UNEP Policy Series

ECOSYSTEM MANAGEMENT

Issue 5 August, 2011

Sustaining forests:
Investing in our common future

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Introduction

Every day forests provide benefits vital to life on Earth and to the quality of human life in particular. Currently, some 410 million people are highly dependent on them for subsistence and income, and 1.6 billion people depend on forest goods and services for some part of their livelihoods.[1] In a more general sense, the entire global population depends on forests for their carbon-sequestering services. Forests have always been crucial to human life and economies, and they will become increasingly significant as the global human population grows by another 30 per cent – to 9 billion people – by mid-century. At the same time, our forests face many threats as a result of unsustainable use. As we move forward, our forests must play a critical role in supporting the growth of a global green economy.[2] Innovative solutions, however, must be found to ensure sustainable forest management in the face of the many threats at hand.

This policy brief seeks to outline how forests can be a key part of a green economy that provides opportunities for innovative solutions to forest management. Forests are key assets in the structuring of a green economy as they provide a wide variety of services, including ecological infrastructure, which comprises public goods such as water and carbon regulation and tradeable goods such as timber, fibre, biomass and non-timber forest products. They also act as a source of livelihood, natural insurance, adaptation, employment and health services. Focusing on forests helps draw attention to the importance of creating a green economy at the local, regional and global levels.

The emergence of a green economy provides an opportunity for the development of innovative market and policy solutions that assign appropriate value to forests for the wide variety of benefits that they provide to people while also promoting long-term sustainable forest management. Innovative policies that create markets and present forests as investment-worthy assets within the economic system will attract new investment in forest management and conservation from both the public and private sectors.

In this brief we first provide an overview of the many values of forest assets before reviewing the complex issues that threaten forests globally and lastly looking at the emerging innovative market and policy solutions that can promote long-term sustainable forest management and contribute to a green economy.

Over 410 million people directly depend on forests for subsistence and income. Another estimated 1.6 billion people indirectly depend on forest goods and services for their livelihoods

[1] *Sustaining Forests: A Development Strategy,* World Bank 2004; World Resources 2005: *The Wealth of the Poor—Managing Ecosystems to Fight Poverty,* Washington, D.C.: WRI.

[2] UNEP defines a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low-carbon, resource-efficient and socially inclusive.

I. Multiple values of forest assets

The annual value of internationally traded forest products is between $150 billion and $200 billion

Standing forests have potential carbon sequestration rate of 1.1 to 1.6 Gt per year

As natural capital in a green economy, forest assets are important at many levels and in many sectors, and constitute the source of significant benefits to people, ranging from providing subsistence to mitigating the impacts of climate change. At the local level, forest-dependent communities benefit from having access to materials such as timber, medicines and wood for fuel. Furthermore, forests provide many communities with their only means of gaining access to formal markets. At the regional level, forests are instrumental in the provision of key ecosystem services such as water regulation, soil stability, flood mitigation and air quality. At the global level, forests make an important contribution to economic development, biodiversity and climate regulation. Wood and manufactured forest products add more than $450 billion to the world market economy each year, and the annual value of internationally traded forest products is between $150 billion and $200 billion.

Besides providing wood and other products, forests are home to much of the world's terrestrial biodiversity, which in and of itself provides benefits for gene pools, pharmaceuticals and other unique and highly valuable goods and services. Forests also contain large amounts of sequestered carbon and their destruction or degradation (especially by burning) is currently estimated as accounting for 12–15 per cent[3] of all carbon gas emissions into the atmosphere. In addition, through natural carbon capture and storage, terrestrial forest ecosystems contribute to the planetary carbon cycle by storing more carbon in their soil and organic material than is currently stored in the atmosphere and playing an important role in the human response to the challenges of the changing climate.

A. Environmental values: from global to local

The environmental values inherent in forest assets range from global to local levels:

(a) Global medical innovation: Many medical products in common use today would not exist without the presence of forests, and pharmaceutical companies are engaged in searching forests for ingredients for new drugs and other medical innovations;

(b) Global climate change: Forests play a major role in sequestering carbon dioxide as a way to reduce the impact of global climate change. Globally the overall carbon storage of forests constitutes 54 per cent of the 2,200 gigatons of the total carbon pool in terrestrial ecosystems. Standing forests have an average maximum potential carbon sequestration rate of 1.1–1.6 gigatons per year, including above and below ground pools;[4]

(c) Regional climate regulation: Forests act as massive water pumps through water transpiration. Loss of forest cover has been linked to regional climate change in both temperate and tropical forest systems. These losses contribute to

[3] G. R. Van der Werf et al.: "CO2 emissions from forest loss", Nature Geoscience vol. 2 (11):737-738, November 2009; http://www.falw.vu/~gwerf/publications/vanderWerf2009NGeo.pdf.

[4] See: http://accessipcc.com/AR4-WG2-4.html.

environmental tipping points such as drought and insect epidemics and increased natural hazards, such as fire, that further contribute to climatic shifts;[5]

(d) Regional sediment control: Forests help to produce clean water in rivers and streams by reducing sediment loss from watersheds, particularly those caused by intense rain events that occur on steep slopes;

(e) Regional water regulation: By promoting the infiltration of water into soils, forests help to maintain a more even flow pattern in rivers, thus reducing the threat of flooding while helping to maintain higher base flows during the dry season through promoting slower sub-surface water flow. Forests can reduce the risk of landslides, improve local and downstream water quality, promote aquatic health, including in fisheries, and maintain the quality and clarity of coastal water;

(f) Local soil fertility improvement: Forests help to provide inputs for healthy soil and nutrient cycling, while preventing soil loss at the local level. Agroforestry, as opposed to slash and burn systems, has been shown to increase agricultural production and decrease soil losses;

(g) Local timber and non-timber forest products: Forests can be locally managed to provide a sustainable supply of timber and non-timber forest products such as tropical nuts, rubber and rattan both for local use and also for global export markets. Non-timber forest products are now recognized for the important role that they play in the livelihoods of the many relatively poor households who live in or near forests, especially in the tropics;[6]

(h) Local viable wildlife populations: Forests provide the habitat for many wildlife species of local and global importance that could provide the basis for an economically productive ecotourism industry.

B. Productive asset in the provision of market and non-market goods

In addition to the environmental value of their ecosystems, forests also have the productive capacity, akin to a kind of green factory, to produce various traded products with recognized economic value, such as timber, woody biomass and fibre, in addition to other subsistence products such as food, shelter and wood for fuel, that do not form part of the formal economy. Forest industries include the production of wood and paper, the production of energy from biomass, and the production of other non-wood forest products such as nuts, honey and rattan. These products meet many levels of demand, including for subsistence activities at the local level and also for export to global markets.

It is these forest products that are most widely recognized in the global economy, and they can play a major role in a green economy. The long-term productive value of the forests that currently produce these outputs, however, is not reflected in the market and consequently their true worth remains under-recognized. Consequently, forests are often destroyed in attempts to extract a flow of goods in the short term, and in

In addition to the environmental values that forest ecosystems provide, forests have a productive capacity, like a green factory, to produce various tradable products with recognized economic value

[5] See: http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter4.pdf.

[6] Erin O. Sills et al.: "Nontimber Forest Products in the Rural Household Economy", in: *Forests in a Market Economy,* Kluwer Academic Publishers, Boston, 2003, pp. 259–281.

some cases more competitive sectors, such as agriculture, which have more immediate market benefits, are prioritized to the detriment of forests. If forests could be revalued and efficiently managed, would be able to produce for greater goods in the long term. While the commercialization of forest products is unavoidable from the point of view of livelihoods, it must be carried out in a sustainable manner. If sustainable systems of forest production are set up, market forces can be used to decrease deforestation and increase investment in sustainable land management, strengthen forest sustainability, store carbon and increase the well-being of human communities.

In the United Republic of Tanzania, for example, through a United Nations Environment Programme/United Nations Development Programme initiative on climate change adaptation and development (CC DARE),[7] the use of smallholder woodlot management practices as a strategy for climate change adaptation has created a new stream of income for local communities, along with revenue for Makete city, while enhancing resilience in the face of climate vulnerability. This has brought both economic and environmental benefits to the local community, helping producers to increase their incomes and enabling the Makete district government to achieve a 64 per cent increase in council revenue for 2009 and 2010 from the collection of royalties from timber sales. The creation of new sources of income has triggered the establishment of community savings and credit societies that provide financial credits to low-income people, using their woodlots as collateral. This has brought about inclusive growth and encouraged members to set up savings and credit operations and loans to finance income-generating activities. The evidence of these benefits has increased the interest of the national Government in expanding climate change adaptation measures that improve rural livelihoods and the economy as a whole.

C. Resilient development: forests as a source of livelihoods, health and poverty reduction

Many of the world's poor depend on forests for their livelihoods. Unfortunately, rural development strategies often neglect forests because they are mistakenly viewed as being outside the mainstream of agricultural development. Forests are a form of natural capital providing indispensable resources and benefits, essential for human survival and economic activity. Conservation and production must coexist if the full potential of forests for poverty reduction is to be realized. On the basis of sustainable management as part of a green economy, forests can and should play a significant role in realizing the target under the Millennium Development Goals of halving the number of people living in absolute poverty by 2015.

In this context, forests offer the following benefits:

(a) Source of employment: The forest sector employs some 10 million people worldwide and sustainable forests can meet the livelihood needs of local

[7] See: http://www.unep.org/greeneconomy/v2/SuccessStories/WoodlotManagementinTanzania/tabid/29893/Default.aspx; www.ccdare.org.

communities. The management and control of forests at the local level must be improved, and the need for survival should not be allowed to cause communities to damage forests;

(b) Natural insurance: The productivity of forests can endure from decades to centuries, and sustainable management can ensure that much more of their value can be stored from year to year. This can act as a buffer, protecting local communities from the impact of the cycles of good and bad years that can occur in agricultural and grassland systems. While it must be accepted that there is volatility in any market, forests offer a range of market and non-market goods and services that have the capacity to endure;

(c) Energy: In a rural context, there are essential human livelihood needs such as home heating, cooking and food, which, for their basic functions, are dependent on the use of forest resources. The health and well being of the world's poor is both directly and indirectly influenced by the availability of and access to forest resources. It is estimated that more than one third of the world's population – 2.4 billion people – rely on biomass energy (wood, crop residues, charcoal and dung) to prepare meals, boil water and heat and light homes. Of this figure, some 1 billion face shortages as sustainable supplies of wood for fuel diminish;

(d) Climate adaptation: Forests have the potential to reduce the vulnerability of communities to climate change impacts by protecting settlements from natural hazards and supply interruptions and enhancing livelihoods and food security, while also playing an important role in the adaptation of national economic sectors. Conversely, degraded forests and insecure flows of forest ecosystem services can make communities and sectors more vulnerable to climate variability and change and lead to increased adaptation costs.

(e) Health: Forests are a source of many medicinal products and continue to provide new treatments and cures as their caches of biodiversity are explored by traditional and western medicine.

II. Threats to the world's forests: a complex policy problem

The complexity of problems underlying deforestation and forest degradation, is a barrier to incorporating forests as an integral part of a green economy. Significant resource flows, expressions of international concern and political pressure notwithstanding, the forest sector remains one of the most challenging areas in the development of community and global public policy. A combination of failures in the markets policy, governance and institutions have led to shortfalls in the potential of forests to realize their true potential in the reduction of poverty, the promotion of economic growth and increased contributions

The main threats to forest management come from market failures, lack of financial mechanisms, and the cost of doing business. These failures mask environmental, economic and social costs, encouraging externalities such as deforestation and degradation

Incentives to harvest forests for short term benefits can seem more attractive than the long term benefits provided by a sustainably managed forest, so producers often liquidate these assets for short term gain.

This perverse economic structure represents a failure of the market to reflect the true value of forests

to the local and global environment. these failures allow environmental and social costs to be economically invisible to the market, and encourage externalities such as deforestation and degradation. The specific underlying causes of forest loss are complex, touching on issues as diverse as international trade, rural development, agricultural policy, indigenous property rights and lack of financial mechanisms.

A. Market failures, financial mechanisms and costs of business

Policies and financial mechanisms can be used to reward sustainable land use helping to 'internalize' the environmental and social costs of forest degradation

Forests suffer from multiple market failures in that neither the benefits that they produce nor the costs of their destruction are visible in economic terms. Because the public goods and services that forests produce are either undervalued or are not captured by traditional markets, the owners of those assets are not rewarded for providing them. Consequently, those owners do not take such values into consideration when making decisions about forest use. Because the incentives to harvest forests for short-term benefits outweigh the long-term benefits provided by forests that are sustainably managed, producers seeking the maximum return possible often liquidate these assets for short-term gain. The current economic system usually fails to recognize the value of the existing natural forest capital with its potential to provide continuing services and cash flows.

While the costs of deforestation often appear invisible in that they are not accounted for in the economic system, they do exist. Local and international buyers seeking to maximize their financial returns create a demand for low cost products, which in turn favours production methods which externalize environmental costs. In reality, these costs are paid for disproportionately by the world's poor. In many cases the consumers of forest outputs who benefit from cost reductions due to the externalization of costs are not the same persons as those who pay the costs. Costs and benefits are borne by different parties.

To remedy this asymmetrical allocation of costs, policies and financial mechanisms can be used to internalize environmental and social costs of land degradation, and benefits of sustainable production. Some positive externalities are now being compensated through the use of payments for ecosystem services (PES), a class of mechanisms that seek to provide recognition of the broader values and benefits that nature confers on people. For example, at the regional level, PES regimes have been established whereby downstream water users pay people upstream to improve their management practices to ensure delivery of clean, regular water flows. On the other hand, policy can also be used to require producers to pay the full price of sustainable production (internalize costs) by requiring responsible, certified procurement of forest and agricultural products. These policies would create demand and force payment of environmental expenses. Such policies (like the Lacey Act[8]) are difficult to enforce however and more attention is needed in this area.

[8] A groundbreaking law by which the United States of America banned the trade in illegal plant products, including wood, sending a powerful signal through the global timber sector and reinforcing law enforcement and governance in countries where there is a significant problem of illegal logging and trade.

Internationally, markets for carbon credits and other pioneering PES initiatives, such as carbon credits REDD+[9] and biodiversity credits, seek to set up global ecosystem service markets. Markets now exist for carbon credits, recognizing the benefits that forests and other ecosystems provide in regulating and stabilizing our climate. Other PES markets have been slower to develop, but REDD+ has the potential to revolutionize the planning and management of tropical landscapes and to take prompt action to tackle the issues of rapid climate change and biodiversity extinction. The significance of REDD+ in climate change mitigation is increasingly recognized in the formulation of policy, in the private sector, and in the science communities. To realize this potential it is essential to address the question of how effectively to attract transformative investments in the private and public sectors to enable the implementation of REDD+ mitigation activities. The word "transformative" here is taken to mean promoting a radical change in the way in which forests are managed, from more consumer-based uses of ecosystem goods and services (including timber, fibre, water and now carbon) to lessen negative impact patterns through the creation of alternative livelihoods, jobs and enterprises.

While the establishment of PES mechanisms to reward environmental services is extremely important, additional mechanisms are also needed at the national and regional levels to promote sustainable land use. In many cases, the prospective cash flows from PES transactions remain marginal in comparison to the forces driving actual investment decisions, meaning that, for sustainable landscape management systems to form a durable part of the green economy, projects and models must become economically viable on their own account. Simply lowering risk and the costs of doing business in desirable sectors will greatly facilitate small and large scale investment. Quite often, one of the strongest factors influencing the degradation of natural capital is the simple fact that it is cheaper to do business along the lines of the status quo. For instance, across the world, agriculture is the most important cause of deforestation. This is a sector supported by subsidies in both developed and developing countries, and in the developing world receives particular support in the name of poverty alleviation and food security.

Sometimes, however, the structure of these subsidies and regulations are perverse: blindly supporting the clearing of forestland for agriculture instead of supporting better management such as cover cropping or drip irrigation. In another example, forestlands are increasingly owned by rural communities or indigenous groups, and it is extremely difficult for these groups to gain access to finance, launch a business, or have access to markets for certified products. Improvements in these basic and sometimes mundane elements are key to making sustainable land use viable.

[9] REDD-plus strategies go beyond reducing emissions from deforestation and forest degradation (REDD), and include the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in reducing emissions.

For the emerging and innovative solutions to be effective, enabling conditions are necessary, e.g. good governance, best practices and monitoring frameworks

III. Innovative policy and market solutions for sustainable forest management

Integrating forests into a green economy will require innovative policy and market solutions that deal with the underlying complex causes of forest loss. Because forests offer public goods and services that may not be recognized in markets, it is appropriate for policymakers to direct funding and create policies that will enable sustainable forest management to be competitive in the marketplace. Innovative solutions are needed that will allow a departure from business as usual, create mechanisms for evaluating forests realistically and provide incentives for long-term sustainable forest management.

New markets for ecosystem services should ideally be supported by financial mechanisms such as soft loans and microcredit which compensate project developers for the higher risks and costs of doing business differently. An international system should be set up to ensure that countries are given incentives to produce forest-related public goods and services (such as carbon storage and biodiversity conservation) in a way that enables the owners of the forest assets that produce such goods to receive payment for them and be responsible for taking decisions on their use. The global community has an interest in the conservation of global forests and financial mechanisms must be created to channel this very diffuse global interest into local incentives for forest managers.

For these markets to function properly, it will be necessary to provide a full account of the wide range of benefits that forests offer, both for people and for biodiversity. This account will include not only the traditional forest products but also goods and services that are not covered by the market, such as climate adaptation services and natural hazard mitigation for the poor. Such an account of the real services that forests provide will reveal that in many instances it is much more efficient to invest in forests than to seek to replicate those services artificially.[10] In Viet Nam, for example, starting in 1994 local communities have been planting and protecting mangrove forests as a buffer against the impacts of storms and cyclones. Nearly 120 square kilometres of mangroves have been planted to date, resulting in substantial benefits such as the reduction of wave forces, storm damage and dyke maintenance costs. The cost of planting and protecting these highly valuable forest ecosystems amounted to $1.1 million but resulted in a saving of $7.3 million per year in dyke maintenance. It has also been estimated that 7,750 families have benefited from the mangrove rehabilitation activities through enhanced food security and earnings from the sale of crabs, shrimp and molluscs.[11]

Innovative mechanisms are being put in place to recognize the value of forests as productive natural assets that generate goods and services at the local and international levels. For these mechanisms to be most effective, however, they must be deployed within the context of good governance, best practices and a well developed monitoring framework.

[10] See: http://www.teebweb.org/ForPolicymakers/tabid/1019/Default.aspx.
[11] United Nations Environment Programme, 2007: *Global Environment Outlook (GEO)* 4: Environment for Development, Nairobi.

Some of these innovative mechanisms for the promotion of forest sustainability in the context of a green economy, together with the enabling conditions that would ensure their effectiveness are listed in the following sections.

A. Harnessing economics: creation and facilitation of markets and levelling the playing field

The following market and policy mechanisms can bring about radical changes that will enable the real values of forest ecosystems to be incorporated into markets.

(a) Ending incentives that encourage deforestation and degradation, such as agricultural subsidies for unsustainable products, or reforestation subsidies that make cutting down a forest then replanting it with non native species more profitable than leaving it standing. In many countries, development through land conversion is the norm.

(b) Permitting the stacking of biodiversity and carbon credits: Given the very high values of timber and alternate land uses (e.g., palm oil) in many tropical regions, initiatives such as REDD+ have the potential to revolutionize the planning and management of tropical landscapes and to catalyse timely action that jointly addresses rapid climate change and biodiversity extinction. It is unlikely, however, that REDD+ payments for carbon credits alone will result in better forest management practices. The stacking of multiple markets will help achieve biodiversity benefits under REDD+ and help these innovations compete in the market with the highly valued timber and palm.

(c) Promoting sustainable agriculture and agroforestry systems: Given that agriculture is the principal underlying cause of deforestation, it is important to restructure policies for agriculture and ranching that encourage more efficient performance. In the face of an ever-increasing population food security issues become of paramount importance and policies tend to favour unsustainable agricultural practices without dual consideration of their long-term impacts.

(d) Lowering the basic cost of doing green business to leverage private finance: This includes measures like streamlining licensing procedures and review times, accelerating the process of launching a green business, increasing data transparency, providing access to finance and simplifying tax systems. Specific industries could be identified as potential beneficiaries of any of those factors. Private-sector strategies to attract private finance should be formulated in the light of a thorough analysis of the barriers to doing green business in sustainable forest management and sustainable agriculture and ranching, or whatever activities drive deforestation.

B. Corporate engagement: certification, social responsibility and environmental mitigation hierarchy

Investment by corporations and multinational businesses in improved forest management and certification can provide economic benefits and enhance efficiency, as outlined below.

(a) Certification standards: the process of certification by organizations such as the Forest Stewardship Council (FSC) and other sustainable certification schemes should be made less costly or subsidized. Companies wishing to make the transition should be provided with subsidies, training or financing. It is also important to create a market for green products (see below) because FSC certification does not automatically result in price rises, and producers are usually unable to pass on to buyers the immediate up-front costs associated with change. Reduced impact logging could be an attractive financial proposition in areas where the benefits of less wastage outweigh the costs. The additional requirements entailed by certification, however, make it a rather unattractive prospect for most companies. Policymakers could reduce these costs or subsidize them.

(b) Provision of financial incentives such as tax incentives and price supports for sustainable forest management: experience has shown that certification schemes increase the cost of forest management (at least initially) and most consumers are reluctant to pay a premium for certified products. Policies can be used to either lower costs or increase prices received by a producer. This situation may change in the future as schemes become less costly and more feasible for poor people to implement, but in the meantime,financial incentives can drive consumer and producer behaviour on both sides of the market chain, thereby reducing barriers to entry.

(c) Support for the provision of finance and reduction of financial risk for sustainable forest management: this ranges from facilitating REDD+ flows into the country to helping smallholders obtain financing through mechanisms like risk guarantees. Governments should support green banking initiatives, which are becoming more prevalent within major international banks, both private and multilateral; some banks, such as the Inter American Development Bank, have green banking programmes helping commercial banks through technical assistance to provide new business lines that service sustainable land management.

(d) Lower domestic costs of doing business for sustainable producers: As mentioned in the last section, mundane costs of doing business can inhibit sustainable investments. For instance, environmental and commercial licenses take many years to process in many developing countries. It should be possible to combat this by creating a fast track system for environmentally desirable business activities.

(e) Corporate social responsibility endeavours: Partnerships should be encouraged

that help companies be more socially and environmentally sustainable. These include initiatives such as the collaboration between the Nature Conservancy and the Dow Chemical Company in enabling the latter company to recognize, value, and incorporate nature into its global business goals, decisions and strategies. The two organizations will work together to apply scientific knowledge and experience in examining the extent to which Dow's operations both depend on and have impact on nature. The aim is to advance the integration of the value of nature into business practices, and to plan actions to protect natural systems. More emphasis should be put on integrating nature's benefits into corporate sustainability and social responsibility, if the level of forest management is to be improved.

(f) Development by Design: the potential exists for the use of planning tools such as Development by Design to assist industry in spatial planning with a view to avoiding, minimizing, offsetting or mitigating the impacts made on forests by development and resource extraction (e.g., oil and gas exploration, mining, solar and wind power installations and additional infrastructure).[12]

C. Good governance: institutional strength and enabling conditions

Good governance is needed to provide the appropriate policy, technical, and management environment to deal with the underlying causes of forest degradation and provide a vision for sustainable forest management. Possible means of achieving this are suggested below.

(a) Institutions should be managed in an adaptable manner that allows for learning and flexibility in responding to environmental feedbacks given uncertain and changing environmental conditions. In order to respond to changing environmental conditions, the establishment of robust monitoring systems is essential. It is also important to create mechanisms and institutional capacity to evaluate and manage trade-offs with landscape approaches. Various forest management and adaptation strategies such as community forestry, agroforestry, intensification and green infrastructure, should be evaluated and assessed in terms of their feasibility, reliability, replicability, scalability and cost-effectiveness.

(b) The institutional and technical capacity for the implementation of REDD+ should be strengthened through training programmes and the distribution of information to ensure that robust institutional designs are in place. Implementation of REDD+ may require new cooperation between agencies or creation of new teams and adequate support needs to be given to ensure that these entities are functioning with a strong mandate and technical capacity. International sources of financial and technical support for REDD+ should be welcomed and given backing. The Forest Investment Program, a program of the Climate Investment Funds, is an example of the kind of international donor support available to some countries.

[12] J. M. Kiesecker et al.: "Development by design: blending landscape-level planning with the mitigation hierarchy", Frontiers in Ecology and the Environment, 8: 2010, pp. 261–266.

(c) Transparency should be promoted through land use data availability to all sector players and data generation: remote sensing and other resources can be made available to increase accountability, enable cash flows for conservation and facilitate enforcement.

(d) The basics of good governance should be upheld in order to support not just public institutions but also the strength of private sector solutions. Important aspects includes the rule of law, property rights and community engagement. A stable economic and policy environmental environment will lower risk and reduce the cost of capital, making it easier for private sector and business solutions to flourish and encouraging greater flows of investment into sustainable land management.

(e) Community engagement and property rights are important to safeguard. Communities, forest-dependent people and indigenous people exert control over the forest environment on a daily basis and are the keepers of traditional knowledge about the forests and their management. Their rights must be recognized and their efforts at sustainable management supported. The land tenure of local communities should be strengthened, and efforts should be made to guard against that might be termed the "elite capture" of financial flows from REDD+ and other new markets (whereby only politically and financially powerful parties receive benefits from ecosystem services whereas community forest owners do not). Stronger tenure provides an incentive to sustainable forest management because it allows land owners to receive compensation for providing public goods. Many studies show that the forests managed by indigenous and local peoples are among the best conserved forests;[13]

(f) A knowledge management system should be developed at the regional level to capture and build upon lessons learned and develop best management practices and enabling conditions for sustainable forest management and adaptation strategies. This knowledge management system should document the methodologies and procedures to be followed in obtaining various related certifications (ecosystem services, sustainable product certification).

[13] See: http://www.cifor.cgiar.org/nc/online-library/browse/view-publication/publication/2348.html.

IV. Conclusions

The emerging green economy provides a valuable opportunity to take due account of the economic values that forests provide to people. The complexity of the current threats to forests notwithstanding, the use of innovative market and policy mechanisms can internalize the true economic value of forests as productive natural assets that generate goods and services across the local, regional, and international levels, from basic livelihoods to the arena of international finance. Policymakers can strengthen the foundations of a green economy by promoting investment in forest assets. This can be encouraged through innovative policies in several categories:

(a) Harnessing economic forces

(b) Engaging with corporations

(c) Promoting good governance

Mechanisms of these type target social, economic and environmental benefits and are necessary to encourage the investment in forests that is integral to the success of a green economy.

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Acknowledgements:
We are grateful to Tim Kasten, Mario Boccucci, Ravi Prabhu, Niklas Hagelberg, Pushpam Kumar, Vijay Samnotra, and Levis Kavagi of UNEP, Krista Singleton, Jorge Gastelumendi, Jennifer McKnight, and Erin Myers Madeira of The Nature Conservancy, Maria Nijnik of the Macaulay Institute, Emilia Pramova of CIFOR, Rebecca Goldman of the Inter-American Development Bank, and Jamison Ervin of the UNDP/GEF/UNOPS global project on supporting country action for the Convention on Biological Diversity programme of work on protected areas, for additions and comments on different versions of this paper.

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