forest management and sustainable development outcomes. Equally importantly, success depends on there being the administrative, legal and institutional arrangements in place which will equip producers, consumers and investors with the rights, responsibilities and information to enable them to participate in markets and benefit from incentives. Economic and financial conditions remain a pervasive reason for the deterioration of both forest landscapes and livelihoods, and in turn provide a critical set of tools which can help to overcome these problems. But, although necessary, these tools are rarely sufficient to achieve positive outcomes if used in isolation – markets and incentives, alone, are only one part of the solution.

These assumptions and change hypotheses that relate to the need to simultaneously address the non-economic barriers to markets and incentives therefore appear to be largely valid. The development of markets and incentives via LLS interventions has been both enabled and strengthened by parallel activities which deal with governance, rights and responsibilities. While few of these interventions might have resulted, alone, in an appreciable change in the status of forest landscapes and livelihoods at any of the project sites, it is their use in combination that has lent strength to LLS efforts. This is undoubtedly the essence of a landscape approach: taking an integrated perspective, which works on addressing the multiple forces, factors and trade-offs that influence the status of forest landscapes and livelihoods.

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