IUCN, PROFOR and the World Bank’s views related to UNFF-CBD collaboration
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ECOSYSTEM APPROACHES
AND SUSTAINABLE FOREST MANAGEMENT

A Discussion Paper for the UNFF Secretariat prepared by

The Forest Conservation Programme of IUCN, the Program on Forests (PROFOR),
and the World Bank

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"The difficulty lies not so much in developing new ideas, as in escaping from the old ones."
— John Maynard Keynes

Overview:

This paper is a submission from IUCN, PROFOR, and the World Bank in follow up to discussions held at the third meeting of the United Nations Forum on Forests (UNFF) on the relationship between sustainable forest management (SFM) and ecosystem approaches (EsA) - as applied to forests. It is also a response to a decision at the 6th Conference of the Parties of the Convention on Biological Diversity (CBD) seeking clarification of the relations between the two concepts.

The objective of this paper is to:

- Inform discussions at both the country level and within the UNFF and the CBD on the need for action or decisions to further the objectives of SFM and EsA.
- Suggest areas for further debate on the concepts of SFM and EsA to support the adoption of these concepts in national forest programmes.
- Clarify for all concerned forest interest groups the issues and opportunities for integrating some of the concepts underlying EsA into SFM for improved forest management.
Background:

Sustained yield forestry, sustainable forestry, and sustainable forest management represent a progression of basic forest management concepts that have a long history. The different terms refer to attempts to "sustain" the flows of different sets of forest goods and services. In general there has been a recent trend to greatly increase the range of goods and services for which "sustainability" is sought. SFM is the term currently used to describe approaches to forest management that set very broad social and environmental goals. A range of forestry institutions now practice various forms of SFM and a broad range of methods and tools are available that have been tested over time. Forestry institutions have adapted their skill mix and structures to address these new broader definitions of SFM and forestry-training institutions have also been evolving rapidly. University Forest Departments have often broadened their mandates or merged with other departments to form departments of "Natural Resource Management" or "Environmental Sciences".

The Forest Principles adopted at The United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992 captured the general international understanding of SFM at that time. A number of sets of criteria and indicators (C&I) have since been developed to evaluate the achievement of SFM at both the country and management unit level. These were all attempts to codify and provide for independent assessment of the degree to which the broader objectives of SFM are being achieved in practice.

A good definition of present day understanding of the term SFM was developed by the Ministerial Conference on the Protection of Forests in Europe, this definition has now been adopted by FAO. It defines SFM as:

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**Acronyms**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>C&amp;I</td>
<td>Criteria &amp; indicators</td>
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<td>CBD</td>
<td>Convention on Biological Diversity</td>
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<td>EsA</td>
<td>Ecosystem approaches</td>
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<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
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<td>ICDP</td>
<td>Integrated conservation and development project</td>
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<td>INRM</td>
<td>Integrated natural resource management</td>
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<td>IUCN</td>
<td>World Conservation Union</td>
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<td>MAB</td>
<td>Man and the Biosphere Programme</td>
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<td>SFM</td>
<td>Sustainable forest management</td>
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<tr>
<td>UNCED</td>
<td>United Nations Conference on Environment and Development</td>
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<td>UNFF</td>
<td>United Nations Forum on Forests</td>
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<tr>
<td>USFS</td>
<td>United States Forest Service</td>
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The stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems.

Throughout the world, trained professional foresters and forest technicians practice SFM to varying degrees. A vast literature exists and there is a very large body of accumulated knowledge and experience of how the diversity of management goals for forests can be met. Professional practice, science and the literature have made enormous progress in recent decades in addressing the requirement of many sectors of global society that wish to see the objectives of SFM broadened.¹

**Ecosystem Management as applied to forests.** Ecosystem management is a concept of managing entire ecological units in an integrated and holistic way. The term was first widely used in the 1980s discussions of the need for the more integrated management of coastal and marine resources, especially fisheries. In the late 1980s, a major public challenge to conventional forest management approaches in the USA Pacific Northwest was addressed by the adoption by the US Forest Service (USFS) of ecosystem management. A conflict resolution NGO, the Keystone Center, conducted a major series of public hearings to clarify and build consensus on precisely what ecosystem management entailed. A large body of literature was produced in the USA at this time on ecosystem management and ecological stewardship. An excellent synthesis of this was published in 1999 - *Ecological Stewardship - A common reference for Ecosystem Management* (Johnson et al 1999). This remains one of the best compilations of work on the application of ecosystem management to forests.

During the 1990s the Ecological Society of America produced a consensus document on ecosystem management. It is interesting because its definition of ecosystem management is narrowly focused on the management of ecological processes. It does not embrace the wide diversity of social and economic issues that were included in the USFS work or in the subsequent principles adopted by the CBD.

**The Ecosystem Approach**

The EsA has been prominent on the agenda of the CBD since the first SBSTTA and the second meeting of the conference of the parties in Jakarta in 1995. The CBD definition of the EsA and a set of principles for its application were developed at an expert meeting in Malawi in 1995 - the so-called Malawi Principles. The definition, 12 principles and 5 points of "operational guidance" were adopted by the COP5 in 2000. The CBD definition is as follows:

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The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. Application of the ecosystem approach will help to reach a balance of the three objectives of the Convention. An ecosystem approach is based on the application of appropriate scientific methodologies focused on levels of biological organization, which encompasses the essential structures, processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of many ecosystems.

The USFS work on ecosystem management and the Ecological Society of America definitions appear to have had surprisingly little impact on the CBD debate on EsA. In many respects the USFS use of ecosystem management is a logical progression from SFM. It is simply SFM defined more broadly and providing for more participation and management for a wider range of goods and services. It remains a managerial approach and is firmly anchored in a set of tools and methodologies to enable it to be operationalized. The CBD use of the term EsA is - as is stated - a set of general principles that can be applied in a wide range of circumstances. It is not linked to any particular operational approach nor does it contain a vision of clear targets. Sedjo's (1996) criticism of ecosystem management could also apply to the EsA; he says "Ecosystem management has no clear goals and cannot therefore be operationalized". Nevertheless, Smith and Maltby (2003) have made a first attempt at examining how the CBD understanding of the EsA might be translated in operational terms.

**The broader context:**

The emergence of the concept of EsA and the rapid broadening of the concepts of SFM must be seen in the context of a general trend towards greater integration of broader societal concerns in all natural resources management in recent decades. Debates similar to those that have occurred in relation to forests have also taken place in relation to almost all terrestrial and marine systems - both natural areas and heavily man-modified systems such as farms. A plethora of terms have been used to describe these more integrated approaches. Integrated conservation and development projects (ICDP) were attempted in many protected area management projects in the 1980s and 1990s and in many ways can be seen as a precursor of the EsA of the CBD. Integrated range, integrated river basin and integrated watershed management have much in common with SFM. The basic need to manage large complex natural systems in an integrated way was already rather well articulated in the UNESCO sponsored Man and Biosphere Programme (MAB) that was initiated over 30 years ago. MAB now has the endorsement of 186 UNESCO member states and is operationalized to a greater or lesser degree in 440 biosphere reserves in 95 countries.

At the same time that there has been a strong interest in integrating different forms of management of a single area of land there has been a parallel wave of interest in the problems of dealing with issues of spatial scale. There is recognition that the different
components of landscape mosaics combine to form a whole that is "greater than the sum of the parts". Interest groups ranging from agricultural researchers to conservationists are attempting to use the "ecoregion" as a unit of analysis. Many different groups are attempting to manage landscapes in an integrated way to achieve "multi-functional" landscapes.

Many scientists and resource managers are grappling with the difficult issues of the "scale-dependency" of sustainability. It is important to emphasize that "dominant use" and "multiple-use" are not necessarily competing site-level paradigms. They may be scale-dependent points on a continuum. In some situations sustainability may be best achieved by fine-scale integration of use across the entire landscape. In other situations, segregation of uses at fine or larger scales may provide the best outcomes. SFM has traditionally focused on the "fine-scale integration" model, EsA can accommodate both integrated and segregated models.

The concepts of eco-regions, landscape functionality, integration of conservation and development etc. are better reflected in the CBD EsA principles than in the definitions and C&I related to SFM. The SFM debate has been led by foresters, who often have mandatory responsibilities to produce goods and services profitably from land under their control. The EsA debate has been led by people more concerned with limiting the damage that resource extraction can do to natural resource systems. However, in spite of this, they must be managed.

Just as SFM and EsA have generated a lot of literature in the past decade, the moves to broaden the scope of the management of other categories of natural resources have also been thoroughly documented. There are guidelines and manuals on ICDPs, integrated management of a number of different natural resource systems, spatial planning and decision support tools, etc. One definition that is of interest in connection with both SFM and EsA is that used by the CGIAR for INRM (Sayer and Campbell 2004). It reads:

INRM is a conscious process of incorporating multiple aspects of natural resources use into a system of sustainable management to meet explicit production goals of farmers and other users (e.g. profitability, risk reduction) as well as the goals of the wider community.

This definition could be adapted to describe SFM and/or EsA, it has the attraction of referring to "explicit production goals" and the "goals of the wider community".

**Underlying trends:**

...
Forest laws and institutions evolved in simpler times. They were mainly driven by the need to protect timber and hunting "rights" of royalty and other national elites against the local subsistence needs of the peasants. The need to ensure the availability of large timber for building ships in Western Europe in the 17th and 18th Centuries has had a major impact on the development of forestry cultures throughout the modern world. Today's forestry institutions have to live in a very different world.

The global discourses on SFM and EsA must be considered in the context of a myriad of local innovations and initiatives in resource management systems. Many successful initiatives have included ideas that are reflected in the definitions and principles of SFM and EsA. They range in scale from community managed forests to the application of integrated management to large industrial timber concessions or cross-boundary protected areas. There has been considerable interest in protected areas in IUCN's categories V and VI - multiple-use categories that have many similarities to MAB biosphere reserves and respond to many of the innovative concepts that figure in the SFM and EsA discourse.

Some of the more important underlying trends that are creating the need for more integrated and holistic management systems for forests and providing the context in which SFM and EsA have to operate include:

1. **Broadening forest management objectives:** At all scales, from the community to the global enterprise, forest owners and managers are being urged to deal with a much broader range of social and environmental issues than in the past. A patch of forest can now be claimed to have "global values" that often do not correspond to the values perceived by local people. Society is making more explicit demands for longer temporal scales and broader spatial scales to be addressed in forest management.

2. **Codifying good practice:** Regulators, certifiers and civil society are developing C&I and other performance standards against which they can assess the "quality" of forest management or the "health" of forests. Governments want to apply norms and capture rents, local people want to defend rights and assets, and environmental groups want to foster resource conservation and best practice.

3. **Recognition of pluralism in forest management:** The reality that all forests are different is increasingly recognized and is accompanied by growing awareness that promoting a "single best" management system may be counter-productive. The predominant concept of a single best way to manage "state forests" is giving way to the recognition that there are many different systems of ownership and use of forests that are likely to be sustainable.

4. **Decentralization - devolution:** Although the locus of decision-making on some forest issues is moving from the national to the global level, many governments are decentralizing control of forests and divesting themselves of
forest assets. Responsibility for forests is being placed in the hands of regional, municipal and local governments and communities. Decentralized forest management systems are very good at achieving small-scale integration of specific forest functions but they may be less good at making sure that features of global value are conserved.

5. **Globalization:** In parallel with the moves to decentralize forest management the forces of globalization are having major influences on forests. Multi-national corporations, banks, trade regulations etc. all have big impacts on how forests are managed and they are usually out of local control. The number of international fora at which forest issues are discussed is proliferating. Some forest issues are the subjects of inter-governmental processes.

6. **Climate change:** The uncertainties created by the potential impacts of different climate change scenarios have major implications for forest conservation and management laws and institutions. Eco-climatic zones are shifting by hundreds of kilometres, new pest and disease problems are emerging, invasive weed species pose threats. Climate change adaptation will be the major challenge for all forest managers in the future. Climate change mitigation - through carbon sequestration - may provide some opportunities. The problems posed by managing forests in periods of rapidly changing climates are better addressed in EsA approaches than in conventional SFM approaches.

**Changing paradigms for forest management:**

The "drivers of change" listed above will require us to re-think conventional forest conservation and management paradigms. Institutional arrangements, organizational cultures, training and research must be adapted to address these new challenges. The concepts underlying ecosystem approaches are enriching the debate and may be challenging the forest conservation and management communities to reflect upon some changes to which, in many countries, they have shown some resistance.

It is going to be frustrating to attempt to capture and codify the richness and diversity of the changes occurring in forestry in a set of simple definitions and principles. A lot of energy can be wasted in discussions of semantics. It is important to focus international debates on those issues that need to be addressed internationally. Too much time should not be spent trying to fine tune international sets of principles of EsA or definitions of SFM to encompass the diversity of change that is occurring in the world’s forests. The principle of subsidiarity must be applied more consistently, and issues that can be achieved through local processes should not be attempted through international processes.

So far, this paper has attempted to show that SFM and EsA are emerging or evolving in response to a set of underlying driving forces. The paper prepared by FAO on
“Sustainable Forest Management and the Ecosystem Approach” (Wilkie et al 2003) carries the subtitle "Two Concepts, one goal“. Wilkie et al conclude that EsA and SFM are basically different ways of expressing the same ideas and that they only differ because they evolved from different origins. Alternatively, this paper suggests that they are not simply different ways of saying the same thing and that there are differences in both the scope of application and the underlying philosophies that do have major implications for how forests are managed.

A recent paper by Ellenberg (2003) provides additional useful ideas on the relationship between the EsA and SFM. He expresses the concern that the application of the EsA to forests would result in further layers of restrictive regulations. He portrays a scenario where foresters would be more subject to the concerns of "environmentalists" and would be forced to "jump through even more hoops" in order to exercise their profession. It is possible that a narrow interpretation of the EsA could manifest itself in this way. However, this is not inevitable and would depend upon how countries chose to apply it. It would be preferable if EsA were to be regarded as a different approach to decision making rather than an additional layer of regulation.

So, what really are the differences of these two concepts? Are SFM and EsA different approaches with a common objective? If not, how do SFM and EsA differ and what are the practical implications of these differences? The following table is an attempt to characterize the differences between SFM and EsA. It deliberately does not attempt a direct comparison between the CBD EsA with any particular SFM definitions, principles or criteria. It is based on a review of the more general literature on SFM and EsA, and tries to distill out some underlying differences of approach. Some of the characterizations may seem arbitrary and will be contested. The two terms are used so broadly that some people may feel that the simple characterization exaggerates the distinctions between the terms. This comparison is simply a starting point for discussion.

Table 1: Underlying characteristics of Conventional Forestry, EsA and SFM

<table>
<thead>
<tr>
<th>Conventional Sustained Yield Forestry</th>
<th>SFM</th>
<th>Ecosystem Approach (CBD 12 Principles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource management objectives as long-standing technocratic traditions and legal mandates</td>
<td>Resource management objectives incorporate a broader range of environmental and social objectives</td>
<td>Resource management objectives are a matter of societal choices</td>
</tr>
<tr>
<td>Resource management generally centralized under responsible forest management agency</td>
<td>Diversity of management options emerging but centralized forest agencies still the norm</td>
<td>Management should be decentralized to the lowest appropriate level</td>
</tr>
<tr>
<td>Management primarily concerned with the maintenance of commodity production and site</td>
<td>Traditional concerns with commodity production and site productivity amplified by concerns with</td>
<td>Ecosystem managers encouraged to consider the effects (actual or potential) of their activities on</td>
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</thead>
<tbody>
<tr>
<td>Productivity</td>
<td>Biodiversity conservation and managing key externalities</td>
<td>Adjacent and other ecosystems</td>
</tr>
</tbody>
</table>

**Economic approaches focused on costs of commodity production**

- Broader concerns often incorporated with changes to economic instruments - resulting in the problem of under-funded mandates and determining who benefits and who pays

**Long history of analyses on economic requirements for long-term crop production**

- Maintaining ecosystem structure and function a growing concern, but little emphasis on landscape linkages other than what is in key areas such as watershed protection

**Priority given to maintaining commodity prices**

- Work on standards and limits of acceptable change still under development for many key ecosystem attributes

**Management generally focused on forest management unit**

- Recognizes importance of both national and management unit considerations, but approaches to landscape

- Safeguarding ecosystem structure and function in order to maintain ecosystem services should be a priority

- Ecosystem must be managed within the limits of their functioning

- Recognizing potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context. Any such ecosystem-management programme should:
  a) reduce those market distortions that adversely impact natural resources;
  b) align incentives to promote sustainable use and conservation of natural resources, including biological diversity; and
  c) internalize costs and benefits in the given ecosystem to the extent feasible
<table>
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<th>SFM</th>
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</tr>
</thead>
<tbody>
<tr>
<td>level linkages are not strongly developed</td>
<td>Builds on history of long-term focus on commodity production with concern for a broader range of ecosystem attributes</td>
<td>Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term</td>
</tr>
<tr>
<td>Established history of a focus on long-term production objectives</td>
<td>Focus to date has been on establishing standards rather than adaptive management approaches</td>
<td>Change is inevitable and therefore management must have an adaptive approach</td>
</tr>
<tr>
<td>Production objectives often assume static demand and processing conditions</td>
<td>Attempts to make the balance of conservation and use for key forest values and services at both the management unit and national levels</td>
<td>EsA should seek the appropriate balance between, and integration of, conservation and use of biological diversity</td>
</tr>
<tr>
<td>Focus on sustainable commodity production</td>
<td>Traditional scientific and technological knowledge supplemented with broader stakeholder inputs</td>
<td>EsA should consider all forms of relevant information including scientific and indigenous and local knowledge, innovations and practices</td>
</tr>
<tr>
<td>Management based on scientific and technological knowledge regarding tightly focused production objectives</td>
<td>A broadening range of actors but conflict resolution processes often ad hoc or ill defined</td>
<td>EsA should involve all relevant sectors of society and scientific disciplines</td>
</tr>
<tr>
<td>Restricted numbers of actors with strong commodity production interests</td>
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Many of the contrasts that this paper draws between traditional forestry, EsA and SFM in the above table recall the new paradigms that are advocated in the modern management literature. The EsA column contains many of the elements found in the current wave of interest in learning organizations, the "knowledge" economy, adaptability, resilience and flexibility. Many forestry institutions have already embraced these ideas and in this sense have incorporated them into their forest management paradigms. In this sense they can be said to have already committed themselves to EsA. The critical question is "how much change is needed in forest conservation and management institutions?" Is there a danger that populist pressure will convert traditional forest institutions into more generalist environmental "talk shops"? Where will a critical mass of skills and knowledge of technical forest conservation and management be retained? Will the idealism underlying the EsA result in the de-skilling of forestry?
The fact that forest issues are discussed in two different international processes, the UNFF and the CBD, and that the constituencies represented at these two fora are significantly different, is itself a symptom of this dilemma. The UNFF is a global gathering of representatives of institutions that have hundreds of years of accumulated practical experience of managing forests. The CBD constituency is a more heterogeneous group but is probably more representative of a broader range of stakeholders. This should not be taken to imply that one group has greater authority or legitimacy than the other. It is itself a symptom of the broadening of the forest agenda and of the re-alignment of institutional responsibilities that is occurring in many countries around the world.

Conclusions:

Both the UNFF and the CBD should ensure that the debate on the relationship between SFM and EsA continues. They should provide a fora where countries can share their ideas, experience and learning on the options that exist for more integrated and holistic management of forests. However, there will be only limited returns from attempts to further fine-tune definitions and principles to describe EsA and SFM. It is more important to have more in-depth debates on some of the underlying differences such as those set out in Table 1 (subject to modification). These are the sorts of issues that countries will have to take into consideration in determining the institutional landscape that best meets their needs. This will inevitably differ from country to country, for instance the laws and institutions that best serve the needs of a country with low forest cover will not necessarily be the same as those appropriate for a forest-rich country. The real challenge is how to operationalize the emerging agenda in a manner that leads to increased net benefits to society and protection of marginalized communities heavily dependent on forest resources.

Forest conservation and management is entering a period of new challenges and greater uncertainty. The traditional skills and knowledge of professional foresters are going to be of ever-greater value. However, new skills and processes are going to be needed. Ultimately there is still a need for pragmatism. The marginal benefit of adding new competencies or further broadening the remit of forest agencies must exceed the marginal cost of doing so. The EsA advocates the use of the Precautionary Principle. But, if not properly applied, the Precautionary Principle can pose difficulties in practice. There are many recent examples of very high costs being incurred to resolve uncertainties or negotiate trade-offs in forest management. There have always been risks, uncertainties and trade-offs in forest management and these will certainly increase in the future. Ultimately the EsA vision tends more towards process and negotiation for resolving such difficult issues whereas the SFM tends more towards the application of professional judgment. Sedjo et al (1996) argue persuasively for economic sustainability to be given more weight in discussions of SFM. The "transactions costs" of negotiating and operationalising the broad ambitions of both SFM and EsA can be high and have to figure in economic analyses.
A number of forest issues that are currently high on the international agenda could benefit from being examined through the different lenses of SFM and EsA. Approaches to dealing with the problems of illegality and crime, adapting to climate change, determining how best to utilize forest resources for poverty reduction, and safeguarding global forest values in decentralized forest management systems might all look different from an EsA and an SFM perspective.

Realizing that both EsA and SFM are evolving concepts, it is useful to continue to maintain an international dialogue on new and innovative ways of organizing sustainable forest conservation and management. Many of the ideas that have been formulated under the general heading of "ecosystem approaches" are relevant to this discussion. Many countries have already embarked upon processes of reorganizing their institutions. Many developing countries have been encouraged by aid donors to engage in continuous processes of legal and institutional reform. The underlying differences in philosophy and vision found in the EsA and SFM paradigms are significant for countries that plan to change their way of organizing forest conservation and management in biophysically, economically and socially dynamic landscapes. Thorough and open debates on the underlying issues are important and both the UNFF and the CBD can meet the needs of their participating countries by facilitating this dialogue.

This should not be attempted solely or even largely in the abstract conceptual sphere. Rather, with emphasis on lesson learning and innovation, the UNFF and the CBD should actively encourage their participating countries to experiment with the adaptive co-management of forests and other key natural habitats and resources in particular landscapes, mixing and matching EsA and SFM principles as appropriate. This approach should logically involve:

- Developing culturally and politically appropriate mechanisms for defining both the production goals of immediate concern to local resource user groups and the environment and development goals of the wider society. In essence this will involve developing a process of participatory social choice to decide what should be sustained, for whom, where, when and how.

- Developing landscape management programs to negotiate who will do what where, when and how. This process will define the institutional arrangements for integrated landscape management and define processes that will maximize positive synergies and minimize negative synergies between forest and other land uses.

- Aligning resource access prices, payments for environmental services and fiscal constraints and incentives to encourage resource sustainability and the internalization of all externalities associated with particular resource use patterns.

- Developing participatory monitoring, evaluation and review mechanisms that will allow iterative improvement in land use allocation and management processes in
response to new scientific information, changing environmental, social and economic conditions and the experience gained from landscape management.
Some Key SFM-EsA References


Smith, R.D. and E. Malt by 2003. Using the Ecosystem Approach to Implement the convention on Biological Diversity: Key issues and case studies. IUCN, Gland, Switzerland.