

CRITERIA & INDICATORS OF GOOD FOREST MANAGEMENT

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Abstract

The paper proposes Criteria & Indicators (C & I) for all the 3 possible classes of forests of the world. The proposed C & I are more field friendly and less in number than those proposed by different Processes so far. Emphasis has been given on meeting the basic needs of the communities through eco-compatible activities and also on managerial sensitiveness. The necessity of developing an overall indicator to measure the physical and psychological well being of people has also been pointed out. It has also been brought out that Sustainable Forest Management (SFM) does not necessarily lead to Sustainable Development.

I. INTRODUCTION

Within the context of Chapter 11 and the Forest Principles of Agenda 21 of the 1992 Rio Earth Summit, international negotiations on various schemes for sustainable forest management have identified a need for research into principles, criteria and indicators for sustainable forest management. The Tropenbos project to develop a Hierarchical Framework for the formulation of sustainable forest management standards (**Lammerts Van Bueren and Blom, 1997**) has reviewed existing standards and suggested the following definitions:

Principles:

A principle is a fundamental law or rule, serving as a basis for reasoning and action. Principles are explicit elements of a goal e.g. sustainable forest management or well-managed forests.

Criteria:

A criteria is a state or aspect of the dynamic process of the forest ecosystem, or a state of the interacting social system, which should be in place as a result of the adherence to a principle.

Indicators:

An indicator is a quantitative or qualitative parameter which can be assessed in relation to a criteria.

Norm:

A norm is the reference value of the indicator and is established for use as a rule or a basis for comparison.

Verifiers:

A verifier is the source of information for the indicator or for the reference value (norm) for the indicator.

The forests all over the world can be broadly classified into 3 classes:

(1) The Protected Areas

They are the areas of total protection which have been set aside so that Nature can play its own role. Nature is supposed to be the best manager and extraction of productivity is not the aim. The natural cycles are allowed to go on unhindered.

The National Parks and Sanctuaries in India are examples of such areas which have been created for this purpose.

(2) The Community Forest Areas

Such forest areas are those which are similar to Protected Areas but a portion of the sustainable productivity of the area is extracted for local community use. In spite of this extraction, management interventions are such so that these areas remain in their natural form as far as possible.

(3) The Productivity Areas

The Productivity Areas are not natural forests, but are areas which are modified or created and managed for their productivity. The commercial plantations, the Deer Parks of Europe or the Safari Parks of some African countries are examples of such area.

The classification of forests above itself enunciates the principles for which they are to be managed. It has also to be remembered that forests are not in an ideal state as defined. For example the PAs of India have been created for complete protection. But in reality there may be great biotic pressures on peripheral areas. The principle is the goal to which we have to move.

According to the principles of management of the three types of forests, 7 criteria for good management may be derived:

- (i) Increasing Forest Cover
- (ii) Conservation of Ecosystem Vitality & Biodiversity
- (iii) Soil and Water Conservation
- (iv) Enhancing Productivity
- (v) Meeting the Basic Needs of Communities (through Eco-compatible activities)
- (vi) Increasing Participatory Status.
- (vii) Enhancing managerial sensitiveness

The guiding framework for evolving National level C & I under the Bhopal-India Process by the Indian Institute of Forest Management, Bhopal was borrowed from the ITTO. The Bhopal-India Process has recommended 8 Criteria and 43 Indicators (**Appendix-I**). Only 7 Criteria have been proposed here. Three Criteria are similar to the Bhopal-India Process criteria. Two criteria - Meeting the basic needs of communities and Enhancing managerial sensitiveness, which have been conspicuously missing in the Bhopal-India Process have been proposed here. Meeting of basic needs of people through eco-compatible activities is in accordance with Principle 1 of the Rio Declaration on Environment and Development which states that human beings are entitled to a healthy and productive life in harmony with nature. Principle 5 also urges all States and all people to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world. Enhancing managerial sensitiveness is essential to meet the appropriate aspirations of the people and to increase managerial efficiency. The 7 criteria and the related indicators for the three types of forests are given in **Appendix-II**.

II. JUSTIFICATION FOR THE PROPOSED CRITERIA & INDICATORS

The criteria for any given type of forest class should be in consonance with the main principles of management of the area. Similarly the indicators in relation to the criteria have to be such which should indicate whether good management practices are being followed or not. Since indicators point out a direction which has to be followed, it has to be kept in mind that an indicator, however good, should not indicate a

direction which if followed is against the principles of management of that area. For example, if productivity per unit area or tourist inflow is taken as an indicator under any criterion of PA the natural tendency would be to increase the financial productivity by increasing tourist inflow in a PA. In principle, a PA should be left to increase its bio-productivity only as far as is naturally possible. Moreover, increasing tourism area or tourist inflow is not the goal of creation of a PA. But increasing tourism area and tourist inflow may be the purpose of Productivity Areas and such indicators may find their place for such area. The justification for the Criteria & Indicators (C & I) proposed is as follows:

(1) Increasing Forest Cover

The Forest Cover has been continuously decreasing all through the years. It is necessary that this process is halted and efforts taken to rehabilitate the degraded areas.

Two indicators have been proposed:

- (i) %age of forest cover (including tree cover & grasslands) in relation to geographical area.**
- (ii) %age of degraded area, in relating to total forest area.**

An increase in forest cover %age of forest area or a decrease in %age of degraded area would indicate good management practices.

This Criteria and the two indicators hold good for Protected Areas (PAs) and Community Use Forests (CUFs), but not for Productivity Areas (PrA). The PrAs are modified ecosystems for commercial ends and so an increase in the PrAs does not necessarily indicate good management practices.

(2) Conservation of Ecosystem Vitality & Biodiversity

In all there are ten indicators for the criteria:

- (i) %age of budget availability w.r.t. annual requirement according to Management Plan**

Absence of a Management Plan is an indicator of a neglected approach to management. Even if a MP is there, the % age of budget allocation indicates the degree to which the forest is being scientifically managed. This holds good for all the 3 classes of forest area. It is assumed that all allocation is being properly utilized.

- (ii) Regular analysis of Population estimation & behaviour**

Conservation of Ecosystem Vitality & Biodiversity does not necessarily mean an increase of certain populations. In a natural ecosystem there is a certain proportion of the various wild fauna and flora at a given time. This proportion may change with time or due to other circumstances. What is necessary is that there is a procedure for studying population estimation and behaviour regularly and an analysis of such study is being done regularly.

This criterion holds good for PAs and CUFs but not for PrAs.

- (iii) Grazing area % age**

Grazing of cattle has an adverse effect on any ecosystem. The %age of grazing area of a forest indicates the biotic pressure to which the forest is subject to. This indicator holds good for all the 3 classes of forests.

- (iv) Weed infested area % age**

Weeds encroaching on the forest area have an adverse effect on the regeneration of the area. The %age of area infested by weeds indicates a decreasing vitality of the ecosystem. This indicator holds good for all the 3 classes of forests.

(v) % age of area affected by fire

A larger %age of forest area affected by fire indicates a less efficient fire protection system. This indicator holds good for all the 3 classes of forests.

(vi) Incidence of outbreak of diseases

Frequent outbreak of diseases indicates an ecosystem with weak vitality. This indicator holds good for all the 3 classes of forests.

(vii) Removal of forest produce (both permissible & illicit)

A Protected Area is meant for total protection. The lesser the removal of forest produce, the more we are moving toward our goal.

This indicator does not hold good for CUFs and PrAs.

(viii) % age of tourism area

Tourism no matter how well managed is a disturbance activity in a natural ecosystem. The lesser the % of the tourism area the better is the status of a PA or a CUF.

This indicator does not hold good for PrAs.

(ix) % of tourists who, regarding the Ecosystem Vitality & Biodiversity are satisfied by their visit

Although increasing tourism is not the aim of a PA or a CUF, yet if a tourism area exists it would be appropriate for educational and awareness purpose that the tourist gives a positive opinion about Ecosystem Vitality & Biodiversity and is well satisfied by his visit to the forest. Through a feed back questionnaire the %age of tourists who return back satisfied can easily be found out. An increase in such %age indicators better management.

This indicator does not hold good for a PrA.

(x) %age of forest produce removed within sustainable limits going for direct consumption by the surrounding communities

Since a CUF is being managed for local community use, the removal of forest produce within sustainable limits should be for direct consumption by the local communities. The more the local communities use the forest in such a way, the better the CUF is managed. Ecosystem Vitality & Biodiversity can be better taken care of if remote or commercial pressures are the least on the forest.

This indicator does not hold good for a PA or a PrA.

(3) Soil & Water Conservation

Conservation of Soil & Water is an important function of all forest areas. The indicators for this criterion are:

(i) % age of eroded area

The lesser the % age of eroded area, the better managed a forest is. This indicator holds good for all the 3 classes of forests.

(ii) Number of perennial streams from the forest

The greater the number of perennial streams from the area, the better the water conserving function of the forest. This holds good for all the 3 classes of forests.

(iii) No. of 5 km. x 5 km. quadrants in which there is no natural waterhole in pinch period

An increasing number of such quadrants indicates a decreasing suitability of the area for wildlife. This indicator holds good for a PA, but not for a CUF or PrA.

(4) Enhancing Productivity

Since enhancing productivity is not the purpose of a PA, there are no indicators of this criteria for a PA or a CUF. A PrA is created or managed to meet the industrial, commercial or remote demands of a society. There are four indicators for this criterion for a Productivity Area.

(i) Growing stock of wood, animals and other marketable produce:

The more the growing stock of marketable produce, the better managed a Productive Area is.

(ii) %age of removal of forest produces w.r.t. sustainable production:

Any removal above 100% indicates an over exploited forest and is an indicator of mismanaged forest.

(iii) No. of seed orchards, seed productivity areas & good breed animals:

The more there are facilities for good seed availability and good breed animals, the better productivity of the area would be.

(iv) Revenue from tourism:

The more the revenue from tourism, the more productive a PrA is and also indicates a better overall tourist satisfaction.

(5) Meeting the basic needs of communities through Eco-compatible activities

This important criteria has been totally missing from the Bhopal-India process. The purpose of Eco-development is to meet the basic needs of the people living in and around forest areas through eco-compatible activities - a somewhat Gandhian approach to self-dependent villages. Managing a PA or a CUF also means working with communities around the forest. Hence this criteria holds good for a PA or a CUF but not for a PrA. Meeting the basic needs and the eco-compatibility of activities is the essence of the 9 indicators finalised-

(i) %age of families not using synthetic fertilizers & pesticides:

The more there are such number of farmers the more eco-friendly the agricultural activity is and the more natural the agricultural product is.

(ii) % of locally produced crop consumption w.r.t. the annual need:

The more the farmers are able to produce for their needs and more the locally produced crop is consumed, the more self-sufficient the village is in its food requirement.

(iii) %age of fuelwood, fodder and small timber requirements produced from plantation on field bunds, courtyard and other private lands:

The more the villagers are able to meet their fuelwood, fodder and small timber needs from their own efforts, the more self-sufficient they are and lesser will be the pressure on forest.

(iv) %age of families aware and practicing natural health care systems:

For this indicator, most probably one has to start from zero. The indigenous health care systems have been forgotten and neglected over the years. For this indicator to have any value a campaign on natural health care will have to be organised in initial stages.

(v) Mandays generated by eco-tourism & other forestry activities:

This indicator would indicate the level of income of the villagers.

(vi) No. of persons migrating for jobs to other places:

A decrease in the value of this indicator would indicate more job opportunities at the home place.

(vii) % of tourism revenue going for eco-development activities:

The more the proportion of the tourism revenue goes for eco-development activities, the greater the emphasis is on meeting the basic needs of people through eco-compatible activities.

(viii) Literacy % age (persons educated upto primary level):

This indicator would indicate the literacy awareness and facilities in the village.

(ix) % of families adopting family planning schemes:

This indicator would indicate an awareness and a sense of responsibility towards meeting the basic needs of the family.

(6) Increasing Participatory Status

This indicator holds good for a PA and a CUF only. Participation is a mosaic of roles. A participatory status would indicate the extent to which the various role holders are performing their roles. A need based, role oriented Eco-development approach has to be adopted for real participation. Only 3 indicators are essential for this criteria -

(i) No. of Committees:

No. of Eco-development or other local committees would indicate the level of involvement of communities.

(ii) %age of Committees with role based sub committees:

A greater %age of such committees would indicate the increased awareness about the participatory role which the sub committees have to play.

(iii) Participatory status:

This can be assessed by the degree of participatory role fulfillment. The procedure of assessing participatory status may be included in the microplan of the committee. The participatory status would be indicated for:

1. Sub committees
2. NGOs
3. Forest & other departments.
4. Overall

(7) Increasing Managerial Sensitiveness

This criterion has been missing from all the efforts made so far. Sensitiveness towards staff facilities and public grievances is very essential for a good and efficient management. Hence the proposed indicators are:

(i) % of claims of staff disposed off within stipulated time:

The more the claims of staff is disposed off within stipulated time, the more sensitive the management is towards the staff.

(ii) % of essential facilities provided to staff:

Providing essential facilities to the staff will automatically result in an efficient management.

(iii) % of claims of the public disposed off according to citizens charter:

A quick disposed of the public claims indicates a sensitiveness towards the public and would earn goodwill of the people.

(iv) % of right to information cases disposed off within stipulated time:

A quick disposal of the applications related to right to information indicates a transparent and efficient management.

This criteria and all the 4 indicators hold good for all the 3 classes of forests.

III. AN OVERVIEW

The number of criteria and indicators proposed for different classes of forest is as follows:

S.No.	Forest class	No. of Criteria	No. of indicators
1.	PA	6	30
2.	CUF	6	29

3.	PrA	4	15
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Thus the no. of criteria and indicators are much less than that proposed by the Bhopal-India process. Moreover except 1 or 2 indicators, all others can be measured at the field level by the forest staff or members of the local committees.

It has also to be noted that the indicators are helpful to indicate whether good management practices are being followed or not. But a good management practice does not necessarily mean that the forest area will be sustainable. A sustainable harvestable productivity does not necessarily mean that the ecosystem will be sustainable. This is more true of Productive Areas which may be giving sustainable harvestable production but being greatly modified for commercial ends, they may soon face an ecological breakdown.

Moreover, forests are only a part of the overall natural resources available on earth and it would not be proper to put the burden of sustainability on forest alone. This has been made clear in Principle 4 of the Rio Declaration on Environment and Development -

"In order to achieve sustainable development, environment protection shall constitute an integral part of the development process and can't be considered in isolation from it."

Sustainable development means adopting a sustainable way of life globally. But the current globalisation and the increasing consumptive life styles are unsustainable as far as meeting the basic human needs is concerned. Although Principle 8 of the Rio declaration has cautioned that States should reduce and eliminate unsustainable patterns of production and consumption, the consumptive life style is being encouraged all over the world.

With the present trend, there cannot be any sustainable development. The commercial interests will soon be able to overwhelm the ecosystem approach to forest management and force a productive and revenue generating approach to management. While the management of forests will remain sustainable, the forests ecosystems will not remain sustainable_ they will not remain natural ecosystems performing their natural ecological roles. This is a reality in the offing which has to be accepted.

In the proposed criteria, an important criteria is the meeting of the basic human needs through eco-compatible activities. The meeting of the basic needs of the people is often overshadowed by the Human Development Index (HDI). The HDI takes into account only the income per capita, literacy and life expectancy at birth. This indicator is very suited to industrialised countries, but it in no way indicates the overall well-being of a person. There is a need to develop an overall indicator which takes into account the psycho-social aspects also and indicates the overall physical and psychological well-being of a person.

S.No.	CRITERIA	INDICATORS			
			Protected Areas (PA)	Community Use Forests (CUF)	Productivity Areas (PrA)
(1)	Increasing Forest cover	1.	<ul style="list-style-type: none"> % age of Forest cover (including tree cover & grasslands) 	<ul style="list-style-type: none"> % age of Forest cover (including tree cover & grasslands) 	N.A.
		2.	<ul style="list-style-type: none"> % of degraded forest 	<ul style="list-style-type: none"> % of degraded forest 	
(2)	Conservation of Ecosystem Vitality & Biodiversity	1.	<ul style="list-style-type: none"> % of budget available w.r.t. annual requirement according to M.P. 	<ul style="list-style-type: none"> % of budget available w.r.t. annual requirement according to M.P. 	<ul style="list-style-type: none"> % of budget available w.r.t. annual requirement according to M.P.
		2.	<ul style="list-style-type: none"> Regular analysis of 	<ul style="list-style-type: none"> Regular analysis of 	-

		3. population, estimation & behaviour. 4. • Grazing area % 5. • % area with weed infestation 6. • % area affected by fire 7. • Incidence of outbreak of diseases 8. • Removal of forest produces (both permissible & illicit) 9. • % of tourism area 10. • % of tourists who, regarding the Ecosystem Vitality & Biodiversity are satisfied by their visit -	population, estimation & behaviour. • Grazing area % • % area with weed infestation • % area affected by fire • Incidence of outbreak of diseases - • % of tourism area • % of tourists who regarding the Ecosystem Vitality & Biodiversity are satisfied by their visit • %age of forest produce removed within sustainable limits going for direct consumption by the surrounding communities.	• Grazing area % • % area with weed infestation • % area affected by fire • Incidence of outbreak of diseases - - - -
(3)	Soil & Water conservation	1. • % of eroded area 2. • No. of perennial streams from the forest 3. • No. of 5 km. x 5 km. quadrant in which there is no natural water holes in pinch period	• % of eroded area • No. of perennial streams from the forest -	• % of eroded area • No. of perennial streams from the forest -
(4)	Enhancing Productivity	1. 2. 3. N.A. 4.	N.A.	• Growing stock of wood, animals and marketable produce • % of removal of forest produce w.r.t. sustainable production. • No. of seed orchards, seed production areas and good breed animals • Revenue from tourism
(5)	Meeting of the basic needs of communities (through Eco-compatible activities)	1. • % age of families not using synthetic fertilizers and pesticides • % age of locally produced crop	• % age of families not using synthetic fertilizers and pesticides • % age of locally produced crop	N.A.

		2. consumption w.r.t. annual need • % of fuelwood, fodder & small timber requirement produced from plantation on field bunds, courtyard & private plantations 3. • % of families aware & practicing natural health care systems 4. • Mandays generated by eco-tourism and other forestry works 5. • No. of persons migrating for jobs to other places 6. • % of tourism revenue going for Eco-development activities. 7. • Literacy % age • % age of families adopting family planning measures 8. 9.	consumption w.r.t. annual need • % of fuelwood, fodder & small timber requirement produced from plantation on field bunds, courtyard & private plantations • % of families aware & practicing natural health care systems • Mandays generated by eco-tourism and other forestry works • No. of persons migrating for jobs to other places • % of tourism revenue going for Eco-development activities. • Literacy % age • % age of families adopting family planning measures	
(6)	Increasing Participatory Status	1. • No. of Committees 2. • %age of Committees with role-based sub-committees 3. • Participatory Status (i) Sub-committees (ii) NGOs (iii) Forest & other deptts. (iv) Overall	• No. of Committees • %age of Committees with role-based sub-committees • Participatory Status (i) Sub-committees (ii) NGOs (iii) Forest & other deptts. (iv) Overall	N.A.
(7)	Increasing Managerial Sensitiveness	1. • % of claims of staff disposed off within stipulated time. 2. • % of essential facilities provided to staff. 3. • % of claims of the public disposed off according to citizens charter. 4. • % of right to information cases disposed off within stipulated time.	• % of claims of staff disposed off within stipulated time. • % of essential facilities provided to staff. • % of claims of the public disposed off according to citizens charter. • % of right to information cases disposed off within stipulated time.	• % of claims of staff disposed off within stipulated time. • % of essential facilities provided to staff. • % of claims of the public disposed off according to citizens charter. • % of right to information cases disposed off within stipulated time.

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