

# **Report of the Expert Committee on Net Present Value**

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# **1 Preliminary**

## **1.1 Constitution of Committee**

In pursuance of Supreme Court judgement dated September 26, 2005 in IA No. 826 in IA No. 566 of 2000 in Writ Petition (Civil) 202 of 1995, the Institute of Economic Growth, Delhi was asked to constitute a Three Member Expert Committee, under the Chairpersonship of Prof. Kanchan Chopra, Director and Professor at the Institute of Economic Growth, Delhi.

The other two Members of the Committee are:

Prof . Gopal K Kadekodi, Director, Institute for Social and Economic Change, Bangalore.

Shri V B Eswaran, Former Secretary to the Government of India.

At the request of the Committee, the Honourable Supreme Court granted permission to appoint Dr.Purnamita Dasgupta, Associate Professor at Institute of Economic Growth as the Member Secretary of the Committee.

The Institute of Economic Growth provided the Committee with logistic and administrative support.

The Apex Court allowed the Committee time till 30<sup>th</sup> April 2006 to submit its report.

## **1.2 The Mandate and Terms of Reference for the Expert Committee**

The basic issue as mandated by the Supreme Court for the Committee is that the Net Present Value (NPV) for forest land diverted for non-forest use has to be worked out on economic principles.

Further, the Honourable Court observed on NPV in its Judgment of September 26, 2005 that “the amounts are required to be used for achieving ecological plans, and for the regeneration of forest and maintenance of ecological balance and eco-system. The payment of NPV is for protection of the environment and not in relation to any proprietary rights’

The Honourable Court therefore directed that the Committee would examine the following issues:

- 1. To identify and define parameters (scientific biometric and social) on the basis of which each of the categories of values of forest land should be estimated***
- 2. To formulate a practical methodology applicable to different bio-geographical zones of India for estimation of the values in monetary terms in respect of each of the above categories of forest values***

3. *To illustratively apply this methodology to obtain actual numerical values for different forest types for each biogeographical zone of the country*
4. *To determine on the basis of established principles of public finance who should pay the costs of restoration and/ or compensation with respect to each category of values of forest*
5. *Which projects deserve to be exempted from payment of NPV*

### **1.3. Methods and Procedures followed by Committee:**

The Committee followed the following methods and procedures for its deliberations towards the mandate assigned to it.

- 1 Regional Hearings held in different places all over the country with proper public announcements in media, public offices and through direct communications to various stakeholders. The Committee decided to have regional hearings (at Delhi, Bangalore, Guwahati, Ahmedabad and Bhubaneshwar) so as to make it convenient for various stakeholders including government departments, representatives of industry, civil society organizations and individuals to meet the Committee and place their views before it;
- 2 Consultations with Ecologists, Foresters, Legal Experts on the relevant parameters, definitions and Methodology of Forest Valuation including at a one-day seminar;
- 3 Information sought from Ministry of Environment and Forests (MoEF) on definition of forest and forest lands, activitywise conversion of forest lands, NPV collected by Compensatory Afforestation Management and Planning Authority (CAMPA), compensatory afforestation charges collected;
- 4 Submissions from various stakeholders including from MoEF.

**Appendices 1, 2 and 3 contain the details of stakeholders who made submissions and addressed the Committee in the regional Public Hearings, and experts who participated in the seminar held at the Institute of Economic Growth (IEG) on March 20, 2006.**

## **2. Introduction and Definitions**

### **2.1 Introduction**

Forest resources represent a stock of natural capital or wealth with attributes such as growing biomass including wood, carbon, and capability to support human, plant and animal life. They are renewable in nature. As a stock of natural capital they provide several goods and eco-system services. Left to themselves forests regenerate. They can also be augmented or depleted with human and other interferences. If so, this results in a change in the flow of goods and services from them. Examples of such **goods and**

**services flowing from forest resources** are: tree cover provides leaf biomass (as food, shelter, fodder, fuel), barks, roots, herbs, or sequestered carbon, and health of water regimes and soils. Since forest lands are fundamentally responsible for maintaining forest resources and generation of goods and services, **they are not to be treated as tradable.** Hence, there is **no question of bargaining on the best alternative use of forest lands.** Therefore, NPV calculation on forest lands are not to be based on assumptions regarding alternatives uses of the same lands, say for urban housing, mining, putting up a dam, road, etc. They are of the nature of estimating value lost to be reckoned as an “opportunity cost” of forest tracts.

In the context of economic and social development, it may be necessary to divert some forest lands to non-forest use. Payments made for this diversion are compensations for the loss of forest and the loss of the flow of goods and services accruing from it to diverse stakeholders.

## **2.2 Definitions**

### **2.2.1 Of Forests, Forest Land and Forest Cover**

The dictionary definitions of ‘forests’ vary considerably. Some examples are “a tract of land occupied mainly by trees” or “a continuous and extensive tract of trees” or “a dense growth of trees and under-brush covering a large tract” (Meriam Webster 11<sup>th</sup> Collegiate Dictionary).

Further, to quote The State of Forest Report (SFR) 2003<sup>1</sup>, there is no universally accepted technical definition of forest. FAO of the United Nations defines forest land as “that having tree canopy cover of more than 10% over an area of more than 0.5 hectares with forestry as the principal land use”. It has come to the Committee’s knowledge that recently MoEF has invited ‘expression of interest’ to study to establish definition of FORESTS in the Indian context.

In the Indian context, several anomalies exist on the definition. A tract of land is recognized as forest land, if it is legally proclaimed to be a forest under the forest law (Indian Forest Act {IFA} of 1927 or the relevant state forest act) and it is recorded and notified as forest in government records. It is possible that, at any point of time, a part or whole of such forest area may not have any trees on it. In its assessment of Forest cover, the SFR 2003 records it as “blanks” and classified as non-forests. Its assessment gives estimates of “recorded forest area.” To quote “FSI<sup>2</sup> has used technology based definitions of forest cover and tree cover.....All tree canopies that could be delineated and assessed from satellite data (LISS III of IRS satellite 1C/1D) is termed as forest cover. .... The area under canopy of all other tree crops not captured by satellite data is termed as tree cover....’ It may be noted in going through State of Forest Reports

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<sup>1</sup> State of Forest Report 2003, Forest Survey of India, Ministry of Environment and Forest.

<sup>2</sup> Forest Survey of India

that “forest cover” implies “ forest and tree cover (satellite)” and “tree cover” means “other forest and tree cover (inventory)”

This report takes the view that, in the context of diversion of forest land for non-forestry use, *the methodology outlined in Part 3 be used to:*

- a) Determine forest area, including its subcategories in terms of land use *on a case by case basis* using the FAO definition in the main. i.e. “*as that having tree canopy cover of more than 10% over an area of more than 0.5 hectares with forestry as the principal land use*”.
- b) *Further the rights, privileges and concessions on so determined forest area be also determined on a case by case site specific manner.*
- c) *Payments for diversion of forest area in terms of compensation and their accrual then be determined in a site and context specific manner, using the above mentioned methodology.*

*The Committee noted that SFR 2003 maintains that such an exercise is feasible for small tracts of land using different data sources.*

### **2.2.2 Of Forest Eco-system Goods and Services:**

These are of four kinds that forests provide:

1. Provisioning goods such as wood, non-timber forest products (NTFP), fuel, fodder, water and provision of services such as grazing, tourism, wildlife protection and life support
2. Regulating Services: climate regulation, disease control, flood moderation, detoxification, carbon sequestration and health of soils and water regimes
3. Non-material benefits obtained from ecosystems: spiritual, recreational, aesthetic, inspirational, educational, communal, symbolic.
4. Supporting: Services necessary for the production of all other ecosystem services: Biodiversity, Nutrient cycling, Primary production.  
(Modified from Millennium Ecosystem Assessment 2005)<sup>3</sup>

### **2.2.3 Of Non-Forest Activity :**

The definition of non-forestry activity in this report is as per the Forest Conservation Act ( FCA) 1980. However it is noted that:

- Shifting Cultivation is a special category of agro-forestry activity which is not a non-forest activity

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<sup>3</sup> Millennium Ecosystem Assessment, 2005. Ecosystems and Human Well-being: Our Human Planet, Summary for Decision-Makers, Island Press, Washington, D.C.

- All the necessary ecological activities associated with forestry should not be charged NPV when the area is diverted to non-forest use. E.g. removal of silt and scree to ensure proper and adequate stream flows
- A distinction is to be made between an activity which alters the nature of vegetation as against that which does not e.g. note for instance the examples of laying of fibre optics cable

#### **2.2.4 Of Land to which NPV and other Permissible Payments are Applicable:**

In general, NPV and related payments (such as ground rent) are payable on forest area as defined in Part 2.2.1 when diverted for non-forest use. However, in view of the variety of presentations and submissions, the Committee wishes to clarify with some examples given below:

1. Such payments are payable only for forest area under the ownership and management of forest department.
2. Such payments are not applicable to land which has not been finally notified as forest land after the preliminary stage of a Section 4 notification under Indian Forest Act 1927.
3. No permission for non-forest use can be given to certain kinds of areas such as: Protected Areas (PAs), Sacred Groves, Fragile Ecosystems (e.g. mangroves)
4. Land left fallow in the “jhum” cycle on which some vegetative cover has emerged does not attract such charges because it is part of principle land use category “agriculture” not “forestry” as per the FAO definition.
5. Land leased to private and public enterprises /industry before 30-10-2002 (as per MOEF Guidelines for collection of NPV dated September 17/18 and 19/22, 2003) and which comes up for renewal of lease attracts both NPV and ground rent.
6. Lease Renewals after 30-10-2002 and not having paid NPV so far: To pay NPV on that portion of forest land originally leased and to be cleared of forests now, leaving out lands not to be cleared (of forests) during the present renewal period, provided the lease was given prior to 30-10-2002.
7. Payments are chargeable on all fresh leases.
8. Land exchanged: If the Forest department itself asks or initiates a move to exchange an originally leased land prior to 30-10-2002 to be exchanged, such exchanges do not come under the perview of NPV.

#### **2.2.5 Of Stakeholders/Users with Reference to Forest land Diversion**

1. Stakeholders in forests are the entities or groups who are losers due to a change in access to forests and their ecosystem goods and services: may be local, regional, national or global. They are the claimants to compensation arising out of the loss of access to eco-system goods or services.

2. User Agencies are those who pay an NPV and use the forest lands for non-forest purposes. Note that the payment of NPV by any agency confers a user right to the user agency for a limited period. It does not give an ownership, proprietary or perpetual right.
3. The grant of permission for non-forest use right is not unconditional.

### **2.2.6 Of Rights, Privileges and Concessions**

There exists a legal hierarchy in the different claims that stakeholders have. A right holder with recorded rights is highest in this hierarchy. Next come persons or communities with a privilege. The provisions of the FCA 1980 “do not interfere with the recorded rights and privileges over forests for domestic use, provided they do not resort to destruction of forest land”.

A stakeholder or a community who is given “concessions” does not have any legal right. There always exist differences in perception of stakeholders about their claims and this leads to contestation (See Appendix 5 for details on the above and a case study of Himachal Pradesh).

### **2.2.7 Of Public Sector, Public Good and Public Utilities and Services**

**ON PUBLIC GOOD:** The user of diverted land may also be a public good producer or provider. As long as the diversion to any public good provision also provides the same kinds of services as forests provide at the same location, (e.g., carbon sequestration, retention of soil moisture, protection of biodiversity etc.) such diversions do not attract any NPV. Other diversions by public good producers do. For example, *possible diversion of forest land to construction of highways should attract NPV*. Highways change the forest cover entirely and permanently. Therefore all public good producers or providers cannot claim unconditional exemptions from paying NPV.

**ON PUBLIC SECTOR:** Public sectors may be producing or providing both public and private goods and services. Examples of commercial goods and services provided by public sector are coal, minerals, hotel and tourism services etc. Examples of public sectors providing public goods are public parks by municipalities, sanctuaries and national parks by Wildlife Authorities. Only such public sectors that provide public goods and services of the type mentioned above can be considered for some exemptions from NPV.

**ON PUBLIC UTILITIES/SERVICES:** Public utilities are provided by both public and private sectors. Therefore, they are to be viewed in terms of their production and services only, and not as public or private sector.

As against a blanket claim on exemptions from NPV, the public or private sector or public utilities should show evidence of providing distinct forest resource related goods

and services at the same location. To that extent, the forests diverted under question can be considered for exemption from charging full NPV.

### **3. Estimation of NPV and Determination of Claims to Value:**

#### **3.1 Methodology**

NPV refers to “the discounted sum of rupee values of eco-system goods and services that would flow from a forest over a period of time net of costs incurred.” It does not capture the value of the forest wealth or possible change in it, only the flow of goods and services. In the context of diversion of forest land to non forestry use, *NPV will then mean, the loss of value of the forest resources (as viewed above) to the stakeholders or the users as at the time of diversion for non-forest use. It does not refer to the value either accrued or created by the user agency who uses it as non-forest use. Further,*

- It includes services and goods accruing to all the stakeholders associated with it as defined in Part 2.2.5.
- All values should be *net* of any costs associated with them in maintaining, creating, fetching, collecting or enjoying them ( following on the concept of opportunity cost)
- In the *estimation* of NPV, there is no question of taking account of the positive contribution to society by the user agency (as a non-forest user), say as a social and economic contribution, or contribution to national wealth or benefits, e g, defense, hydel or wind energy projects, national roads, or rural roads.

#### **3.2 Site Specificity of NPV of Forest Land and the Claims There-on.**

The Committee holds the view that a distinction is to be made between Estimation of NPV and Claims for exemption (fully or partially) by the User agency.

Further, the Committee is of the considered opinion that *the NPV of a tract of forest and the claims by the stakeholders existing thereon are to be entirely site specific.* It recommends therefore that whenever a tract of forest land is to be diverted to non-forest use, the following process should be undertaken at the range level:

Determine the value of NPV and the nature of rights, privileges and concessions of stakeholders on it be established and recorded. Simultaneously, public hearings be organized to apprise all parties concerned of the intention to divert forest for non-forest use. This may be carried out on the lines of the procedure for Environmental Impact Assessments laid down under the Environmental Protection Act

### 3.3 Procedural Steps

*The Committee recommends the following steps for determining the value of NPV of forest and claims by the stakeholders on it at forest range level.* The SFR(2003) maintains that such an exercise is feasible using different sources of data at the range level.

A detailed illustrative circle wise exercise was conducted (at the IEG) for the state of Himachal Pradesh to illustrate the site-specific nature of the NPV for forest land and reported in Appendix 4. This exercise is carried out only for areas other than protected areas (national parks and wild life sanctuaries). ***It is to be noted from this illustrative case study that the value of a hectare of forest land in Himachal Pradesh varies from Rs 8.57 lakhs for dense natural forest in Bilaspur circle to Rs. 1.57 lakhs for timber plantations in Nahan circle.***

Step 1: *Only lands defined in Part 2 above as forests fall within the purview of this exercise. Taking into account the bio-physical, ecological and legal status, the first step is to ascertain if this land falls in the category of forest or not.*

Step 2: *Ask if the area proposed to be diverted contains a tract which falls within the legal definition of "Protected Areas". If so, in the view of the Committee, that part cannot be considered for diversion at all, under any circumstances.*

Step 3. *List the following for the area under consideration:*

- Kind of forest as per classification of Champion and Seth<sup>4</sup>
- Density cover as per SFR 2003
- Main species of trees and under storey
- Altitude, slope and aspect of forest
- Soil depths, streams and water bodies

Step 4. *From the above parameters, divide the area to be diverted into the following forest land use categories:*

- Dense Natural Forest
- Lopped Dense Forest
- Open Tree Savannah
- Monoculture Plantations
- Mangroves and Coastal forests
- Snow-bound Forests

Step 5. *The following products and services from the land being diverted to be valued using the methodology given below:*

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<sup>4</sup> Champion, H. G. and S. K. Seth, "A Revised Survey of the Forest Types of India," Publications Division, Government of India, Delhi, 1968.

**Table 1: Towards computation of NPV**

| Good or Service                              | Annual Value  | Annual Costs   |
|--|---|--|
| Timber                                       | <ul style="list-style-type: none"> <li>• Long run Stumpage value approach</li> <li>• Stumpage price of mature timber</li> </ul>   | Costs of production (departmental), extraction and transport   |
| Carbon Storage Value                         | <p><i>Value of carbon stock = carbon content X market rate of carbon</i></p> <p><i>Carbon Content = Biomass X IPCC-GPG default value<sup>5</sup></i></p> <p><i>Biomass = Growing stock X Conversion factor</i></p>  | No direct costs. See Step 6 for common indirect costs  |
| Fuel wood and fodder*                        | <p><i>Total value of fuel wood collected in a normal year = No. Of rural households collecting fuel wood from forest in last 365 days X Average value of collection per collecting household. (the value to be used is the relevant price in the nearest local market)</i></p>  | Cost of collecting fuelwood = (No. of rural households ) x (Total annual time cost of collection per household valued at 15% of average agricultural wage rate).   |
| Non Timber Forest Products (including grass) | <p>Per hectare value of NTFP collected in each circle = <i>Value of NTFP in each circle / Net forest area in each circle</i></p> <p>Value of NTFP in each circle = Value of NTFP collected in a normal year per household X Circle-wise rural households (the value to be used is the relevant price in the nearest local market)</p> | Cost of collecting NTFP = (No. of rural households) X (Total annual time cost of collection per household valued at 15% of average agricultural wage rate).  |
| Ecotourism                                   | <p><i>Per hec. value of Eco-tourism in each circle = Total value of Eco-tourism in each circle / Net forest area in each circle.</i></p> <p><i>Value of Eco-tourism dependent on forest ecosystems = No. of people visiting different circles per year mainly due to natural beauty X average expenditure incurred per person</i></p> | Costs incurred by the Forest Department in the maintenance, preservation and development of national parks and wildlife sanctuaries. The per hectare cost were calculated to arrive at costs for each circle. See Step 6 for common departmental costs |
| Watershed services                           | <p><i>Value per hectare for soil conservation and hydrological services from secondary site-specific studies</i></p>  | As per site specific secondary studies   |

\*Note: The value for fodder would be calculated in the same manner as for fuelwood.

Step 6: Account for Forest Departmental costs – These include certain costs that cannot be apportioned across different goods and services within each range including costs incurred in construction and maintenance activities and expenditure on wages and

<sup>5</sup> Intergovernmental Panel on Climate Change – Good Practice Guidance, 2003.

salaries. These have to be deducted from the total benefit to arrive at net benefit for the range.

*Step 7: Calculate annual value of goods and services accruing to categories of forests listed in Step 4. Use percentage accruals from Table 13 of Appendix 4.*

*Step 8: Calculate NPV as present value of the net flow accruing over 20 years at 5% social rate of discount. Considering the fact that forest resources provide long term goods and services and ecosystem benefits and, interest rates in India are going down, the Committee recommends a 5% social discount rate for forest resources. The time horizon for NPV calculations is recommended to be 20 years, considering the plausible mix of species and their different maturity periods.*

*Step 9 Account for biodiversity related services at the range level based on relative weighting pattern between biodiversity and other goods and services, as indicated in Table 12, Appendix 4.*

The Committee recommends that NPV be revised every five years, keeping in line with the pace of change in flows of goods and services from forests

*Step 10. Determine legal status of forests and rights, concessions and privileges of stakeholders.*

MoEF guidelines state that the provisions of the Forest Conservation Act do not interfere in any manner with or restrict the Nistar, recorded rights, concessions and privileges of the local people for bona fide domestic use as granted by the state governments under IFA 1927 or State Forest Acts/ regulations, for all non-protected areas (even after the Supreme Court judgment of 2000 which restricts them in PAs). Since this method of NPV computation is for non-protected areas, the following steps are recommended.

Ascertain legal status of land to be diverted in accordance with site specific categories and determine rights, privileges and concessions there-on. Categories of stakeholders to whom these accrue be also identified. There is wide variation even within the state, (see Appendix 5 for details on rights, concessions and privileges for Himachal Pradesh). These are recommended to be identified at the range level.

*Step 11: Settle rights, privileges and concessions of stakeholders* The diversion of forest land for non-forestry purposes is preceded by inquiry and recording of rights, privileges and concessions of all stakeholders. After the demarcation and completion of record, the District Collector will issue a proclamation inviting claims and objections of the right holders pertaining to their rights in the said forests. After the expiry of the stipulated period, the Collector shall hold an enquiry into the rights of government and private persons at a place, which is in or close to the concerned forest. This process shall determine the rights and claims of all stakeholders. It shall also take account of special privileges and concessions, including those accorded to communities in Schedule V and VI areas.

*Steps 1 to 11 complete the range level calculation of NPV and the listing of the claims of all relevant stakeholders for forests to be diverted for non-forest use. Appendices 4 and 5 give the details of an illustrative exercise for circles within Himachal Pradesh*

*Step 12: Determination of Compensation to major stakeholders - locals, state forest departments and central government - can then be determined as per predetermined norms*

*A general principle for sharing the NPV between different stakeholders is recommended as follows*

*Local- 100 % of NTFP, fuelwood and fodder values; 50 % of watershed services and 45% of biodiversity values*

*State- 100% of eco-tourism and timber values, 50% of watershed services, 90% of carbon and 45% of biodiversity values.*

*National – 10% of biodiversity and 10% of carbon values*

## **4. Operationalisation of NPV Application and Payment (Including Exemption Levels)**

### **4.1 Components of full payment**

As stated in Part 3, diversion of forests (as defined in Part 2) for non-forestry activity is only permissible in other than legally constituted protected areas. *No land comprising a part of protected areas shall be diverted to non-forestry use.*

*The full compensation for the diversion of forest land (other than protected areas) for non-forest purposes consists of:*

- 1. Chargeable NPV estimated on a site-specific basis as determined by the methodology of Part 3.*
- 2. Ground rent for the land as approximated by prevailing rents in the region, subject to a minimum of Rs. 10, 000/- per hectare*

*Once these two charges are intimated to the User agency as per procedure and amounts given below, payment for the services of land and compensation for the loss of goods and services due to land use changes are to be made as recommended in Part 4.2*

*There is no need for any additional / other payment such as those related to compensatory afforestation, or charging for Compensatory Afforestation or any other rental. The Committee is of the view that all such additional charges will, in general, amount to double counting/taxation, to be avoided under principles of Public Finance.*

When the diversion to non-forestry use takes place, the natural capital in the shape of forest may be destroyed partly or wholly. Prior to the lease of land, the User agency shall provide a statement on the extent of changes in the forest cover expected to be

maintained on the diverted land. If there is reason to believe (during the initial and five yearly reassessment of NPV ) that the diversion to non forest use has led to deterioration in the condition of the forest beyond the stated changes, an additional payment by way of Compensatory Afforestation shall be imposed.

Further, a case can be made for exemption from payment of full chargeable NPV on the basis of principles of ecological economics as given below.

## **4.2 Principles for granting exemption and levels of exemption**

A large number of presentations during the public hearings provided data and information to the Committee on a range of development projects that need the diversion of land with forest cover. The Committee, *keeping in mind the following general guidelines, recommends exemption levels as per Table 2 for user agencies undertaking different categories of development projects.*

1. Non-commercial rural infrastructure related projects should be given some consideration.
2. The User's contribution to the process of forest protection, promotion, preservation, conservation, reversibility or arresting natural disasters, calamities, or increasing the resilience power of nature, or reducing impact of irreversibility: e.g., flood moderation, soil conservation etc., be recognized.
3. Long term versus short term environmental impacts be examined : e.g., top soil removal, which is a long term loss, different from slash and burn which is a part of legitimate agricultural activity and does not cause long term changes in status of land.
4. Projects with more than 50% additional capital cost burden on account of NPV be given some consideration.
5. Legitimate ecological activity which is a part of forest management and necessary for maintaining river flows should be given some consideration.
6. Handing back of land: If part or all of originally leased forest land is handed over back to forest department, say after carrying out catchment area treatment, due consideration on this should be given.
7. Likewise, land required for relocation of people from parks and sanctuaries should be treated preferentially.

**Table 2: Levels of Exemption from Chargeable NPV payable activity-wise**

| List of Activities/Projects  | Exemption Levels for NPV (as percentage of full chargeable NPV) | Remarks   |
|--|---|---|
| Public Works: schools, hospitals, children play grounds (non-commercial)                   | Full exemption: 100%  | Only up to 2 hectares   |
| Public Welfare Projects: Community centers in rural areas                                  | Full exemption; 100%  | Only up to 2 hectares   |
| Minor Minerals and Quarrying   | No exemption:   | To be charged only for proportion of land broken in accordance with pre-submitted mine plan                     |
| Mining : Open cast mining  | No exemption  | To be charged only for proportion of land broken in accordance with pre-submitted mine plan                     |
| Mining: Under ground mining  | No exemption  | charge only for impacted area for area which is likely to experience strain greater than 10 mm per meter        |
| <b>Water Resources Projects</b>  |   |   |
|  |   |   |
| Irrigation: Minor surface water run-of river schemes and water harvesting                  | Full exemption  | Up to 10 hectares of storage area   |
| Major Irrigation and Hydel Power   | 30% exemption   | Exemption due to consideration as in 4.2 above<br>No diversion of land from protected areas and national parks; |
|  |   |   |
| Municipal Water Supply   | Full exemption  |   |
| Drinking Water Supply Pipelines through Forest Area  | Full exemption  |   |
| Rural Infrastructure and Basic services: construction of overhead tanks, village road etc. | Full exemption  |   |
| Relocation of Villages from Sanctuaries/ National Park                                     | Full exemption:   | Provided R& R is provided for appropriately   |
| Housing for rehabilitation of tribals  | Full exemption  |   |
| Activities necessary for Ecological Management or Wildlife Management                      | Full Exemption  |   |
| Regularisation of eligible encroachments (Pre 1980 )                                       | Full exemption  |   |
| Regularization of encroachment other than pre 1980   | No exemption  |   |
| Overhead Power Transmission lines  | Full exemption  | Forest protection to be ensured with bank guarantee   |

|  |   |  |
|--|---|--|
| Thermal Power plants   | No exemption  |  |
| Laying of underground fibre optic cables                         | Full exemption  |  |
| Laying of pipelines for underground gas transportation (ie. IOC) | Full exemption  |  |
| Non-conventional energy  | 50% exemption   |  |
| Infrastructure for temples and religious centers.                | No exemption  |  |
| State Highways   | No exemption  |  |
| National Highways  | No Exemption  |  |
| District and Rural roads   | Full exemption  | With care taken to ensure appropriate, non-invasive technology |
| Shifting Cultivation   | Full exemption  | This is not a non-forestry use                                 |
| Salt Manufacture   | No exemption if converted from mangroves post 30.10.2002                        |  |
| Defence: Land for Defence Production Units                       | No exemption  | These are ordnance factories etc                               |
| Defence: Field firing ranges                                     | 30% exemption   | Restoration of entire area to prior status to be ensured       |
| Defence: Roads in border areas                                   | (a) Full exemption if outside Protected Areas<br>(b) No exemption if within PAs | Avoid passing through protected areas                          |
| Cement   | No exemption  |  |
| Steel  | No exemption  |  |
| Wind Energy  | 90% exemption   | Forest Protection be assured with a bank guarantee             |
| Chemicals  | No exemption  |  |
| Special Export Zone Projects                                     | No exemption  | Commercial ventures  |

***Note: All projects will pay ground rent as indicated earlier irrespective of exemption levels with respect to NPV***

### **4.3 Payment of Charges under NPV and Land Rent**

Several representations were made on adverse and high implications of NPV on projects at the start of the projects, and social implications of not having projects. The issue becomes relevant in such cases where they are nationally and socially relevant and large land intensive projects. Examples are coal or other major mineral mining, water resource related projects (reservoirs, canals etc.). After due consideration and deliberation on all aspects, the Committee recommends as follows:

1. Payment of ground rent in all cases shall be made at the outset of the project
2. If any project has proven reasons to deliver the project outcomes after 5 years from initiation, the project may be granted permission to make payment of NPV in more than one installments (every five years on production of a bank guarantee)
3. Public utility projects may be granted permission to pay NPV on annual basis based on a bank guarantee
4. Projects with burden of NPV more than 50% of initial project capital costs may be granted permission for payment on an annual basis with a Bank guarantee.

For the above purpose, a calculation of annuity and five yearly payments corresponding to the one time NPV compensation for diversion of land with forest area may be made.

## **5. Management of the NPV and Land Rent Fund Collected**

The NPV payment is “a compensation payable to stakeholders for diverting forest land to non-forest uses”. At present, it is to be paid by the user agency into a centralized fund called “CAMPA”

The CAMPA has been created by the Government of India’s Ministry of Environment and Forests, in exercise of the powers conferred by Section 3(3) of the Environment (Protection) Act of 1986. It issued a notification on April 23, 2004, constituting the CAMPA for managing the money received on account of compensatory afforestation, NPV and any other money recoverable in pursuance of the Supreme Court of India’s order in this regard and in compliance of the conditions stipulated by the Government of India while according approval under the Forest (Conservation) Act of 1980 for non-forestry uses of the forest land.

*It is understood that whenever a permission is granted by the Government of India to use forest land for non-forest purposes, the permission is not unconditional.* Quoting from the Supreme Court’s judgment of September 2005, “ The Court held the notion that the public has a right to expect certain lands and natural areas to retain their natural characteristics. The Court upheld the applicability of public trust doctrine and held that it was founded on the doctrine that certain common properties were held by the government in trusteeship for the free and unimpeded use of the public.” Further the Order went on to say, “ It is held that our legal system includes the public trust doctrine as part of its jurisprudence.”

The present Committee agrees with the learned Court and carries the argument further. It opines that one condition linked to the diversion of forest land for non-forest purposes is as follows: *that NPV as compensation be paid to existing stakeholders for the loss of their rights to the services that this forest earlier provided to them, and towards the*

***fundamental eco-system values, services that forests provide. It is therefore imperative to ensure a division of the total NPV among the stakeholders concerned.***

There is an underlying basic assumption behind the operations of CAMPA at present: the environmental benefits are purely public benefits at the national level and are therefore amenable to be compensated for through a centralized, national body like CAMPA. This assumption ignores the actual dynamics of environmental benefits from forests and the fundamental rule of natural justice, which says that those who lose from an activity should be compensated for the loss on a site specific basis and on time. At the same time, the critical dependence of the livelihoods, subsistence and environmental services associated with millions of Indian citizens living in and close to forests are not taken into account, and the losses that they suffer on account of forest diversion are ignored in the current framework. The maximum impact of forest diversion is on local populations, which live near and depend on forests. The impact is even more serious where tribal populations, scheduled castes and landless are affected, as forests provide a substantial chunk of their livelihood and subsistence.

The Committee noted:

- a) the three tier system of governance viz. the Central, State and local level institutions (Panchayati Raj Institutions) in the country at present and,
- b) the methodology of Part 3 which can be used to separate out the loss to the three kinds of stakeholders

Principles of public finance and natural justice indicate that any fund created as a Special Purpose Vehicle for collection of NPV or any other compensation should ensure speedy and least cost payment of compensation to the different kinds of stakeholders. There exists extensive documentation of the delays in allocation and use of plan and non-plan outlays on the forestry sector. Funds collected under CAMPA are also underutilized, partly due to the sheer cumbersome nature of processes involved. ***In sum, the ill-effects and huge administrative costs of distributing centralized funds point towards the imperative for setting up a process for ensuring appropriate division of the “NPV fund” between tiers of governance, local, state and central.***

It has come to the knowledge of the Committee that till date no part of the CAMPA collections were distributed either to the states or other stakeholders, while as much as 5,73,164 hectares of forest lands have been converted during the period from 01.01.2001 to 19.04.2006 as per information provided by the Ministry of Environment and Forests.

Therefore, a process such as the following is recommended by the Committee for amounts collected as NPV and as ground rent.

Amounts collected in lieu of NPV and other charges are to be divided ***as per methodology and process described in Part 3 above between those accruing to local, state and national level stakeholders.***

1. Amounts accruing as compensation to local level stakeholders are to be deposited in a fund called the ***Local Forest Fund***, to be administered by the District Collector, with due authorization by the state. The District collector shall be responsible for transfer of the Fund to the following institutions in areas where diversion of forests for non-forest activity has taken place:
  - To panchayats constituted under Part IX of the Constitution including their extension to scheduled areas in accordance with the PESA Act of 1996. This shall ensure that they are used to create and protect regeneration of natural forests and afforestation “ in consonance with customary law, social and religious practice and traditional management practices”.
  - To autonomous District Councils in the North Eastern states. The Apex Court has earlier expressed the view that the management of reserve forest can be entrusted to the Councils by the Governor of the state.
  - In JFM areas where a JFM activities are going on, NPV should be shared between the JFM village protection committees and the Gram Panchayats using the same rules as for other benefit-sharing activities.
  - Panchayats and other recipient bodies in turn shall determine its sharing between the losers and to create additional eco-system valued investments on village lands.
2. Amounts accruing as compensation to the state level stakeholders should accrue to the State government within which land diverted is located. The State shall create a separate ***State Forest Fund*** into which these amounts shall be deposited. It shall be used ***exclusively*** for plantation, protection and forest development activities (not inclusive of expenses on building forest offices, rest houses and such other administrative matters).
3. The amount accruing as compensation to the Centre may be deposited in a centrally designated fund (such as the CAMPA). This can be used by the national government to promote forestry research and development at the national scale. This shall be called as ***National Forest Development Fund***.

The Committee recommends further that a technical institution, funded by the National Forest Development Fund be created under the MOEF to conduct regular training programmes with an objective of capacity building for determining site specific NPV and other similar exercises. This institution be one which has the power to collect all necessary data and information from all sources regarding such exercises.

4. Further, amounts due as ***ground rent*** be collected by the District Collector, with due authorization by the state government, and deposited in the State Forest Fund, on a quarterly basis. This amount be used by the State Forest Departments exclusively for forest land conservation programmes such as soil conservation, retention check dams and such other measures as deemed fit.

5. Each of these three components of Funds sharing the compensation payments should have similar legal status as the existing CAMPA. Further, they shall be subject to audit by the Comptroller & Auditor General (C & AG). Such detailed audit is consistent with sound public finance principles, and also militates against transparency and accountability.
6. In no case should the compensations collected under NPV and related payments be treated either as part of the Consolidated Fund of the Union or of the relevant State, or as Special Funds under sub-clauses of Article 371.
7. The forest departments should collect the compensating NPV on a site specific basis, and transfer the same to the three tier Fund institutions within not more than three months. The entire matter of such transactions shall come under Right to Information Act. Hence the same should be publicly notified.

## **List of Appendices**

Appendix 1: List of Organisations/ Individuals attending the hearings.

Appendix 2: List of Experts participating in IEG Seminar.

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Appendix 4: Estimation of NPV for Himachal Pradesh.

Appendix 5: Legal perspectives from Himachal Pradesh.

**Appendix: 1**  
**List of Organisations/ Individuals attending the hearings.**

**First Public Hearing of Expert Committee on N.P.V at  
Institute of Economic Growth, Delhi, November 29, 2005**

| <i>S.No.</i> | <i>Name of the Organisation/ Individual</i>                                 |
|--------------|---|
| 1.           | Assistant Inspector General, Ministry of Environment and Forests            |
| 2.           | Advocate Supreme Court  |
| 3.           | ADE (Land), Directorate of Education, Government of Delhi                   |
| 4.           | E.D (Planning), National Hydro Power Corporation                            |
| 5.           | Conservator of Forests, Government of West Bengal                           |
| 6.           | Secretary, Forest Department., Government of Madhya Pradesh                 |
| 7.           | Conservator of Forests Narmada Valley Development Authority, Bhopal         |
| 8.           | Director, Ministry of Power, Govt. of India, New Delhi                      |
| 9.           | Federation of Indian Mining Industries, New Delhi                           |
| 10.          | Conservator of Forests, Government of Rajasthan.                            |
| 11.          | Indian Wind Turbine Manufacturing. Association                              |
| 12.          | Director (Environment), Central Water Commission, Govt. of India, New Delhi |
| 13.          | Economic Adviser, Government of Madhya Pradesh                              |
| 14.          | Brigadier, Indian Army (Director General Military Training), New Delhi.     |
| 15.          | General Manager (Environment), National Highway Authority of India, Delhi.  |

**Second Public Hearing of Expert Committee on N.P.V at Institute of Economic  
Growth, Delhi, December 24, 2005,**

| <i>S.No.</i> | <i>Name of the Organisation/ Individual</i>                                     |
|--------------|---|
| 1.           | Executive Engineer, Rural Engineering Services, U.P.                            |
| 2.           | Deputy. Director, Ministry of Water Resources, Government of India              |
| 3.           | The Energy & Resource Institute, New Delhi                                      |
| 5.           | Power links Transmission Ltd.   |
| 6.           | Chief (Environment), National Hydro Power Corporation                           |
| 7.           | Director, Economic Management Institute   |
| 8.           | Head, Resource Survey and Mgmt. Division, Dehradun, Uttranchal                  |
| 9.           | Head, Ecology and Environment. Division, Forest Research Institute, Uttrancha., |
| 10.          | Conservator (Policy & Law), Government of Himachal Pradesh                      |
| 11.          | Senior Coordinator, Forest Policy & Economics, World Wild Fund, New Delhi       |
| 12.          | Assistant Inspector General of Forests, MOEF, New Delhi                         |
| 13.          | Deputy Director, Corbett Tiger Reserve, Dehradun, Uttranchal                    |
| 14.          | Divisional Manager, Uttranchal Forest Development Corporation, Uttranchal .     |
| 15.          | Advocate, Government of Uttranchal  |
| 16.          | General Manager (Project), Coal India Limited, HQ                               |
| 17.          | Officer in Special Duty (L/R) WCL, Nagpur                                       |
| 18.          | DGM, Powergrid Corporation Ltd., Gurgaon  |
| 19.          | Jaiprakash Industries Ltd.  |

**Third Public Hearing of Expert Committee on N.P.V at Aranya Bhavan, Bangalore,  
January 16, 2006.**

| <i>S.No.</i> | <i>Name of the Organisation/ Individual</i>                |
|--------------|--|
| 1.           | Karnataka Power Corporation Ltd.                           |
| 2.           | Tamil Nadu Forest Department, Chennai                      |
| 3.           | Andhra Padesh, Forest Department                           |
| 4.           | AIG, Ministry of Environment and Forests, New Delhi        |
| 5.           | Renewable Energy Development Association                   |
| 6.           | Kodagam Model Forest Trust                                 |
| 7.           | Vriksha Laksha Andolan                                     |
| 8.           | Citizen Welfare Forum, Devattally, Karnataka               |
| 9.           | The Indian Cements Ltd., Nalagonda Limited, Andhra Pradesh |
| 10.          | Greenweig Projects Ltd, Bangalore                          |
| 11.          | Powergrid Corporation Ltd, Bangalore                       |
| 12.          | Treelands Development Services, Bangalore                  |
| 13.          | Tumkur Science Centre Balbhavan, Karnataka State           |
| 14.          | NELE Academy, Bangalore                                    |
| 15.          | Nagarika Seva Trust, Bangalore                             |
| 16.          | Ashoka Centre for Wildlife Studies, Bangalore              |
| 17.          | Water Resource Department, Government of Karnataka         |
| 18.          | Minor Irrigation (South), Bangalore                        |
| 19.          | Tribal Resettlement and Development Mission, Kerala        |
| 20.          | Emercon (India) Ltd., Bangalore                            |
| 21.          | Indian Wind Power Association, Bangalore                   |
| 22.          | KREDL, Bangalore   |
| 23.          | Livestock Heritage Trust of India, Bangalore               |
| 24.          | Misenercon (India) Ltd, Bangalore                          |
| 25.          | Conservator of Forests, Aranya Bhavan, Bangalore           |
| 26.          | CISED, ISEC Campus, Bangalore                              |
| 27.          | Indian Wind Power Association, President                   |
| 28.          | Sewamitra Foundation, Karnataka                            |
| 29.          | The Singareni Collieries Company Ltd.                      |
| 30.          | The Travancore Devaswom Board, Kerala                      |
| 31.          | Kamakshi Automobiles                                       |

**Fourth Public Hearing of Expert Committee on N.P.V at Assam Administrative Staff College, Guwahati, January 28, 2006**

| <i>S.No.</i> | <i>Name of the Organisation/ Individual</i>   |
|--------------|---|
| 1.           | PCCF, Department of Forest, Government of Assam   |
| 2.           | C.C.F (T), Assam  |
| 3.           | North East (RO), Ministry of Environment and Forests, Govt of India   |
| 4.           | Conservator of Forest, Government of Meghalaya  |
| 5.           | Joint Director, Ministry of Environment and Forests, Shillong   |
| 6.           | Coal India Ltd, Assam   |
| 7.           | Conservator of Forest, Central Assam Circle, Guwahati   |
| 8.           | Power & Electricity Deptt., Government of Mizoram   |
| 9.           | Rural Volunteer Centre  |
| 10.          | Arunachal Pradesh Forest Deptt., Government of A.P  |
| 11.          | Dakshingaon Bhumi Sagharakhshan Committee   |
| 12.          | Indian Tibet Border Police Force, HQ : NE-II, Gangtok.  |
| 13.          | North Eastern Electric Power Corporation Ltd.   |
| 14.          | Nature's Beacon   |
| 15.          | Centre for Organisation Research & Education, CORE  |
| 16.          | Rural Management & Development Deptt., Govt. of Sikkim  |
| 17.          | Water Security & Public Health Engineering Deptt., Govt. of Sikkim  |
| 18.          | Government of Mizoram   |
| 19.          | Indian Army, AQMG (Works), HQ 33 CORPS, A.P.  |
| 20.          | Arunachal Pradesh Forest Deptt.   |
| 21.          | 758 BRIF, Border Roads Organisation, Sikkim   |
| 22.          | The Missing Link  |
| 23.          | HQ Eastern Command, Fort William, Kolkatta  |
| 24.          | Chief Conservator of Forests (A&U), & Spl Secy (E&F), Department of Environment and Forests, Government of Arunachal Pradesh. |
| 25.          | Conservator of Forests, Nodal Officer, (Forest Conservation), Department of Environment and Forests, Arunachal Pradesh.       |

**Fifth Public Hearing of Expert Committee on N.P.V at Annexe Hall,  
Circuit House, Ahmedabad, February 11, 2006**

| <i>S.No.</i> | <i>Name of the Organisation/ Individual</i>                                     |
|--------------|---|
| 1.           | The Times of India  |
| 2.           | Chowgule Eco (Salt) Ltd.  |
| 3.           | VIKSAT, Ahmedabad   |
| 4.           | Eklavya Sangathan, Ahmedabad  |
| 5.           | M.C.G.M., Middle Vaiarna Dam, W.S.P   |
| 6.           | Deputy, Law Officer MCGM  |
| 7.           | Laxmi Salt & Chemical Works   |
| 8.           | Shri Yogi Salt Works Pvt. Ltd.  |
| 9.           | Hindustan Petroleum Corporation Ltd. -Palan pur                                 |
| 10.          | Hindustan Petroleum Corp Ltd. –MDPL Project                                     |
| 11.          | Jindal Steel & Power Ltd., Raipur, Chattisgarh                                  |
| 12.          | Indian Oil Corporation Ltd (Pipelines), NOIDA, U.P.                             |
| 13.          | Maharashtra Rajya Dharanrast Sanghatana, Maharastra                             |
| 14.          | Saurashtra Chemical, Porbandar  |
| 15.          | NIRMA Ltd   |
| 16.          | Reliance Industries Ltd.  |
| 17.          | The Thane Owners Welfare Association  |
| 18.          | Deputy Director, Government of Maharashtra                                      |
| 19.          | FASCEL Ltd.   |
| 20.          | Consultant of OFC   |
| 21.          | City and Industrial Development Corporation (Maharashtra) Ltd.                  |
| 22.          | Deputy Salt Commissioner, Ahmedabad   |
| 23.          | Principal Chief Conservator of Forests, Gujarat, Vadodra                        |
| 24.          | Gujarat Chamber of Commerce & Industry  |
| 25.          | CII-Environment Committee   |
| 26.          | Somabhai Desai, Liasion Officer   |
| 27.          | Binoykrishna Mandal, IFS (R)  |
| 28.          | O/o Deputy Salt Commissioner, Government of India                               |
| 29.          | V.I.D.C, Nagpur   |
| 30.          | Paryavaranmitra, Ahmedabad, Gujarat   |
| 31.          | LHHRC, Surat  |
| 32.          | Gujarat Forest Producers Gatherers and Forest Worker Union, Ahmdedabad, Gujarat |
| 33.          | Essar Group, Ahmedabad, Gujarat   |
| 34.          | TATA Chemical Ltd., Ahmedabad   |
| 35.          | Advocate, Jayaswals New Ltd   |
| 36.          | President, Jayaswals NECO Ltd.  |
| 37.          | Superintending Engineer, VIDC Nagpur on behalf of Govt. of Maharashtra          |
| 38.          | Adivasi Mahasabha, Gujarat  |
| 39.          | National Highway Authority of India   |
| 40.          | Manager, (Tech.) NHAI, PW, Rajkot   |
| 41.          | Executive Director, Mining Division   |
| 42.          | President (Corp. Affairs)   |
| 43.          | Sr. G.M. (Mines)  |

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| 44. | Chief Manager, GAIL (I) Ltd.   |
| 45. | Nodal Officer, Gujarat Forest Department   |
| 46. | PCCF (Central), Ministry of Environment and Forests, Western Regional Office, Bhopal |
| 47. | PCCF, LM, Government of Madhya Pradesh   |
| 48. | Secretary Forest, Government of Madhya Pradesh, Bhopal                               |
| 49. | Paryavaran Suraksh Samiti  |
| 50. | The Thane Quarry Welfare Association   |
| 51. | Centre for Development Alternative, Ahmedabad  |
| 52. | Accountant/ P.C.C.F Land, Gandhi Nagar, Gujarat                                      |
| 53. | Kutch-Saurashtra Salt Manufacturing Association, Ahmedabad                           |
| 54. | Indian Salt Manufacturer Association, Gujarat.                                       |
| 55. | Mundra SEZ/ Adani Chemicals Ltd.   |

**Sixth Public Hearing of Expert Committee on N.P.V at Auditorium of Industrial Development Corporation, Bhubaneswar, February 25, 2006.**

| <i>S.No.</i> | <i>Name of the Organisation/ Individual</i>                               |
|--------------|---|
| 1.           | Former S.E. M.P Water Resource Department, Bhopal                         |
| 2.           | D.G.M., IMFA Ltd  |
| 3.           | EECC, Karnataka Power Corporation Limited                                 |
| 4.           | Chief Engineer, General Manager and Company Secretary, KPC Ltd, Bangalore |
| 5.           | DCF, Ministry of Environment and Forests, Bhubaneswar                     |
| 6.           | PCCF (Retd.) Bihar, Water Resources & Power Departments, Govt. Of Bihar   |
| 7.           | C.F & F.D, Valmiki Tiger Project, Government of Bihar                     |
| 8.           | S.E. Durgawati, Govt of Bihar, Water Resource Department                  |
| 9.           | PCCF, Wasteland Development Board, Govt. of Jharkhand                     |
| 10.          | Chief Conservator of Forests, Government of Orissa                        |
| 11.          | Conservator of Forest, Eastern Region Office, MOEF                        |
| 12.          | DCF (c), Ministry of Environment and Forests, Bhubaneswar                 |
| 13.          | Jindal Steel and Power Ltd.   |
| 14.          | Balasore Alloys Ltd   |
| 15.          | OCL India Ltd.  |
| 16.          | Kanha Tiger Reserve, Madhya Pradesh Forest Department                     |
| 17.          | IDCO, Orissa  |
| 18.          | Administrative Officer, Kanoria Chemical, Renukoot (U.P)                  |
| 19.          | Office of PCCF, Orissa  |
| 20.          | Ministry of Environment and Forests, Bhubaneswar, ERO                     |
| 21.          | Representative, Aryan Mining & Trading Company (P) Ltd.                   |
| 22.          | DGM, ESSEL Mining & Industrial Ltd.                                       |
| 23.          | GM, (G & E), Representing EZMA  |
| 24.          | DGM, Jindal Stainless Ltd, Bhubaneswar                                    |
| 25.          | D.G.M., National Aluminum Corporation Ltd                                 |
| 26.          | Executive Engineer, OSRP, Works Department, Orissa                        |
| 27.          | Member, Jangal Suraksha Mahasangh,  |
| 28.          | AGM-Geology, Vedanta Aluminum Ltd.  |

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| 29. | Director, RCDC   |
| 30. | Director, Ghanashyam Misra & Sons (P) Ltd.                             |
| 31. | General Manger, Bhushan Ltd.   |
| 32. | PCCF, Forest Department, Rajasthan                                     |
| 33. | Additional Director (Mines), Deptt. Of Mines, Govt. of Rajasthan       |
| 34. | Planning Officer, Department of Tourism, Govt. of Bihar                |
| 35. | Chief Engineer, Water Resource Department, Government of Bihar         |
| 36. | Advocate, Bhubaneswar  |
| 37. | Sr. Project Officer, Foundation for Ecological Security                |
| 38. | Managing Director, Pollution Control Consultant (I) Ltd.               |
| 39. | Asst Professor, IIM-Lucknow  |
| 40. | Reader & Director, Dept. of Economics, St. Joseph College, Darjeeling. |
| 41. | Director, Tarim Mineral Pvt. Ltd.                                      |
| 42. | Sr. Professor, Indian Institute of Management- Ahmedabad               |
| 43. | Indira Gandhi National Open University New Delhi                       |
| 44. | SGM (Elec.) Orissa Hydro Power Corporation Ltd, Bhubaneswar            |
| 45. | Manager, Liasion, SMC Power Gen Ltd, Bhubaneswar                       |
| 46. | Aryan Mining & Trading Corporation Pvt. Ltd.                           |
| 47. | Mideast Integrated Steels Ltd.   |
| 48. | The Orissa Mining Corporation Ltd.                                     |

**Appendix :2**  
**List of Experts Participating in IEG Seminar**

**The Committee benefited from a one-day expert consultation cum seminar organized at the Institute of Economic Growth, Delhi on March 20<sup>th</sup>, 2006. The following experts participated in and made presentations in this seminar.**

| Sl. No. | <i>Name of the Expert</i>   |
|---------|---|
| 1.      | Professor P.S. Ramakrishnan<br>Professor Emeritus, Expert on Ecology & Environment,<br>School of Environmental Sciences<br>J.N. U., New Delhi 110067<br>India<br>E-mail: <a href="mailto:psr@mail.jnu.ac.in">psr@mail.jnu.ac.in</a> |
| 2.      | Professor (Mrs.) Madhu Verma<br>Expert in Natural Resource Accounting,<br>Faculty of Forest Resource Economics and Management,<br>Indian Institute of Forest Management (IIFM),<br>Bhopal, M.P.<br>Fax: 0755-2772878                |
| 3.      | Sh. Sanjay Upadhyay<br>Legal Expert, (Environmental Law),<br>278-Sector 15/A<br>NOIDA-201301<br>Telefax: 911202517469   |
| 4.      | Shri Sidharth Behuria,<br>Additional Secretary, MOEF, Government of India,<br>CGO Complex, New Delhi  |
| 5.      | Professor. P.B. Mongia<br>Expert in Environmental Economics,<br>Visiting Professor,<br>Institute of Economic Growth<br>Delhi-110007<br>Fax: 27667410  |
| 6.      | Prof. M.N. Murty<br>Expert in Environmental Economics,<br>Professor,<br>Institute of Economic Growth<br>Delhi-110007<br>Fax: 27667410   |
| 7.      | Ms. Rajnesh Jain<br>Joint Director,<br>CSO Project on Green Accounting,<br>Ministry of Statistics and Programme Implementation,<br>Sardar Patel Bhavan, Parliament Street,<br>New Delhi-110001<br>Fax: 23361080                     |

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|-----|---|
| 8.  | Shri Anand P. Gupta<br>Professor (Retd.) & Economist,<br>Indian Institute of Management, IIM<br>Vastarpur, AHMEDABAD-380 015  |
| 9.  | Ms. Jill Carr Harris<br>Executive Director, LEAD (India)<br>B-10, Ist Floor, Greater Kailash Part –II<br>New Delhi-110048<br>Mobile: 9810030898   |
| 10. | Shri Sudhir Pandey<br>Former DG Forests and Special Secretary, MOEF<br>Expert Forestry, Flat No. 902<br>MS, Block-II, Kendriya Vihar<br>Sector-56, Gurgaon-122 0003<br>Mobile 9811480567<br>Tel: 0124-2385066 |
| 11. | Dr.. Indu Murthy<br>Centre for Ecological Sciences<br>Indian Institute of Science, IIS<br>Bangalore-560 012<br>Tel: 080-2360 1455/ 2293 3100<br>Fax: 080 2360 1428  |
| 11. | Shri A.D.N. Rao<br>Legal Expert, MOEF, Government of India,<br>New Delhi  |
| 12. | ShriA. K. Kutty, Joint Secretary, Ministry of Power,<br>Government of India, New Delhi  |

**Appendix 3:**  
**List of Presentations/ Submissions made to the Expert Committee**

| <b>S. No.</b> | <b>Title</b>   | <b>Names/ Authors</b>   | <b>Organization</b>   | <b>Date</b> |
|---------------|--|---|---|-------------|
| 1.            | Presentation.  | Sh. T. Millang  | Government of Arunachal Pradesh, Department of Environment and Forests    | 25-11-2005  |
| 2.            | Presentation in respect of field firing ranges.                          | Brig. K.S. Dhillon  | Indian Army, General Staff Branch. New Delhi                              | 02-12-2005  |
| 3.            | Expert Committee on NPV of Forest Land                                   | State Geologist   | Department of Industries, Government of Himachal Pradesh, Geological Wing | 12-12-2005  |
| 4.            | Exemption of irrigation projects from payment of net present value.      | Sh. A. Sekhar, Advisor  | Ministry of Planning Commission, Government of India.                     | 13-12-2005  |
| 5.            | Request for looking up the matter of using pure water by mining agencies | Sh. H.S. Gupta  | Indian Institute of Forest Management, IIFM, Bhopal, M.P.                 | 14-12-2005  |
| 6.            | Smaller hydro project.   | Sh. Debashish Majumdar  | Indian Renewal Energy Development Agency Ltd., New Delhi                  | 16-12-2005  |
| 7.            | Presentation by Coal India Ltd.  | Sh. M.K. Shukla   | Coal India Ltd. Delhi   | 20-12-2005  |
| 8.            | Government of Himachal Pradesh   | Deputy Commissioner,  | Lahaul and spiti at Keylong, Government of Himachal Pradesh               | 21--12-2005 |
| 9.            | Presentation   | Deputy Secretary  | Department of Revenue, Government of Karnataka                            | 21-12-2005  |
| 10            | Presentation   | Dr. P.B. Gangopadhyaym, Principal Chief Conservator of Forests (Wildlife) & | Chief Wildlife Warden, M.P.   | 22-12-2005  |
| 11.           | Presentation by Society for Promotion of Wastelands Development          | Shri Pramod Tyagi, Programme Director,                                      | Society for Promotion of Wastelands Development                           | 22-12-2005  |

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|-----|--|--|---|------------------|
| 12. | Petition of State of Uttranchal for Waiver of NPV in matters related to transfer of land for relocation of communities living in Protected Areas | Shri Vivek Pandey,<br>IFS, Deputy Director   | Corbett Tiger Reserve   | 22-12-2005       |
| 13. | Representation before Expert Committee on NPV of Forest Land.  | Shri R.C. Mittal,<br>Chief Engineer  | Public Works Department, Government of Uttranchal, Dehradun               | 23-12-2005       |
| 14. | Submission by TERI at the Second Public Hearing on "NPV to be charged on forest lands diverted for non-forestry purposes"                        | Dr. P.P. Bhojvaid  | TERI, India Habitat Centre  | 24-12-2005       |
| 15. | Submission to the Expert Committee on NPV  | Ms. Madhu Sarin  | -   | 24-12-2005       |
| 16. | Presentation on Charging of "NPV of Forest Lands" diverted for Water Resources Projects  | Shri Indra Raj,<br>Commissioner (PR),<br>Dr. Pawan Kumar,<br>Director<br>& Dr. B.R.K. Pillai,<br>Deputy Director | Ministry of Water Resources,<br>Central Water Commission & NCA            | 24-12-2005       |
| 17. | Environmental Issues of EHV Transmission Line  | Shri D.K. Das  | Powergrid Corporation of India.   | 26-12-2005       |
| 18. | Cases where exemption from payment of NPV and compensatory afforestation charges could be considered   | Sh. S.R. Vatsala   | Principal Secretary to Government, Forest, Ecology and Environment Deptt. | 27-12-2005       |
| 19. | Payment of NPV for Non-forestry Purpose-A case of NEEPCO   | Shri J. Barkakati,<br>Director (Technical),<br>NEEPCO  | North Eastern Electric Power Corporation Ltd                              | 28-01-2005       |
| 20. | Expert Committee review- Payment on NPV of Forest Lands  | Shri P.L. Subramanian,<br>President (Technical & Manufacturing)  | The India Cements Ltd.  | January 12, 2006 |
| 21. | Presentation   | Shri Kanwerpal,<br>Chief Conservator of Forests  | Karnataka Power Transmission Corporation Ltd.                             | 13-01-2006       |

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| 22. | Public Hearing of the Expert Committee-Submission by Indian Wind Power Association, Karnataka Council             | Shri U.B. Reddy, Secretary                                | Indian Wind Power Association, Karnataka IWPA   | 13-01-2006 |
| 23. | Submission  | Chairman and Managing Director                            | Kerala State Road Transport Corporation         | 13-01-2006 |
| 24. | Presentation of Facts Regarding NET Present Value to be charged on Forest Land Diverted for Non Forestry Purposes | Shri Gajanan Baburao Bhat                                 | Kamakshi Automobiles                            | 15/01/2006 |
| 25. | Presentation  | Shri C. Yathiraj  | NELE Academy, Tumkur Science Centre             | 16/01/2006 |
| 26  | Presentation  | Shri C.G. Sachidanandan, Commissioner                     | The Travancore Devaswom Board, Kerala           | 16-01-2006 |
| 27  | Presentation on Charging NPV to the Coal Mining Projects for consideration of the Expert Committee.               | Shri J.V. Dattatreyyulu, Director (Planning and Projects) | The Singareni Collieries Company Limited        | 16-01-2006 |
| 28  | Submission on “NPV to be charged on forest lands diverted for non-forestry purpose”                               | Shri Ananth Hegde Ashiar, Chief Coordinator               | Vriksha Laksha Andolana-Karnataka               | 16-01-2006 |
| 29. | Presentation by IWEA  | -   | The Indian Wind Energy Association              | 16-01-2006 |
| 30. | Request for refund of NPV deposited towards Forestland diverted for non-forest purpose                            | Shir B.S. Suryanarayana, General Manager, Administration  | SAI Spurthi Power Pvt. Ltd.                     | 16-01-2006 |
| 31. | Clarification on transfer of forest land for non-forest purpose on payment on NPV                                 | Shri M. Ramesh, President                                 | Sanghamitra Foundation                          | 16-01-2006 |
| 32. | Submission present by Kodagy Model Forest Trust   | Shir K.G. Uthappa, Advocate                               | Kodagu Model Forest Turst., College of Forestry | 16-01-2006 |

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| 33  | Submission by Citizen Welfare Forum   | Shri Chinna Narayana Swamy, Convenor                           | Citizen Welfare Forum  | 16-01-2006          |
| 34  | Presentation  | Shri Parameshwar Naik, MLA                                     | Davanagere District, Karnataka   | 16-01-2006          |
| 35. | Exemption from payment of NPV.  | Shri O.N. Hazra  | The Crusher Owners Welfare Council & Elders and Senior Citizen Council   | 22-01-2006          |
| 36. | Presentation  | Shri S.Biswas, Chief Engineer (Power)                          | Government of Mizoram  | 25-01-2006          |
| 37. | Presentation by Government of Sikkim  | Shri V.B. Pathak, IAS, Commissioner                            | Rural Management & Development Department, Gangtok, Government of Sikkim | 25-01-2006          |
| 38. | Presentation  | Shri B.B. Hagjer, Commissioner                                 | Environment and Forests Department, Government of Assam                  | 26-01-2006          |
| 39. | Hearing by Expert Committee on Forest Conservation Act Problems Faced by DEF Forces   | Col. AK Sanyal   | Eastern Command, Indian Army   | 27-01-2006          |
| 40. | Shifting Cultivation Fallows : Issues for consideration in NPV Assessment of Forests in the context of Shifting Cultivation | Shri Dhruvad Choudhury   | G B Pant Institute of Himalayan Environment and Development              | 28/01/2006 at Assam |
| 41. | Payment of NPV for Non-forestry purpose, A case of NEEPCO   | Shri J. Barkakati  | North Eastern Electric Power Corporation Ltd.                            | 28-01-2006          |
| 42. | Shifting Cultivation Fallows: Issues for consideration during NPV Assessments.  | Shri Dhruvad Choudhury   | Itanagar   | 28-01-2006          |
| 43. | Presentation by Government of Sikkim.   | Shri R.D. Bhutia, Superintending Engineer WS & PHE Department, | Government of Sikkim   | 28-01-2006          |

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| 44. | Submission to the Expert Committee on “Net Present Value to be charged on Forest Lands diverted for non-forestry purposes” Statement on behalf of indigenous and tribal peoples of the north east region of India | Dr. Debabrata Roy<br>Laifungbam, Director                            | CORE-Centre for Organisation Research & Education                      | 28-01-2006 |
| 45. | Representation from State of Mizoram  | Shri S.N. Kalita,<br>PCCF  | Department of Environment and Forests,<br>Government of Mizoram.       | 28-01-2006 |
| 46. | Submission presented by ITBP  | Shri Hayat Singh,<br>Dy. Commandant<br>(Engr.)                       | ITBP, Ministry of Home Affairs, Government of India                    | 28-01-2006 |
| 47. | Exemption of certain Government projects from payment of Net present value.   | P.R. PudiyaI, IAS,<br>Additional Secretary                           | Government of Sikkim,<br>Human Resource Development                    | 02-02-2006 |
| 48. | Exemption of NPV for the forest land used for manufacture of salt   | Managing Director  | M/s. Laxmi Salt and Chemical Works, Dahej                              | 4-02-2006  |
| 49. | NPV Charges for laying underground cable  | Sh. A.S. Jain  | Gail India Ltd, Gujarat  | 08-02-2006 |
| 50. | Applicability of NPV  | Dr. Ranbir Singh   | Government of Uttranchal   | 10-02-2006 |
| 51. | Payment of NPV for Diverted Forest Land.  | Sh. Jayesh Buch  | Mundra SEZ Ltd./ Adani Chemicals Ltd.                                  | 11-02-2006 |
| 52. | Exemption of NPV for the Forest Land used for manufacture of salt.  | Managing Director  | Laxmi Salt and Chemical Works and Shri Yogi Salt works, Dahej, Bharuch | 11-02-2006 |
| 53. | Exemption of Project from Payment of Net Present Value  | Sh. A.K. Saxena,<br>PCCF & Nodal Officer                             | Government of Mahrastra  | 13-02-2006 |
| 54. | Request for Power presentation on NPV by Jindal Steel & Power Ltd.  | Shri S.K. Sarkar   | Jindal Steel & Power Ltd   | 16-02-2006 |
| 55. | On behalf of the Minor Irrigation Department  | Sh. E. Venkataiah,<br>IAS, Secretary                                 | Water Resource Department, Government of Karnataka                     | 17-02-2006 |
| 56. | Submission presented by Power Ministry, GOI   | Shri A.K. Kutty, Joint Secretary                                     | Ministry of Power, Government of India                                 | 17-02-2006 |
| 57. | NPV Calculations for Diversion of Forest Land for Mining Purposes   | Prof. Samar K. Datta<br>Prof. Sanjeev Kapoor<br>Prof. Kriti B. Gupta | IIM- Ahmedabad<br>IIM-Lucknow<br>St. Joseph College,<br>Darjeeling     | 20-02-2006 |

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| 58. | Presentation  | Shri Ratan Purwar,<br>Secretary Forest<br>Department            | Department of Forests,<br>Government of Madhya<br>Pradesh | 21-02-2006                    |
| 59. | Supplementary Submisison<br>to the Expert Committee on<br>NPV   | Shri Ambrish Mehta<br>and Shri Trupti<br>Parekh                 | Action Research in<br>Community &<br>Development (ARCH)   | 21-02-2006                    |
| 60. | Representation on behalf of<br>Mining Lessees of<br>Rajasthan before the<br>Supreme Court Committee<br>of Experts on “NPV to be<br>charged for Forest Land<br>Diverted for Non-Forest<br>purposes”. | Shri Akshaydeep<br>Mathur, Hony.<br>Secretary General.          | Federation of Mining<br>Associations of<br>Rajasthan.     | 22-02-2006                    |
| 61. | Submission to the Expert<br>Committee on “NPV to be<br>charged on Forest land<br>diverted for non-forestry<br>purpose”  | Managing Director   | Karnataka Power<br>Corporation Ltd.                       | 22-02-2006, at<br>Bhubaneswar |
| 62. | Sonebhadra in respect of<br>payment of NPV for<br>renewal of lease deed of 4<br>acres land leased out to<br>Nirmala Convent School,<br>Renukoot, Distt<br>Sonebhadra.                               | Shri Atul Kumar<br>Singh, Assistant Vice<br>President (HR & IR) | Kanoria Chemicals &<br>Industries Ltd.                    | 23-02-2006                    |
| 63. | Presentation  | Shri V.P. Sood,<br>Director                                     | OCL India Ltd.  | 23-02-2006                    |
| 64. | Certificate on expenditure<br>incurred for Environmental<br>Management works against<br>per tonne of coal raised at<br>NEC.   | Chief Geologist   | North Eastern Coalfields,<br>Coal India Ltd.              | 23-02-2006                    |
| 65  | Water Resource<br>Department regarding<br>exemption from Levy of<br>NPV on irrigation projects  | Shri R.M. Landge,<br>Executive Director                         | Vidarbha Irrigation<br>Development<br>Corporation, Nagpur | 23-02-2006                    |

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| 66. | “NPV” to be charged on Forest Lands diverted for non-forestry purposes in the context of land held by us for various solar salt works in the district of Jamnagar. | Shri Deepak Shah   | Saurashtra Chemical Ltd, SAUKEM                   | 24-02-2006                 |
| 67. | Net present value of forests-Significance and Estimation in India  | Shri Debi Goenka   | Conservation Action Trust                         | 24-02-2006                 |
| 68. | Presentation to the Committee of Experts on NPV for Forests diversion  | Shri Kundan Kumar<br>Shri PR Choudhury                               | -   | 25-02-2006                 |
| 69. | Presentation by M/S Mideast Integrated Steels Ltd.   | Shri G. Upadhyaya,<br>Sr. Resident Director                          | Mesco Group                                       | 25-02-2006, at Bhubaneswar |
| 70. | Representation Before the “Expert Committee” on exemption of “NPV” charged on forest land diverted for construction of transmission lines.                         | Shri Padma Ballav Mohapatra, Chief Engineer,<br>Transmission Project | Orissa Power Transmission Corporation Ltd, Orissa | 25-02-2006                 |
| 71. | Submission on behalf of State of Orissa  | Chief Conservator of Forests (Nodal), Shri P.N. Pandhi               | Department of Forests, Government of Orissa.      | 25-02-2006, at Bhubaneswar |
| 72. | Net Present Value of Forests : Submission to Expert Committee on NPV of Forest Land  | Shri Pavan Sukhdev   | GIST-Green Indian States Trust                    | 25-02-2006                 |
| 73. | Presentation of Note on determination for NET Present Value (NPV) of Forest Land Diverted for Mining at the public hearing will be conducted.                      | Shri H. Kakad  | Aryan Mining & Trading Corporation Pvt. Ltd.      | 25-02-2006                 |
| 74. | “NPV” to be charged on Forest Land diverted for non-forestry purposes” in pursuance of order dated 26-09-2005 of the Supreme Court of India                        | Managing Director  | The Orissa Mining Corporation Ltd.                | 27-02-2006                 |
| 75. | Levy of NPV-case of exemption of Underground Coal Mines  | Shri A.K. Srivastava,<br>President (Mines)                           | Jayaswals NECO Ltd.                               | 27-02-2006                 |
| 76. | Submission to the Expert Committee on NPV (Reminder).  | Ms. Madhu Sarin  | NPV Committee/<br>Submission                      | 28-02-2006                 |

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| 77. | Constitution of District Level Committee to identify forest areas and Government and Private Plantations. | Shri Sanjay Pattnaik,<br>Chief Resident<br>Executive<br>Shri P.K. Raut | Tata Steel Ltd.  | 01-03-2006 |
| 78. | Presentation by FIMI  | Shri R.K. Sharma   | Federation of Indian Mineral Industries, FIMI                | 02-03-2006 |
| 79. | Presentation by AMTC at Bhubaneswar   | Director, AMTC   | Aryan Mining & Trading Corporation Pvt. Ltd.                 | 7-03-2006  |
| 80. | Presentation by Saurashtra Chemicals Ltd.   | Shri Deepak Shah   | Saurashtra Chemicals Ltd, Gujarat State                      | 7-03-2006  |
| 81. | Fifth Public Hearing of the Expert Committee on "NPV"   | Shri V.R. Banginwar,<br>Additional<br>Commissioner                     | Vidarbha Statutory Development Board,<br>Nagpur              | 8-02-2006  |
| 82. | Presentation of Paryavaran Mitra (Centre for Social Justice-Janvikas)                                     | Shri Mahesh Pandya   | Paryavaran Mitra   | 11-02-2006 |
| 83. | Submission  | Shri R.K. Singh  | Dist : Thane, Maharashtra                                    | 11-02-2006 |
| 84. | Assigning NPV to diverted forest lands  | Shri Michael<br>Mazgaonkar   | Paryavaran Suraksha Samiti                                   | 11-02-2006 |
| 85. | Submission to the Expert Committee on NPV   | Shri Mahendra  | Gujarat Forest Producers Gatherers and Forest Workers Union. | 11-02-2006 |
| 86. | Application for exemption of projects for payment on NPV  | Shri G.M. Singh  | The Thane Quarry Owner Welfare Association                   | 11-02-2006 |
| 87. | A Presentation on "NPV" on 11-2-2006 before the Expert Committee.   | -  | JAYASWAL NECO LIMITED  | 11-02-2006 |
| 88. | Impact of NPV over Irrigation Projects of Madhya Pradesh  | -  | Water Resource Department, Government of Madhya Pradesh      | -          |
| 89. | Presentation on NPV   | -  | State of Rajasthan   |            |

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| 90.  | Why NPV should not be charged in cases of diversion of Forest land for the purpose of resettlement off villages relocated from National parks and sanctuaries. | Shri Suhbaranjan Sen, Deputy Director                      | Kanha Tiger Reserve, Madhya Pradesh                        | - |
| 91.  | Dugawati Reservoir Project   | Chief Conservator of Forests and Chief Warden of Wild Life | Government of Bihar  | - |
| 92.  | Forest Diversion in Orissa.  | Shri P.N. Pandhi, Chief Conservator of Forest (Nodal).     | Government of Orissa                                       | - |
| 93.  | Submission   | -  | Government of Jharkhand                                    | - |
| 94.  | “Charging of NPV of Forest Lands diverted for Water Resource Projects”   | Shri Indra Raj, Commissioner (PR), MOWR                    | Ministry of Water Resources, Government of India           | - |
| 95.  | The rationale for relocation of villages from Pas in M.P.-Benefits to villagers.   | -  | Forest Department, Government of Madhya Pradesh            | - |
| 96.  | Views on NPV   | Shri Ashok Kumar, IFS, C.C.F & Nodal Officer, FCA          | Forest Department, Government of Tripura                   | - |
| 97.  | Levy of NPV on Projects undertaken by ARMY   | -  | Indian Army  | - |
| 98.  | Presentation by Arunachal Pradesh  | -  | Arunachal Pradesh  | - |
| 99.  | Presentation on NPV Payment for RF Area at Sankarnagar   | Shri S. Chandrasekaran                                     | The India Cement Ltd, Sankarnagar                          | - |
| 100. | Charging NPV to applicants for use of forestland for non forest purpose.   | Shri N.S. Adkoli   | Treelands Development Services Pvt. Ltd                    | - |
| 101. | Additional Information on Exemption of Net Present value for irrigation projects   | -  | Water Resources Dept. Government of Maharashtra            | - |
| 102. | Points submitted to the Fifth Public Hearing on Net Present Value of forest at Ahmedabad on February 11, 2006  | -  | VIKSAT, Vikram Sarabhai Centre for Development Interaction | - |
| 103. | Forests and Livestock  | Secretary, LHITI   | Livestock Heritage Trust of India                          | - |
| 104. | A note on release of forest land for Jargal halla pickup   | Executive Engineer,  | M.I Division, SHIMOGA                                      | - |

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|      | and feeder channel in Umblebylu range of Shimoga   |   |  |   |
| 105. | Presentation before the expert committee of Ministry of Environment and Forests for the exemption from payment of NPV on diverted Govt/ Forest Land.                                       | -   | Jaiprakash Industries Ltd. Jaypee Himachal Cement Project.   | - |
| 106. | Presentation by the Himachal Pradesh State Electricity Board (HPSEB) on “NPV to be charged on forestlands diversion for non-forestry purposes” during the second hearing of the Committee. | Shri Vinod K Tiwari, Conservator (Environment Cell) | HP State Electricity Board, Vidyut Bhawan, Shimla-171004 HP  | - |
| 107. | Note on the Applicability of NPV on Minor Mineral Collection in Uttranchal   | Shri D.S. Tomar, Managing Director                  | Uttranchal Forest Development Corporation                    | - |
| 108. | Presentation before Expert Committee on NPV  | Shri B.D. Suyal, Conservator (Policy & Law) IFS.    | Education Department, Government of Himachal Pradesh         | - |
| 109. | Presentation on Net Present Value for Mining Projects in Forest Areas  | -   | Coal India Ltd.  | - |
| 110. | Presentation by Government of Uttranchal   | -   | Government of Uttranchal, PWD ,Deptt.                        | - |
| 111. | Net present Value of Forest A Landscape perspective  | Shri Jagdish Krishnaswamy, Fellow                   | Centre for Wildlife Studies (CWS), ATREE, Bangalore          | - |
| 112. | De-fragmenting Nature and Net Present Value Identifying opportunities  | Shri Ullas Karanth                                  | Wildlife Conservator Society, Praveen Bhargav-Wildlife First | - |
| 113. | Net Present Value (NPV) and its applicability to Hydroelectric Projects, NHPC Perspective  | Environment Group (Corporate Planning Division)     | National Hydroelectric Power Corporation Ltd., NHPC          | - |

## **Appendix 4 :**

### **Estimation of NPV per hectare for the state of Himachal Pradesh, for purposes of diversion of forest to non-forestry use : An illustration of methodology**

#### **1. Introduction**

Valuation of forests can lead to more informed choices for decision-makers in the context of debates on diversion of forests for non-forestry purposes. While it is not feasible to value all the benefits or even costs associated with a forest land, even partial estimates of the value of a patch of forest land can contribute substantially to decisions regarding setting of priorities and specifically in diversion of forest land to alternative uses.

Very briefly stated, cost-benefit analysis is a tool that has been advocated in the specific context of incorporating a range of benefits and costs associated with forest land related decisions. A benefit (B) is something that increases human well-being which requires incurring a cost (C). A cost benefit analysis (CBA) typically compares all the costs of a project with all its benefits, and if the project shows a net benefit it would meet with approval. Once the stream of benefits and costs have been determined these need to be discounted since typically the costs and benefits occur over long periods of time. Using a discount rate  $r$  and a planning horizon  $T$ , the CBA rule for a project to be acceptable can be expressed simply as:

$$\sum_t (B_t - C_t) (1 + r)^{-t} > 0$$

In operationalising the CBA rule, various decision criteria have been developed in order to judge between alternative options. These include the Net Present Value (NPV), Internal Rate of Return (IRR) and the Benefit-Cost Ratio (BCR). The Net Present Value criteria follows the general CBA rule as mentioned above, and computes present value by discounting the benefits and costs that occur through time back to the base year ( $t = 0$ ). It is important to keep in mind that NPV can be expressed in terms of per unit of land area or in terms of a whole project or land use as a whole.

#### **2. An illustrative case study from Himachal Pradesh**

Considering the actual estimation exercise for H. P. , the first step in an exercise on valuation would be to identify all the environmental services that the resource in question yield, given the current levels of knowledge. The linkages between ecosystem services and human well-being are such that the services can be classified into four categories as provisioning, regulating, cultural and supporting (MEA 2005). Table 1 provides a detailed list of such services.

**Table 1: Services of a Forest Ecosystem**

| <i>Provisioning</i> | <i>Regulating</i>  | <i>Cultural</i> | <i>Supporting</i>  |
|---------------------|--------------------|-----------------|--------------------|
| Food                | Climate regulation | Aesthetic       | Nutrient Cycling   |
| Fresh Water         | Flood regulation   | Spiritual       | Soil Formation     |
| Wood, Fuelwood.     | Disease control    | Educational     | Primary production |
| Fiber               | Detoxification     | Inspirational   |                    |
| Biochemicals        |                    | Communal        |                    |
| Genetic resources   |                    | Symbolic        |                    |

In keeping with the methodology recommended in the report, for the state of Himachal Pradesh NPV per hectare of land with Forest Cover only is estimated (and not for forest department owned land). Table 2 gives the extent of forest cover in different districts of H.P. distinguished by forest density.

**Table 2: Density of forest Cover for H.P. (sq.km)**

| <i>Districts</i> | <i>Geographic Area</i> | <i>Forest Cover</i> |                         |                    | <i>Total Forest</i> |
|------------------|------------------------|---------------------|-------------------------|--------------------|---------------------|
|                  |                        | <i>Very Dense</i>   | <i>Moderately Dense</i> | <i>Open Forest</i> |                     |
| Bilaspur         | 1,167                  | 11                  | 94                      | 253                | 358                 |
| Chamba           | 6,522                  | 436                 | 1,130                   | 847                | 2,413               |
| Hamirpur         | 1,118                  | 3                   | 106                     | 133                | 242                 |
| Kangra           | 5,739                  | 134                 | 1,252                   | 481                | 1,867               |
| Kinnaur          | 6,401                  | 13                  | 352                     | 248                | 613                 |
| Kullu            | 5,503                  | 117                 | 1,295                   | 521                | 1,933               |
| Lahaul & Spiti   | 13,841                 | 7                   | 28                      | 145                | 180                 |
| Mandi            | 3,950                  | 78                  | 933                     | 637                | 1,648               |
| Shimla           | 5,131                  | 194                 | 1,587                   | 602                | 2,383               |
| Sirmaur          | 2,825                  | 56                  | 631                     | 692                | 1,379               |
| Solan            | 1,936                  | 39                  | 314                     | 466                | 819                 |
| Una              | 1,540                  | 5                   | 161                     | 352                | 518                 |
| Total            | 55,673                 | 1,093               | 7,883                   | 5,377              | 14,353              |

Source: State Of Forest Report -2003

Seven products and services for which there are available studies and secondary sources of data and information are considered. These are: Timber, Carbon sequestration, Eco-tourism, Non-Timber Forest Products (NTFP), Fuelwood, Fodder, and Watershed services.

Further, the way in which the forest is managed, in terms of what parts of the forest land are being considered for alternative use, implies that the species mix would determine who would be impacted and to what extent by any proposed change in the use of the forest land. Table 3 and Table 4 provide details on the type of forests in different circles

of H.P. by alternate categories. Table 5 shows the distribution of forests by type of species.

**Table 3: Area under Forest, by Type of Forest for 2000-2001**

| Circle               | (A)<br>Ha.    | (B)<br>Ha.     | (C)<br>Ha.     | (D)<br>Ha.  | (E)<br>Ha.   | (F)<br>Ha.    |
|----------------------|---------------|----------------|----------------|-------------|--------------|---------------|
| Bilaspur             | 90            | 37319          | 24942          | 18          | 18243        | 3483          |
| Chamba               | 34693         | 341941         | 99283          |             |              | 1253          |
| Dharam               | 11993         | 59752          | 177440         | 1279        | 50454        | 31983         |
| Kullu                | 15098         | 249539         | 690570         |             |              |               |
| Mandi                |               | 145764         | 3772           |             | 24673        |               |
| Nahan                | 101926        | 12807          | 152            |             | 4287         | 69618         |
| Rampur               | 571           | 50540          | 544765         |             |              |               |
| Shimla               | 4595          | 81785          | 189915         | 13          |              | 5402          |
| WLCircle Dharamshala | 5857          | 48562          | 27575          |             |              |               |
| WLCircle Shimla      | 10080         | 23239          | 381022         |             |              |               |
| GHNP                 | 4710          | 88771          | 23512          |             |              |               |
| <b>TOTAL</b>         | <b>189613</b> | <b>1140019</b> | <b>2162948</b> | <b>1310</b> | <b>97657</b> | <b>111739</b> |

Source: H.P. Forest Statistics, 2000-Forest Department, Himachal Pradesh

Notes:

A – Reserved Forest, B – Demarcated Protected Forest, C - UnDemarcated Protected Forest, D –Strip Forests Along with P.W.D Roads and Railway lines, E – Un classed Forests, F – Other Forests  
(It includes Forest Managed Under Section-38 IFA, Forests Managed Under land Preservation Act, Forest Notified Under Hp. Pvt. Forest Act, Municipal Forests, Cantonment Forests, Shamlat Area/ Forests, Mustarqua Forests &Other Forests ).

**Table 4: Percentage Distribution of Forest, by type of Forests (2000-2001)**

| <i>Circle</i> | (A)   | (B)    | (C)   | ( D)   | (E)   | (F)    | Total |
|---------------|-------|--------|-------|--------|-------|--------|-------|
| Bilaspur      | 0.1   | 44.37  | 29.65 | 0.05   | 21.69 | 4.14   | 100   |
| Chamba        | 7.27  | 71.69  | 20.77 |        |       | 0.27   | 100   |
| Dharamshala   | 1.37  | 68.511 | 20.5  | 0.155  | 5.8   | 3.664  | 100   |
| Kullu         | 1.58  | 26.2   | 72.22 |        |       |        | 100   |
| Mandi         |       | 83.66  | 2.16  |        | 14.18 |        | 100   |
| Nahan         | 54.02 | 6.78   | 0.08  |        | 2.27  | 36.85  | 100   |
| Rampur        | 0.095 | 8.385  | 91.52 |        |       |        | 100   |
| Shimla        | 1.631 | 29.03  | 67.41 | 0.0046 |       | 1.9244 | 100   |

Source: H. P. Forest Statistics, 2000-Forest Department,,Himachal Pradesh

A – Reserved Forest, B – Demarcated Protected Forest, C - UnDemarcated Protected Forest, D – Strip Forests Along with P.W.D Roads and Railway lines, E – Un classed Forests, F – Other Forests

(It includes Forest Managed Under Section-38 IFA, Forests Managed Under land Preservation Act. , Forest Notified Under Hp. Pvt. Forest Act, Municipal Forests, Cantonment Forests, Shamlat Area/ Forests, Mustarqua Forests &Other Forests ).

**Table 5: Species wise Classification of Himachal Pradesh Forests**

|             | DEODAR             |                      | KAIL               |                      | FIR                |                      | CHIL.              |                      | SAL                     |                               | Other Broad Leaved Forest |                               |
|-------------|--------------------|----------------------|--------------------|----------------------|--------------------|----------------------|--------------------|----------------------|-------------------------|-------------------------------|---------------------------|-------------------------------|
|             | AREA               | G. STOCK             | AREA (Km <sup>2</sup> ) | G. STOCK (000m <sup>3</sup> ) | AREA (Km <sup>2</sup> )   | G. STOCK (000m <sup>3</sup> ) |
|             | (Km <sup>2</sup> ) | (000m <sup>3</sup> ) |                         | (000m <sup>3</sup> )          | (Km <sup>2</sup> )        | (000m <sup>3</sup> )          |
| Bilaspur    |                    |                      |                    |                      |                    |                      | 633.33             | 7483.12              |                         |                               | 30.76                     | 56.96                         |
| Chamba      | 518.94             | 9366.36              | 371                | 4005                 | 795.15             | 36546.9              | 315.27             | 11520.16             |                         |                               | 50.22                     | 854.4                         |
| Dharamshala | 5.58               | 78.32                | 27.9               | 445                  | 276.21             | 7052.36              | 1015.56            | 9466.04              |                         |                               | 558                       | 8440.74                       |
| Kullu       | 251.1              | 6130.22              | 306.9              | 5510.8               | 770.04             | 28985.5              | 75.33              | 434.2                |                         |                               | 340.38                    | 7169.84                       |
| Mandi       | 298.53             | 11982.96             | 253.89             | 9996.4               | 184.14             | 21164.2              | 856.53             | 6151.68              |                         |                               | 460.35                    | 10786.8                       |
| Nahan       | 72.54              | 1285.16              | 61.38              | 1691                 | 61.38              | 2969.09              | 446.4              | 3990.76              | 510.5                   | 9124.28                       | 772.83                    | 8348.2                        |
| Rampur      | 262.26             | 4670.7               | 186.93             | 7016.76              | 415.71             | 17479.6              | 39.06              | 1391.96              |                         |                               | 36.37                     | 1833.4                        |
| Shimla      | 973.71             | 20665.8              | 867.69             | 17486.7              | 753.3              | 23574.32             | 345.96             | 2566.76              |                         |                               | 103.23                    | 11516.6                       |
| TOTAL       | 2383               | 54179.52             | 2075.7             | 46151.66             | 3255.9             | 137771.97            | 3727.4             | 43004.68             | 510.5                   | 9124.28                       | 2351.97                   | 49006.94                      |

Note: Growing stock has been calculated on the basis of estimate for converting area into growing stocks as provided in “Extent, Composition, density, Growing stock and Annual increment of India’ forests,1994”

(Source: H.P. FOREST STATISTICS, 2000- Forest Department, Himachal Pradesh)

### **3. Valuing Protected Areas**

It is not feasible to evaluate all benefits and costs of forest ecosystem services through the use of techniques such as Cost-Benefit Analysis. Rather one concentrates on those which are significant in a given context and more importantly, are appropriate for such economic valuation. For instance, the measurement of option values and existence values is very complicated and fraught with uncertainties. Uncertainties about benefit flows and costs also increase with longer planning horizons. Where there are fears of irreversibility, the precautionary principle becomes relevant; and approaches such as setting safe minimum standards are more appropriate. Similarly, protected areas such as National Parks, Wildlife Sanctuaries and other biodiversity hotspots, should be maintained as such, and should not be subject to any economic valuation exercise. Such services, including the preservation of endangered species, are in principle “priceless.” It is also difficult to capture cultural values through economic tools, other than those directly related to eco-tourism. By an extension of the logic for protected areas, the Committee has therefore recommended that services such as those of “sacred groves” or areas having similar cultural values, should not be subjected to a valuation exercise.

In keeping with this point of view, in this exercise biodiversity is not valued (except to a very limited extent through eco-tourism). Protected areas are thereby excluded from the area for which NPV per hectare has been estimated.

Table 6 provides circle-wise details of the Protected Areas in H. P. and Table 7 presents the details for the calculation of “non-protected area.” Subsequent calculations of NPV per hectare in this exercise are based on these non-protected areas, referred to hereafter as Net Forest Area (NFA).

**Table 6: Protected Areas in Himachal Pradesh**

| S.NO.   | NAME OF SANCTUARY/<br>NATIONAL<br>PARK/GAME<br>RESERVE | NAME OF<br>DISTRICT | NAME OF<br>FOREST<br>DIVISION | AREA (Km <sup>2</sup> ) |
|---|--|---------------------|-------------------------------|-------------------------|
| <b>Sanctuaries</b>                                |  |                     |                               |                         |
| 1   | Shri Naina Devi  | Bilaspur            | Bilaspur                      | 123                     |
| 2   | Govind Sagar   | Bilaspur            | Bilaspur                      | 100                     |
| 3   | Gangul-Siyabehi  | Chamba              | Chamba                        | 109                     |
| 4   | Kalatop-khajiar  | Chamba              | Dalhousie                     | 69                      |
| 5   | Kukti  | Chamba              | Chamba                        | 379                     |
| 6   | Sechu-Tuan Nalla                                       | Chamba              | Pangi                         | 103                     |
| 7   | Tundah   | Chamba              | Dalhousie                     | 64                      |
| 8   | Pong Dam Lake  | Kangra              | Nurpur/Dehra                  | 307                     |
| 9   | Dhauladhar   | Kangra              | Dharamshala                   | 944                     |
| 10  | Lippa Asrang   | Kinnaur             | Pooh                          | 31                      |
| 11  | Rakchham-Chhitkul                                      | Kinnaur             | Nichar                        | 304                     |
| 12  | Rupi-Bhaba   | Kinnaur             | Nichar                        | 503                     |
| 13  | Kanawar  | Kullu               | Kullu                         | 61                      |
| 14  | Khokhan  | Kullu               | Kullu                         | 14                      |
| 15  | Kias   | Kullu               | Kullu                         | 14                      |
| 16  | Manali   | Kullu               | Kullu                         | 32                      |
| 17  | Tirthan  | Kullu               | Seraj                         | 61                      |
| 18  | Kibber   | Lahul- Spiti        | Spiti                         | 1400                    |
| 19  | Bandli   | Mandi               | Suket                         | 41                      |
| 20  | Nargu  | Mandi               | Mandi                         | 278                     |
| 21  | Shikar Devi  | Mandi               | Suket/Nachan                  | 72                      |
| 22  | Daranghati I & II                                      | Shimla              | Kotgarh                       | 167                     |
| 23  | Shimla Water<br>Catchment Area                         | Shimla              | M.C. Shimla                   | 10                      |
| 24  | Talra  | Shimla              | Rohroo/ Chopal                | 40                      |
| 25  | Renuka   | Sirmour             | Rajgarh                       | 4                       |
| 26  | Simbalwara   | Sirmour             | Nahan                         | 19                      |
| 27  | Chail  | Solan               | Solan                         | 109                     |
| 28  | Darlaghat  | Solan               | Kunihar                       | 6                       |
| 29  | Majathal   | Solan               | Kunihar                       | 40                      |
| 30  | Shilli   | Solan               | Solan                         | 2                       |
| 31  | Sainj  | Kullu               | -                             | 90                      |
| 32  | Churdhar   | Sirmour/ Shimla     | Renuka/Chopal                 | 66                      |
| <b>Total Sanctuary Area</b>                       |  |                     |                               | <b>5562</b>             |
| <b>National Parks</b>                             |  |                     |                               |                         |
| 1   | Great Himalayan<br>National<br>Park(Shamshi) kullu     | Kullu               | Parbati                       | 765                     |
| 2.  | Pin Vally National<br>Park,Kaza                        | Lahul-Spiti         | Spiti                         | 675                     |
| <b>Total National Park Area</b>                   |  |                     |                               | <b>1440</b>             |
| <b>Grand Total (Total Protected Area Network)</b> |  |                     |                               | <b>7002</b>             |

(Source: <http://hpforest.nic.in/wsant2.htm>)

**Table 7: Forest Cover, Protected and Non Protected Area (Hectares)**

| <b>Circle</b> | <b>Total Area</b> | <b>Forest Cover</b> | <b>Protected area</b> | <b>NPA</b> |
|---------------|-------------------|---------------------|-----------------------|------------|
|               | <i>Ha</i>         | <i>Ha</i>           | <i>Ha</i>             | <i>Ha</i>  |
| Bilaspur      | 353,900           | 60,000              | 22,300                | 37,700     |
| Chamba        | 652,800           | 241,300             | 72,400                | 168,900    |
| Dharamshala   | 727,900           | 238,500             | 125,100               | 113,400    |
| Mandi         | 395,000           | 164,800             | 39,100                | 125,700    |
| Nahan         | 362,700           | 219,800             | 21,300                | 198,500    |
| Shimla        | 356,300           | 238,300             | 25,000                | 213,300    |

#### **4. Illustrative computation of values of forest goods and services**

In the following sections, the methods used for calculation of the benefits and costs of the seven forest ecosystem services are discussed.

*Estimation of the benefits from 7 services*

##### ***Timber***

The present study uses the Stumpage value approach for estimating timber benefits. The discounted future stumpage price of mature timber after deducting the costs of bringing the timber to maturity is used.

Per Hectare Value Of Timber of each circle = Total value of timber available in each circle / Net forest area in each circle

*(Where, Net Forest Area (NFA)= Forest cover – Protected Area)*

*Timber value of a species = Standing Volume of Timber Exploited (in m<sup>3</sup>) \* stumpage value (per cubic m)*

*Sum of Value of each species = Total value of Timber*

(Source of data -- H.P. Forest Statistics, 2000, Forest Department, Himachal Pradesh)

##### ***Carbon Storage***

The study has estimated the value of carbon stock using the following formula:

*Value of carbon stock = carbon content X market price of carbon*

*Carbon Content = Biomass X IPCC-GPG default value*

*Biomass = Growing stock X Diversion factor*

(Sources: Growing stock of different species has been taken from HP Forest Statistics, 2000. The calculation of Diversion factor for each species is based on FSI publication "Extent, Composition, density, Growing stock and annual increment of India's forests," 1994).

*Note* - Biomass figures have been calculated at the species level. The IPCC-GPG default value of 0.5 carbon content has been used. An international market rate of carbon at US \$ 6 (to be changed to 10) has been assumed to arrive at the value of carbon stock.

### ***Fuel-wood***

Per hectare value of Fuel wood collected in each circle = *Total value of fuel-wood in each circle / Net forest area in each circle.*

*Where,*

*Total value of fuel- wood collected = Number of rural households collecting fuel- wood from government forests in last 365 days X Average value of collection per collecting household.*

(Source of data ----NSSO 54<sup>th</sup> Round Survey on Common Property Resources in INDIA, 1999).

### ***Fodder***

Per hectare Value of Fodder collected in each circle = *Total value of fodder in each circle / Net forest area in each circle.*

*Where,*

*Total value of fodder collected = Number of rural households collecting fodder from Govt. Forest in last 365 days X Average value of collection per collecting household.*

(Source of data ---- NSSO 54<sup>th</sup> Round Survey on Common Property Resources in INDIA, 1999)

### ***Non Timber Forest Products***

Per hectare value of NTFP collected in each circle = *Value of NTFP in each circle / Net forest area in each circle*

Value of NTFP in each circle= Value of NTFP collected per household X Circle-wise rural households.

(Source of data ----Data on value of NTFP per household taken from NSSO 54<sup>th</sup> Round Survey on Common Property Resources in INDIA, 1999. Circle-wise rural households taken from Census, 2001)

### ***Eco-tourism***

Per hectare value of eco-tourism in each circle = *Total value of Eco-tourism in each circle / Net forest area in each circle.*

*Value of Eco-tourism dependent on forest ecosystems = Number of people visiting different circles mainly due to natural beauty X average expenditure incurred per person*

(Source of data ----Tourist Economics survey -Department of Economics & Statistics 2002)

### ***Watershed Services***

Per hectare value of Watershed services is taken from two studies. Watershed Services have been defined as those of soil conservation and other ecological functions. This value sums to Rs. 22207 per hectare. In case of Shimla circle, it may be noted, an additional value for the value of water supply from forested watershed to urban area is taken. The value for Shimla is therefore taken as Rs. 26952 per hectare.

(Sources: The value for soil conservation is based on Kumar (2000) and the value of ecological functions is adopted from Chopra and Kadekodi (1997). Value for water supply for Shimla is adopted from Chaturvedi (1992) ).

### *Estimation of Costs associated with these services*

For **Timber, Carbon sequestration and Watershed services** the values taken above for the benefit calculations per hectare are net of costs.

For **NTFPs** the opportunity cost of collecting these products from the forest has been estimated using the following formula:

*Cost of collecting NTFP = (Number of collecting rural households) X (Total annual time cost of collection per household);*

where, 15% of average agricultural wage rate has been used to value the average time spent in collection by a household in Himachal Pradesh.

For **Fuelwood and Fodder Collection** labour costs are not included. This is based on the rationale of the assumptions of these being joint activity and the existence of surplus labour. There are also data problems in arriving at accurate costing of these services.

In calculating the costs associated with **Eco-tourism**, the costs incurred by the Forest Department in the maintenance, preservation and development of national parks and

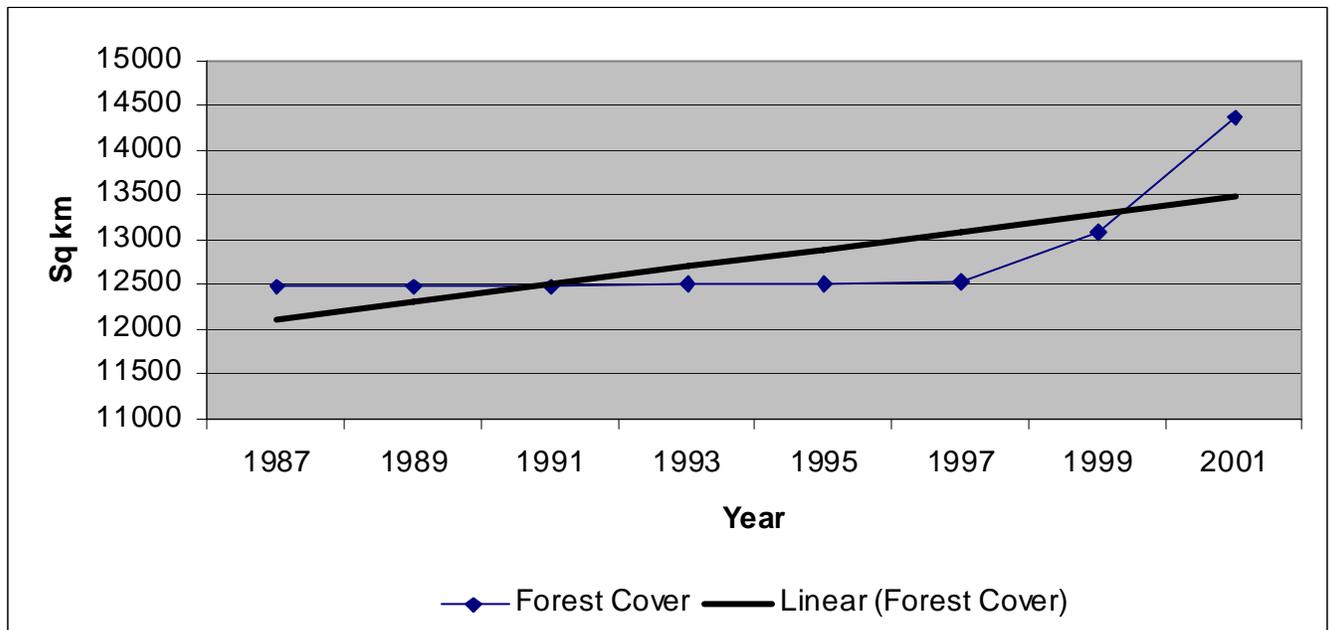
wildlife sanctuaries in Himachal Pradesh have been considered. Since these costs are given at an aggregate level the per hectare cost are calculated to arrive at costs for each circle.

Finally, certain costs (**Forest Departmental costs**) that could not be apportioned across different benefits within each circle, including forest department costs, expenditure incurred in construction and maintenance activities and expenditure on forest officials (wages and salaries) have been deducted from the total benefit to arrive at net benefits for the circle.

### 5. Some Assumptions on Sustainability

In making these estimates, for the present, it is assumed that current levels of extraction are sustainable. The rationale for this is derived from two kinds of indicative evidence based on secondary sources. Firstly, a study of the trends in land with forest cover as revealed from recent data shows that this has been non-declining since 1987, with a marginal increase in the recent past. (Graph 1)

**Graph 1 Land with Forest Cover and Linear Trend in Forest Cover for H.P.**



Secondly, a look at the asset accounts of some major species compiled recently (Haripriya 2000) reveals that closing stocks are higher than the opening stocks for these species as summarised in Table 8 below.

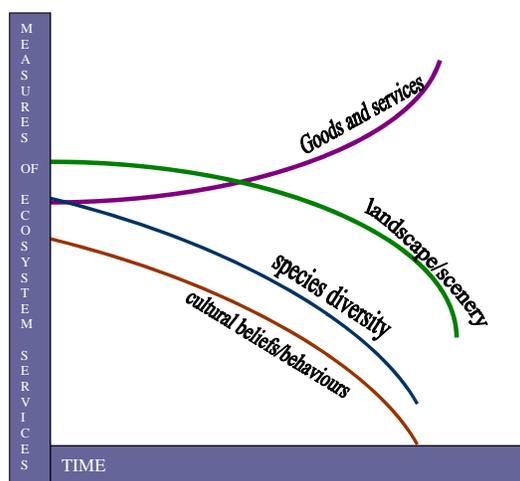
**Table 8: Assets Accounts of Different Categories of Forest in H.P.  
(Volume in 000'cum) 2001-02**

| <i>Activity/Forest types</i>  | <i>Pine</i> | <i>Deodar</i> | <i>Fir/Spruce</i> | <i>Other Species</i> | <i>Total</i> |
|---|-------------|---------------|-------------------|----------------------|--------------|
| (1) Opening Stocks [standing volume]  | 89232.4     | 54225.7       | 137889.1          | 58073.8              | 339421       |
| (2) Net Changes due to economic activity (-)<br>(Net of deletion and afforestation)   | 467.59      | 286.76        | 733.5             | 304.34               | 1792.19      |
| (3) Net Other volume changes<br>(Net of additions and reductions)                     | 1367.77     | 665.49        | 1408.89           | 890.17               | 4331.7       |
| (4) Other accumulations<br>{Encroachment & Transfer of land to other activities } (-) | 7.32        | 4.448         | 11.309            | 4.765                | 27.841       |
| (5) Net volume change<br>(5=2+3+4)  | 892.86      | 374.28        | 664.08            | 581.07               | 2511.66      |
| (6) Closing stocks (6=1+5)  | 90125.26    | 54599.98      | 138553.18         | 58654.87             | 341932.6     |

Note :Framework Adapted From Haripriya 2000

A generic ecological understanding of time trends for some of the services from forests provide further reasons to be cautious (Graph 2). Forest diversion should be done cautiously.

**Graph 2 Forest Ecosystem Services Over Time: generic view**



## 6. Notional NPV estimates : Circle-wise

Table 9 presents the per hectare benefits for each circle in H.P. based on the methodology as discussed above. The NPV is subsequently estimated for the different forest circles, using a discount rate of 5% for a time period of 20 years as discussed in the report. Table 10 presents the NPV estimates obtained.

Table 9: Per Hectare Annual Net Benefits of Forest Services in Himachal Pradesh

| <i>Circle</i> | <i>Net forest area</i> | <i>Timber</i> | <i>Carbon</i> | <i>NTFP</i> | <i>Eco-tourism</i> | <i>Fuel-wood</i> | <i>Fodder</i> | <i>WS</i>  |
|---------------|------------------------|---------------|---------------|-------------|--------------------|------------------|---------------|------------|
|               | <i>Ha</i>              | <i>Rs.</i>    | <i>Rs.</i>    | <i>Rs.</i>  | <i>Rs.</i>         | <i>Rs.</i>       | <i>Rs.</i>    | <i>Rs.</i> |
| Bilaspur      | 37,700                 | 2,074         | 11,367        | 9,789       | 14,542             | 4,150            | 4,145         | 22,207     |
| Chamba        | 168,900                | 1,499         | 18,431        | 1,023       | 1,658              | 322              | 319           | 22,207     |
| Dharamshala   | 113,400                | 3,034         | 7,947         | 7,555       | 7,765              | 2,028            | 2,025         | 22,207     |
| Mandi         | 125,700                | 922           | 19,749        | 3,426       | 339                | 836              | 835           | 22,207     |
| Nahan         | 198,500                | 765           | 6,725         | 1,697       | 821                | 515              | 515           | 22,207     |
| Shimla        | 213,300                | 1,535         | 15,079        | 1,084       | 12,791             | 304              | 304           | 26,952     |

Note: WS- Watershed services.

Table 10: NPV per hectare of forest services at 5 percent rate of discount for 20 years (Rs)

| <i>Circle</i> | <i>Timber</i> | <i>Carbon</i> | <i>Fuelwood</i> | <i>Fodder</i> | <i>NTFP</i> | <i>Eco-tourism</i> | <i>WS</i> |
|---------------|---------------|---------------|-----------------|---------------|-------------|--------------------|-----------|
| Bilaspur      | 25,842        | 141,661       | 51,720          | 51,659        | 121,998     | 181,220            | 276,748   |
| Chamba        | 18,686        | 229,697       | 4,010           | 3,981         | 12,746      | 20,664             | 276,748   |
| Dharamshala   | 37,812        | 99,037        | 25,270          | 25,241        | 94,148      | 96,771             | 276,748   |
| Mandi         | 11,488        | 246,112       | 10,420          | 10,408        | 42,692      | 4,223              | 276,748   |
| Nahan         | 9,529         | 83,806        | 6,423           | 6,415         | 21,149      | 10,228             | 276,748   |
| Shimla        | 19,134        | 187,916       | 3,793           | 3,789         | 13,508      | 159,408            | 335,881   |

Note: WS- Watershed services.

To sum, the NPV per hectare for each circle (Table 11) shows a variation from 4.1 lakhs per hectare to 7.69 lakhs per hectare, given the assumptions of our methodology. It

maybe reiterated that these calculations are based on only 7 services for which we have been able to locate secondary information. Further, biodiversity values for these circles are also accounted for as illustrated below.

**Table 11: NPV per hectare (total)**

| <i>Circle</i> | <i>NPV</i> |
|---------------|------------|
| Bilaspur      | 769128     |
| Chamba        | 563532     |
| Dharamshala   | 655297     |
| Mandi         | 602091     |
| Nahan         | 414298     |
| Shimla        | 719636     |
|               |            |

However, as mentioned earlier, it would be incorrect to simply add – up services from forest ecosystems since different forests yield different services, with the benefits being ecologically determined. For instance, one possible classification could be as shown in Table 12.

**Table 12: Land Use and Ecosystem Services**

|                     |                        | PRODUCT, SERVICE or BENEFIT |           |              |        |                 |                       |                    |                |                     |
|---------------------|------------------------|-----------------------------|-----------|--------------|--------|-----------------|-----------------------|--------------------|----------------|---------------------|
|                     |                        | Timber                      | Fuel-wood | Leafy Matter | Fodder | "Minor" Produce | Hydro-logical Benefit | Soil Conser-vation | Bio-Diver-sity | Carbon seques-tered |
| LAND<br>USE<br>TYPE | Dense "Natural" Forest | 0                           | ++        | ++           | 0      | +++             | +++?                  | +++                | +++            | +++                 |
|                     | Dense, Lopped Forest   | ++                          | +++       | +++          | +      | ++              | +++                   | +++                | +              | ++                  |
|                     | Open Lopped Forest     | +                           | ++        | ++           | +++    | +               | ++                    | ++                 | +              | +                   |
|                     | "Pure" grassland       | 0                           | 0         | 0            | +++    | 0               | ++                    | ++                 | +              | +                   |
|                     | Monoculture Plantation | +++                         | +         | +            | +      | 0               | ++                    | +                  | 0              | +++                 |
|                     | Paddy Cultivation      | 0                           | 0         | 0            | ++     | 0               | ++?                   | ++?                | ?              | 0                   |
| Barren land         | 0                      | 0                           | 0         | 0            | 0      | -               | 0                     | 0                  | 0              |                     |

FROM Lele (2004) EXTENT OF BENEFIT +++ = high; ++ = medium; + = low; 0 = none; - = negative

TYPE OF BENEFICIARY Local Regional Global

Based on Lele's (2003) table, Table 13 presents one possible classification for the percentage of full values that may be applicable for different types of forests. This distribution of the percentage of values from different services is combined with data on the type of forest cover for each of the circles in H.P. to re-calculate the NPV per hectare in Table 14. Table 14 also incorporates the values for biodiversity benefits based on the weighting between biodiversity and other goods and services implicit in Table 12.

**Table 13: Land use and percentages of full value relevant: (Adapted from Lele's table)**

| <i>Type Of Forest</i> | <i>Timber</i> | <i>Fuelwood</i> | <i>NTFP</i> | <i>WSS</i> | <i>Carbon sequestration</i> | <i>Fodder and leaf manure</i> | <i>Eco-tourism</i> |
|-----------------------|---------------|-----------------|-------------|------------|-----------------------------|-------------------------------|--------------------|
| Dense Natural Forest  | 20%           | 100%            | 80%         | 80%        | 80%                         | 100%                          | 100%               |
| Looped Natural Forest | 40%           | 100%            | 80%         | 80%        | 80%                         | 100%                          | 60%                |
| Open Tree Savannah    | 20%           | 80%             | 60%         | 60%        | 60%                         | 80%                           | 80%                |
| Timber Plantation     | 100%          | 20%             | 20%         | 20%        | 100%                        | 20%                           | 20%                |

**Table 14: NPV per hectare as per land-use classification**

| <i>Circle</i>      | <i>Dense Natural Forest</i> | <i>Lopped Natural Forest</i> | <i>Open Tree Savannah</i> | <i>Timber Plantation</i> |
|--------------------|-----------------------------|------------------------------|---------------------------|--------------------------|
| <b>Bilaspur</b>    | 857,485                     | 689,235                      | 596,868                   | 304,172                  |
| <b>Chamba</b>      | 531,697                     | 466,544                      | 362,322                   | 312,013                  |
| <b>Dharamshala</b> | 630,314                     | 525,942                      | 436,433                   | 240,485                  |
| <b>Mandi</b>       | 569,753                     | 505,669                      | 387,494                   | 326,499                  |
| <b>Nahan</b>       | 392,273                     | 345,410                      | 267,187                   | 157,528                  |
| <b>Shimla</b>      | 713,285                     | 569,167                      | 492,632                   | 310,326                  |

*Note: this table is based on data on type of forest cover (very dense, moderate and open) as described in the State of Forest report 2003.*

### **Distribution of NPV by Users**

The NPV can be distributed among the major stakeholders. For present purposes the proposed distribution of values among stakeholders is as follows:

Local - NTFP, Fuel wood, Fodder, 50% of Watershed and 45% of Biodiversity values

State- Eco-tourism, Timber , 50% of watershed, 90% of Carbon and 45% of Biodiversity values

National - 10% of Carbon & 10% of Biodiversity values

Table 15 illustrates the NPV distribution that emerges circle-wise. Table 16 presents the corresponding percentage distribution across stakeholders.

**Table 15**

| <i>Circle</i> | <i>Local</i> | <i>State</i> | <i>National</i> |
|---------------|--------------|--------------|-----------------|
| Bilaspur      | 381,857      | 491,037      | 18,190          |
| Chamba        | 174,667      | 400,007      | 26,427          |
| Dharamshala   | 297,225      | 376,283      | 13,058          |
| Mandi         | 214,739      | 388,431      | 27,466          |
| Nahan         | 181,127      | 242,322      | 10,329          |
| Shimla        | 205,412      | 531,989      | 22,432          |

**Table 16: Percentage Distribution of NPV across stakeholders**

| <i>Circle</i> | <i>Local</i>  | <i>Regional/ State</i>                                     | <i>National</i>                  |
|---------------|---|--|----------------------------------|
|               | NTFP, Fuelwood, Fodder,<br>50%WS & 45% Biodiversity | Eco-tourism, 50%WS, Timber,<br>90%Carbon &45% Biodiversity | 10% Carbon &<br>10% Biodiversity |
| Bilaspur      | 42.85   | 55.11  | 2.04                             |
| Chamba        | 29.06   | 66.55  | 4.40                             |
| Dharamshala   | 43.29   | 54.81  | 1.90                             |
| Mandi         | 34.05   | 61.59  | 4.36                             |
| Nahan         | 41.76   | 55.86  | 2.38                             |
| Shimla        | 27.03   | 70.01  | 2.95                             |

Sources of data and Information:

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**Appendix 5 :  
Legal Perspectives from Himachal Pradesh**

**[Extract from report on legal perspective on value of forest land, submitted by  
Sanjay Upadhyay, Enviro Legal Defence Firm]**

**Estimating the Economic Value of Forest Land: A  
Methodology”- The Legal Perspective**

**DRAFT REPORT**

**JANUARY 2006**



**ENVIRO LEGAL DEFENCE FIRM**

## **“Estimating the Economic Value of Forest Land: A Methodology”- The Legal Perspective**

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### ***Introduction***

Estimating the economic value of forest land has been a subject of debate and has been contested at different levels within and outside the Government including the Supreme Court of India. This project aims at formulating a methodology to estimate the economic value of forest land. The importance of its legality as well as the legal categories of forest land mandates an analysis where the legal issues are brought to fore and is taken into account while developing any methodology for valuing forest land. Note that the word used here is forest land. From the legal perspective the terms forest and forest land have different connotations. In fact the apex court has already attempted a definition since the terms forest or forest land is not defined under any legislation on forest<sup>8</sup>. The reason why this distinction is made here is to emphasise the role of law and legal categories may play in any estimation methodology.

There are three key aspects that merit attention from the legal perspective. Firstly an analysis of the conditions governing the adoption and use of the Forest Conservation Act 1980 which is the prime legislation on forests and is overriding. Secondly, a systematic documentation of existing and past rights, privileges and concessions of different individuals and groups to forest land which is essential to determine who receives the value of forest land and finally a developed understanding of the role of past rights in determining future rights of individuals and groups who impact or are impacted by forest land. Three sample states have been chosen to provide indicators to the implications of the Forest Conservation Act and more importantly to determine and document the nature of rights, privileges and concessions that are exercised or are mandated under the law on forest lands. These States include Madhya Pradesh (in Central India) Himachal Pradesh (A Hill State in Northern India) and Karnataka (A Southern State of the Western Ghats)

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<sup>8</sup> The word ‘forest’ must be understood according to its dictionary meaning. This description covers all statutorily recognised forests, whether designated as reserved, protected or otherwise for the purpose of Section 2(i) of the Forest Conservation Act. The term ‘forest land’, occurring in Section 2, will not only include ‘forest’ as understood in the dictionary sense, but also any area recorded as forest in the Government record irrespective of the ownership.” [ See 1997) 11 SCC 605 in T.N Godavarman versus Union of India]

## **CHAPTER I: Forest Conservation Act, 1980 & Rules: Analysis and Adoption**

### **1.1 Introduction:**

The subject “forests” falls under the concurrent list of the Constitution of India. This means that both Centre as well as the States can legislate on it. There are Central Legislations on the forest such as the Indian Forest Act, 1927 and The Forest Conservation Act, 1980. The latter is completely a Central Law i.e. the States have to adopt it as is it without making any changes in it. While this is not the case with the former Act as States can adopt this law and can make relevant amendments to the Act. The Indian Forest Act has been termed as a consolidation Act. Further the Indian Forest Act empowers the State to make rules under the Act on different aspects relating to forests in the State. Since forests are listed under the concurrent list<sup>9</sup> States can also bring in legislation pertaining to forests but the only thing which is to be taken care is that the State Act should not be in violation of the any of the Central Acts.

The issue of forest land valuation flows from the Forest Conservation Act, 1980(FCA) its provisions and its interpretation both by the court as well as by the executive. It is thus important to understand and analyse the FCA and the way it is adopted. The FCA, is the primary legislation for conservation of forests. The Act was enacted with the twin objectives of restricting the use of forestland for non-forest purposes and preventing the de-reservation of forests that have been reserved under the Indian Forest Act, 1927. The Act was further amended in 1988 to include two new provisions where it sought to restrict leasing of forest land to private individuals, authority, corporations not owned by the Government and also restrict clear felling of naturally grown trees<sup>10</sup>. The Act represents an attempt by the Central Government to check deforestation caused by the conversion of forestlands to non-forest purposes. Under this Act, no State Government can authorise such conversion without securing Central Government’s approval. It is pertinent to mention that FCA does not ban any non-forest activity or the de-reservation of forestland *per se*. All it requires is that the permission of the Central Government be secured for such actions.

The Central Government from time to time has issued guidelines, clarifications and Government Orders (GOs) to clarify and elaborate upon the extent and application of the FCA. The Forest Conservation rules have been amended substantially to give effect to the amended FCA. It was felt that the criteria for diversion of forestland to other non

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<sup>9</sup> There are three list of subjects provided under the Indian Constitution. The Union list provides subjects under the control of the Union Government, the State list provides subjects under the control of respective State Governments and the concurrent list provides subject over whom both the Union and State Government have control and in event of any dispute between the two the law made by the Union Government shall prevail. Since forest falls under the Concurrent list of the Constitution, both centre as well as the State can legislate on the subject. IFA, 1927 is a central Act and therefore the States can make amendments in the legislation while adopting it.

<sup>10</sup> Section 2 of FCA, 1980

forestry purposes or de-reservation of forests as provided under the Forest Conservation Rules of 1981 was not giving desired results and this necessitated modification and eventually led to enactment of The *Forest Conservation Rules of 2003*. These rules are aimed at streamlining the process of according approval to non-forest activity on any forestland. The Rules lay down detailed procedures including creating appropriate authority for obtaining the approval of Central Government for using forestland for non forestry purpose. It is to be noted that the Rules apply not only for first time approvals but also for renewal of the existing lease<sup>11</sup>. These Rules provide for constitution of advisory committees<sup>12</sup> for advising the Central Government in granting approval of any non-forest activity on any forestland. It is worth noting here that the reasons for acceptance or rejection of any proposal for clearance under this Act is not in the public domain which if made public could go a long way in ascertaining the value of forest land or conditions under which values are put on forest land.

### ***1.2 Adoption of Forest Conservation Act:***

The FCA is a Central Act and is applicable through out India uniformly, except for the State of Jammu and Kashmir. Every State including the sample States under the study is bound to abide by the provisions of this Act unless the Central Government brings changes to this Act through an amendment process. As stated earlier the Central Government from time to time has issued guidelines, clarifications and GOs to clarify and elaborate upon the extent and application of FCA including procedure for diversion of forest lands for non forestry purposes.

**Box 1: What is Non Forestry Purpose?**

Non forestry purpose means the breaking up or clearing of any forest land or portion thereof for-

- (a) the cultivation of tea, coffee, spices, rubber, palms, oil-bearing plants, horticultural crops or medicinal plants;
- (b) any purpose other than reafforestation<sup>1</sup>,

As per the recent guidelines<sup>13</sup> the term 'Forest land'<sup>14</sup>, refers to reserved forest, protected forest or any area recorded as forest in the government records. Lands which are notified under Section 4<sup>15</sup> of the IFA would also come within the purview of the FCA<sup>16</sup>. It would also include "forest" as understood in the dictionary sense<sup>17</sup>. All proposals for diversions of forest lands to any non-forest purpose, irrespective of its ownership, would require the prior approval of the Central Government.

<sup>11</sup> Rule 6 of FC Rules 2003

<sup>12</sup> Rule 3 to Rule 5 of the FC Rule of 2003

<sup>13</sup> Guidelines Issued by MoEF for adoption of Forest (Conservation )Act 1980 by the States dated 20-10-2003

<sup>14</sup> As mentioned in Section 2 of FC Act

<sup>15</sup> Intention notification with respect to constitution of the land as a reserve forest

<sup>16</sup> Banwasi Sewa Ashram V Union of India AIR 1987 SC 374

<sup>17</sup> Supreme Court orders dated 12.12.1996 in WP No. 202/1995

The guidelines further clarify that the term “forest” shall not be applicable to the plantations raised on private lands, except notified private forests<sup>18</sup>. The term "tree" for the purpose of this Act will have the same meaning as defined under Indian Forest Act, 1927 or any other Forest Act which may be in force in the forest area under question. It can be seen that there is a greater clarity on what would constitute forest land for the purposes of the Act. However, the definition of forest which includes the definition under the dictionary does broaden the ambit and thus introduces an element of subjectivity.

### *1.2.1 FCA and Rights/Privileges/Concessions:*

The documentation of rights privileges concessions is another crucial parameter in the methodology to ascertain any value to forest land especially when a need arises to who should receive benefits. Further the importance in the legal hierarchy of such rights and privileges need to be understood as each set of these claims entail a different nature of legal consequences and they differ in their weight age. These differences would certainly cause to evaluate a person’s claims differently when it comes to benefit sharing. Thus for example, a right holder is definitely placed higher in the legal hierarchy when compared to a person who has privilege over a forest land. Similarly a person who has certain concessions alone has no legal right over forest land. Sometimes the State through the Forest Department also grants certain favors of usage on humanitarian grounds which do not automatically transfers into a claim. Further there are issues of perceptions which also shape the nature of claims. While a person may assume that s/he has a right over a forest land or its produce historically it may be recorded as a privilege. Jhum or shifting cultivation in the tribal areas, *haqdari* or right over *bhabbar* grass for ban or rope making in the proposed Rajaji National park are few cases in point.

The guidelines issued by the MoEF clarify the impact of FCA or the National Forest Policy forest policy on the recorded rights or privileges. It is stated that the provisions of the Forest (Conservation) Act, 1980, do not interfere in any manner or restrict the Nistar, recorded rights, concessions and privileges of the local people for bonafide domestic use as granted by the State Governments under Indian Forest Act, 1927 or State Forest Acts/Regulations<sup>19</sup>. The guidelines further clarify that it has to be ensured that while allowing such rights, concessions and privileges to be exercised, the right holders do not resort to destruction of forest land<sup>20</sup>. The Guidelines discourages commercial collection of forest produce including its transportation. As regards the PAs the guidelines states that rights and concessions cannot be enjoyed in view of an order of the Supreme Court dated 14.02.2000<sup>21</sup> which has banned removal of dead, diseased, dying or wind-fallen trees, drift wood and grasses etc. from any National Park or Game Sanctuary. Whether the interpretation of the Supreme Court order is correct or not is another point of view but the significance point made is that rights and privileges generally are prohibited in PAs.

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<sup>18</sup> However, felling of trees in these private plantations shall be governed by various State Acts and Rules. Felling of trees in notified private forests will be as per the working plan / management plan duly approved by Government of India.

<sup>19</sup> See Section 1.2 (iii) regarding Clarifications under “A Comprehensive Hand Book of FCA, FC Rules 2003 and Guidelines and Clarification revised as on 20<sup>th</sup> Oct. 2003, MoEF, Paryavaran Bhawan, New Delhi

<sup>20</sup> See 1.2(3) Clarifications of application of FCA.

<sup>21</sup> WP No. 202/1995, TN Godavarman vs UoI

This stand of the ministry goes contrary to the existing laws on PAs. There are numerous provisions under the WLPA which provides for continuance of rights<sup>22</sup>, rights to grazing, bonafide rights of tribal communities relating to forest produce and specified plants. It is precisely these reasons why the interpretation of the line agencies such as the FD becomes crucial when it come to valuation of forest land which are to be used for non forestry purposes.

### *1.2.2 Guidelines for Diversion of forest lands for non forestry purposes:*

Before ascertaining a methodology for valuation of forest land it is important to understand the legal frame under which the diversion of forest land for non forestry purposes is undertaken. The guidelines issued by the MoEF throws some light in this regard. As explained earlier the diversion of forest lands for non forestry purposes or dereservation of forests requires approval from the Central Government. The proposals for the same go to the MoEF through the State Government in which the said land is situated. The Guidelines clarify that the cases in which specific orders for de-reservation or diversion of forest areas in connection with any project were issued by the State Government prior to 25.10.1980<sup>23</sup>, need not be referred to the Central Government. However, in cases where only administrative approval for the project was issued without specific orders regarding de-reservation and/or diversion of forest lands, a prior approval of the Central Government would be necessary. The above provides for the general principles under which diversion of forest land takes place. Then there are specific guidelines which elaborate the other kinds of use for forest lands which are non forestry in nature and experience shows that they are inevitable.

*Specific Guidelines for Mining:* Mining<sup>24</sup> is one example which is considered often as a more lucrative exploitation of natural resource vis-à-vis the states' exchequer. Mining being the non forestry activity requires a prior approval of the Central Government before a mining lease is granted in respect of any forest area. The Act would apply not only to the surface area which is used in the mining but also to the entire underground mining area beneath the forest. As mentioned earlier the renewal of an existing mining lease in a forest area also requires the prior approval of the Central Government. Notably boulders, bajri, stone, etc., in the riverbeds located within forest areas would constitute a part of the forest land and their removal would also require prior approval of the Central Government. The conditionality attached to clearances for activities such as mining provides a lever in the hand of the central government to regulate unsustainable mining. However, the preference of mining over retaining forest land and equitable valuation has not been given consideration under the guidelines.

*Conditions for leasing out forest lands to private & government bodies:* Provisions of the Forest (Conservation) Act provide that no forest land or any portion of it may be assigned by way of lease or other wise to any private person or to any authority or corporation or any other organization not owned, managed or controlled by the Government without

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<sup>22</sup> See Sections 24(2)(c), Section 33, Chapter IIIA, Section 35(6) of the WLPA.

<sup>23</sup> This is the date on which the FCA came into force.

<sup>24</sup> including underground mining

approval of the central government. The guidelines further clarify this aspect by explicitly stating that leases in favour of government owned bodies will not attract the provisions of the Act. But scheme or project which involves assignment of any forest land by way of lease or similar arrangement, for any purpose whatsoever, including afforestation, to any private person or to any authority/agency/organisation not wholly owned, managed or controlled by the Government (such as private or joint sector ventures) shall attract the provisions of this sub-clause. Here again the conditions that can be attached to such lease could include a fiscal valuation of forest land and the differential treatment that it may require as it is being used for commercial purposes as compared to other uses which are non-commercial. The exclusion of the state especially in light of the Samatha Judgment seem to grant an undue favour to the state and the Samatha Judgment can surely have a persuasive value to include the state and hence the compensation that may be necessary in order to assess the true value of forest land.

*Clearing naturally grown forests for re-afforestation:* With respect to afforestation preceded by clearing of naturally grown trees the Act provides for seeking prior approval of the Central Government. All proposals in respect of sanction of Working Plans/Management Plans shall be finally disposed of by the Regional Office, under Section 2 of the Act. While examining the proposal, the Regional Office would ensure that the final decision is in conformity with the National Forest Policy, Working Plan guidelines and other relevant rules and guidelines issued by the Central Government from time to time. The Regional Office will however, invariably seek prior clearance of the Ministry whenever the proposal involves clear-felling of forest area having density above 0.4 irrespective of the area involved. Also, prior clearance would be required when the proposal is for clear felling of an area of size more than 20 ha. in the plains and 10 ha. in the hilly region, irrespective of density.

In National parks and Sanctuaries where felling is carried for improvement of wildlife and its habitat only, forests would be managed according to a scientifically prepared management plan approved by the Chief Wildlife Warden, provided that the removed forest produce shall be used for meeting bona fide needs of the people living in and around the National Park/Sanctuary and shall not be used for any commercial purposes. But in cases where large scale felling/removal of timber and non-timber products is required in a national park/sanctuary, which need disposal through sales, approval of the Central Government would be necessary. However, this shall be subject to the orders of the Supreme Court<sup>25</sup>.

Violation of the provisions of this Act amount to forest offence under the act. The penal provisions as provided under the Act are applicable to the cases where the State Government or any authority passes any order for permitting activities covered by Section 2 of the Forest (Conservation) Act, 1980 without prior approval of the Central Government. Cases of illicit felling/encroachment/illegal mining, etc. have to be dealt under the provisions of the Indian Forest Act, 1927, State Forest Acts, Environment (Protection) Act, 1986, etc.

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<sup>25</sup> No. 5-5/86-FC(Pt) dated 10.08.1999

The Union Ministry of Environment and Forest has also issued several guidelines for dealing with different issues under the FCA. The issues covered by these guidelines include Diversion of Forest Land for Regularisation of Encroachments<sup>26</sup>, Review of Disputed Claims over Forest Land, arising out of Forest Settlement<sup>27</sup>, Disputes Regarding Pattas/Leases/Grants involving Forest Land – Settlement thereof<sup>28</sup>, Conversion of Forest Villages into Revenue Villages<sup>29</sup>. The guideline on diversion prescribes that these issues should be dealt in accordance with the abovementioned specific guideline issued by the Ministry.

*Cost Benefit Analysis:* Another important aspect which is covered by the guidelines is the *cost benefit analysis* for dereservation or diversion of forest land for non-forest use. Note that dereservation necessitates a legal process where as diversion entails legal consequences. It provides that while considering proposals for dereservation or diversion of forest land for non-forest use, it is essential that ecological and environmental losses and socio-economic distress caused to the people who are displaced are weighed against economic and social gains. The types of projects for which cost-benefit analysis will be required have been listed. Likewise the parameters according to which the cost aspect will be determined have also been laid down. The parameters for CB analysis exists for three types of development interventions including roads and railway lines, minor irrigation projects and quarrying, medium and major irrigation, hydro-electric large mining and other such projects. The various parameters include loss of value of timber including loss of livelihood associated with it, loss of animal husbandry productivity including loss of fodder; cost of human settlement, loss of public facilities and administrative infrastructure, environmental losses and suffering to oustees. For the environmental CB analysis a thumb rule has been developed {126.74 lakhs per ha. Per fully stocked forest (density 1.0)}. For social analysis a thumb rule of 1.5 times of what S/he should have earned in two years had S/he not been shifted along with the physical cost of rehabilitation is followed. Such a cost-benefit analysis should accompany the proposals sent to the Central Government for clearance under the Act.

*Compensatory Afforestation* is perhaps the most significant fiscal mechanism that has been employed at the behest of the Supreme Court to evaluate those forest land that have been diverted for non forestry purposes or those reserve forests that have been de reserved. The guidelines provide that there should be a comprehensive scheme including the details of non-forest/degraded forest area identified for compensatory afforestation, maps of areas to be taken up for compensatory afforestation, year-wise phased forestry operations, details of species to be planted and a suitability certificate from afforestation/management point of view along with the cost structure of various operations.

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26 No.13.1/90-F.P.(1) dated 18.9.90

27 No.13.1/90-F.P.(2) dated 18.9.90

28 No.13.1/90-F.P.(2) dated 18.9.90

29 No.13.1/90-F.P.(5) dated 18.9.90

The compensatory afforestation schemes are site specific and thus per hectare rate varies according to species, type of forest and site. In this regard, it has been provided that compensatory afforestation schemes which are being submitted along with the proposals for forestry clearance must have technical and administrative approvals from the competent authority and should be in conformity with cost norms based on species, type of forest and site<sup>30</sup>.

There are two basic ways in which CA has been envisaged. One where it shall be done over an area which is equivalent area of the diverted forest land.

Example over which such CA can be done include the revenue lands */zudpi jungle/ chhote/bade jhar ka jungle/jungle-jhari* land/civil-soyam lands and all other such category of lands, on which the provisions of Forest (Conservation) Act, 1980 are applicable. However, such lands on which CA is proposed shall be notified as RF or PF under the Indian Forest Act, 1927. Further, there are stipulations as to where such lands are preferred.

Where the land for compensatory afforestation is not available in the same district, non-forest land may be identified for the purpose anywhere else in the State/UT as near as possible. The non-availability of suitable non-forest land for compensatory afforestation in the entire State/UT would be accepted by the Central Government only on the Certificate from the Chief Secretary to the State/UT Government to that effect.

The second way adopted for CA is that in certain cases compensatory afforestation may be raised over degraded forest land twice in extent of the forest area being diverted/de-reserved. Some of the examples where this is practiced include extraction of minor minerals from the river beds; construction of link roads, small water works, minor irrigation works, school building, dispensaries, hospital, tiny rural industrial sheds of the Government or any other similar work excluding mining and encroachment cases, which directly benefit the people of the area - in hill districts and in other districts having forest area exceeding 50% of the total geographical area, provided diversion of forest area does not exceed 20 hectares.

In certain cases the requirement of compensatory afforestation has been waived off. These examples include clearing of naturally grown trees in forest land or in portion thereof for the purpose of using it for reforestation; diversion of forest land up to one hectare. However, in such cases, plantation of ten times the number of trees likely to be felled will have to be carried out by way of compensatory afforestation or any number of trees specified in the order. The guidelines also provide special provisions for Central Government/Central Government Undertaking Projects. It is to be noted that this provision would be applicable to only Central Sector projects and not on State Sector projects which are being undertaken by Central PSUs on turnkey basis. In such cases, compensatory afforestation on equivalent non-forest land/a certificate of Chief Secretary regarding non-availability of equivalent non-forest land anywhere in the State shall be

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30 No. 8-80/99-FC dated 07.11.2001

insisted upon. Compensatory afforestation may be raised on degraded forest land twice in extent of forest area being diverted. Certificate of Chief Secretary regarding non-availability of non-forest land for compensatory afforestation will not be insisted. The State Governments is required to identify 'blank forest' or degraded forest lands for compensatory afforestation. Only when such areas are not available, the choice of compensatory afforestation will fall on protected, unprotected forests and unclassified forests in declining order of priority.

As per the guidelines there are some essential elements to be included in the scheme for compensatory afforestation. The scheme should entail details of equivalent non-forest or degraded forest land identified for raising compensatory afforestation. A map of proposed area to be delineated should accompany the scheme. Particulars of the agency responsible for afforestation should be furnished. Details of work schedule proposed for compensatory afforestation, Cost structure of plantation, provision of funds and the mechanism to ensure that the funds will be utilized for raising afforestation and details of proposed monitoring mechanism should be part of the scheme.

It has been categorically stated that the lands identified for compensatory afforestation have to be transferred to the Forest Department. The equivalent non-forest land identified for the purpose are first transferred to the ownership of the State Forest Department and declared as protected forests so as to ensure permanent maintenance of the plantation raised. The said transfer must be affected prior to the commencement of the project. Notably the compensatory afforestation is an additional plantation activity and not a diversion of part of the annual plantation programme. The guidelines provide for the establishment of a Monitoring Committee, in case the afforestation target is over 500 hectares in plains, and 200 hectares in hills, to oversee that the stipulations, including those pertaining to compensatory plantation, are carried out.

The State/UT Government are further required to create a *Special Fund* to which the individual user agency will make its deposits for compensatory afforestation. The Forest Department, or any other technically competent agency which is assigned the job of compensatory afforestation should fully utilise this amount for implementation of the afforestation scheme approved by the Government of India, and keep separate and meticulous account thereof.

Taking this further, the Supreme Court has passed orders<sup>31</sup> regarding creation of a body for management of compensatory afforestation fund. In compliance with the orders, a body namely, "Compensatory Afforestation Management & Planning Agency (CAMPA)" has been constituted<sup>32</sup> for the purpose of management of money towards compensatory afforestation. It was directed by the Supreme Court that as soon as CAMPA comes into existence all the funds received by the State/UT Governments towards compensatory Afforestation, additional compensatory Afforestation, penal compensatory Afforestation, Net Present Value of forest land, Catchment Area Treatment

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31 30-10-2002 in I.A. No.566 in Writ Petition (Civil) No. 202 of 1995

32 Notification dated 23rd April, 2004 issued by the MoEF.

Plan Funds, Wildlife Management Plan etc shall be transferred to the CAMPA. The notification constituting CAMPA lays down the detailed guidelines for the management & disbursement of the fund<sup>33</sup>.

The Supreme Court in the ongoing Godavarman case vide order dated 30.10.2002 recognized the concept of payment of net present value of the forest land, subsequently in its another order in the same case<sup>34</sup>. It re-iterated that no approval shall be granted without imposing the condition indicated in this Court's in its earlier order. In pursuance to this the Ministry issued guidelines for collection of Net Present value (NPV) of forest land<sup>35</sup>. Notably NPV compensates for the loss of tangible as well as intangible benefits flowing from the forest lands which has been diverted for non-forest use. The NPV of such land is being recovered from the user agency in the States of Madhya Pradesh, Chhattisgarh and Bihar. In the states of Madhya Pradesh and Chhattisgarh, the NPV is being recovered at the rate of Rs.5.80 lac per hectare to Rs.9.20 lac per hectare of the forest land depending upon the quality and density of the forest land diverted for non-forestry use. The underlying principle for recovery of NPV was that the plantations raised under the compensatory afforestation scheme could never adequately compensate for the loss of natural forests as the plantations require more time to mature and even then they are a poor substitute to natural forest. It noted that States/Union Territories as well as MOEF are of the view that in addition to the funds realized for compensatory afforestation, the NPV of the forest land being directed for non-forestry purposes should also be recovered from the user-agencies. The Supreme Court in one of the orders<sup>36</sup> in the ongoing Godavarman case has although noted this basis for collection of NPV but the Court didn't seemed satisfied with the basis of calculating NPV and hence directed for constitution of a Committee of experts from the various fields. One of the important aspect of the terms of the reference of this committee is to identify and define parameters (scientific, bio-metric and social) on the basis of which each of the categories of values of forest land should be estimated. It is here that the present study is located.

*Conditions stipulated in Forestry Clearances:* Whenever clearances are accorded for diversion/de-reservation of forest land under the provisions of the *Forest (Conservation) Act, 1980*, certain conditions have been imposed by the Ministry to minimise impact on forest land. These conditions comprise of general conditions, which are stipulated in almost all the proposals; standard conditions, which are stipulated on types/category of projects and specific conditions, which are stipulated keeping in view the impact of the project on forest. However, the list of conditions given below is illustrative and the Central Government or the State Government may impose any other additional condition in the interest of conservation, protection or development of forests, wildlife and environment.

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33 Clause 6.3 & 6.4 of the notification.

34 dated: 1.8.2003 in I.A. No.826 & 859 in I.A. No. 566 in Writ Petition (Civil) No.202 of 1995

35 No. 5-1/98-FC(pt II) dated 18/09/2003 and 22/09/2003

36 Order dated 26-09-2005 in W.P. (C) 202 of 1995 T N Godavarman V. Union of India

*General Conditions* include no change in the status of forest land, carrying out compensatory afforestation as per guidelines, transfer and mutation of non-forest land in favour of Forest Deptt, notification of such land as RF/PF under IFA. Environmental clearance if required, rehabilitation of Project affected families, if any. The User agency is required to provide free fuel wood preferably alternate fuel to the labourers and the staff working at the site so as to avoid any damage & pressure on adjacent forest areas. It is also stipulated that the forest land shall not be used for any purpose other than that specified in the proposal. Thus it can be seen that under the general conditions it is the cost of the fuel wood or alternative fuel that has to be borne by the user agency.

*Standard conditions* vary depending upon the nature of the project. In case of *Mining Proposals*, they comprise of conditions such as phased reclamation of mined area, safety zone area, its afforestation and fencing, afforestation on 1 ½ times degraded forest land in lieu of the area used for safety zone. In case of under ground mines, areas on surface are required to be fenced and afforested. With regard to *Hydel and irrigation proposals* special conditions include catchment area treatment plan for medium and major projects, minimum requirement of forest land for canals, afforestation along the reservoir & canals, no tree felling between FRL (Full Reservoir Level) and FRL-4 meters and free water for forestry related projects. Likewise the with respect to *Road proposals*, it is required that minimum trees are felled and strip plantation are raised on sides and central verge. In case of *Transmission line* proposals it is required that minimum trees are felled and plantations of dwarf species (preferably medicinal plants) are raised in right of way under the transmission lines. It is clear that there are varied cost structure that is envisaged depending on the nature of the project.

*Specific conditions* are specific to the nature of the project and are stipulated on case to case basis by the Central Government/State Government.

What is clear from above that the three types of conditionality that may be imposed provides a opportunity to work out a methodology for estimating the value of forest land and in any estimation the above conditionality is a prerequisite. The above outlines the national framework and sequence of events that have led to the necessity of evolving the methodology to value the forest land. It becomes imperative to assess the legal regime of some specific states to give legitimacy to any new methodology and also to test in three different locations with a totally different legal regime on forests and its impact on estimation methodology. Three states viz., Himachal Pradesh, Madhya Pradesh and Karnataka as stated earlier have been selected for this analysis.

## **CHAPTER-II: LEGAL FREAMWORK CONCERNING RIGHTS, PRIVILEGES & CONCESSIONS ON FOREST LANDS IN HIMACHAL PRADESH**

### ***2.1. Introduction:***

State of Himachal Pradesh similar to other States in India has adopted Indian Forest Act with some minor changes. So primarily it is the Indian Forest Act as applicable in the State of Himachal Pradesh and other regulations enacted by the State Government with respect to Forests, which govern the rights of individuals and communities over forestland. The rights provided under various legal instruments are individual rights provided to an individual or its family. The concept of community rights, however, over forest resources is missing in the entire legal regime on forestry (as applicable in the State of Himachal Pradesh).

### ***2.2 Categories of Forest***

The Indian Forest Act establishes three categories of forests *Reserve Forest, Protected Forest* and Village Forest. Out of these three the third category does not exist in the state of Himachal Pradesh. It is important to have a look at the prevailing categories of forests in Himachal Pradesh as different categories provide for different set of rights/privileges to different individuals. So the two existing categories in the State of Himachal Pradesh are discussed below.

*'Reserved forest'*, the most restricted category, can be constituted by the State government on any forestland or wasteland which is the property of the government or on which the government has proprietary rights.

*Protected forests:* The State Government is empowered to constitute any land other than reserved forests as protected forests over which the government has proprietary rights. In protected forests, the government retains the power to issue rules regarding the use of such forests, but in the absence of such rules, most practices are allowed<sup>37</sup>. It is pertinent to mention here that in 1952 the State of Himachal Pradesh vide a notification brought all the lands on which the Himachal Government has property or proprietary rights under the category of forestland. The notification categorised these forests as protected forests. Pending demarcation of these lands, they were termed as the undemarcated protected forests, thus a new administrative category of forest came into existence.

### ***2.3 Process of Settlement of Rights***

The Indian Forest Act establishes an elaborate procedure for settlement of rights when a reserve forest or protected forest is constituted<sup>38</sup>. Even though the 1927 Act provides for a detailed procedure for settlement of forest, the Himachal Pradesh Government enacted

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37 Id. Sections 29-34

38 Sections 3-26 of the Indian Forest Act, 1927.

specific forest settlement rules for the State. The *HP Forest (Settlement) Rules 1965* govern the process of constituting reserve and protected forest. Detailed procedure is set forth for demarcation and survey of each type of forest. These rules also lay down the process for determination of rights and concessions to be accorded to people living in and around the forest at the time of settlement<sup>39</sup>. Under the rules the government may appoint as many Forest Settlement Officers (FSOs) as necessary. The different claims are dealt with differently. Thus for example there are specific provisions to deal with a claim to land, claim of right to way, water, claims for shifting cultivation, right to litter and lopping, right to collect minor forest produce, rights to collect fuel wood etc. The FSO while determining these rights is guided by the principle that these rights are for personal bonafide uses and not for commercial usage. The rules provide for sets of rights that are to be recorded. A list of such rights to be recorded is listed in **Annexure I**. Almost all the regulations on use of timber and other forest resources categorically state that the rights of an individual over timber and other forest resources flow from the settlement records of the forest or revenue department.

### *2.3.1 Fiscal measures in settlement of rights:*

The rules also provide for a fiscal instrument to calculate costs if a right is commuted. Thus for example if the FSO commutes a rights of pasture or forest produce by granting money this should be calculated by 20 years purchase of the annual value of the rights as ascertained by the FSO and if the rights has been commuted in lieu of land then this should be calculated by the annual value of the land.

### *2.3.2. Rights and Claims of Forest Dwellers and the Forest Settlement officer*

The Indian Forest Act provides for three types of claims in forests proposed to be reserved. Firstly, a forest dweller might lay claim to ownership of land. The forest officer shall pass an order admitting or rejecting the claim. Secondly, a claim may be asserted for rights to pasture or for forest produce. Again, the Forest Settlement Officer shall decide whether to admit such a claim, and if he does so, then he is required to record the “extent” to which it is admitted. The Forest Settlement Officer shall then take such steps as are necessary to ensure the continued exercise of that right, including removing such practice to another forest, or allowing the use to continue subject to appropriate rules. However, if the Officer determines that it is impossible having due regard to the maintenance of the reserved forest to make any settlement that would allow the practice to continue, he may commute the rights by payment of money or grant of land “or in such other manner as he thinks fit”. [Section 16 of the IFA] Finally, special provisions apply to the practice of shifting cultivation, which the Forest Settlement Officer may prohibit without any compensation. As evident from the above description forest dwellers’ or villagers’ rights are subject to the discretion of the FSO.

The outcome of the settlement process is a settlement record that provides for the rights of an individual with regard to forest produce or forest resources. Almost all the regulations on use of timber and other forest resources categorically state that the rights of an

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<sup>39</sup> Part five of the Rules.

individual over timber and other forest resources flow from the settlement records of the forest or revenue department.

For instance the Kullu forest division underwent settlement by the end of 19<sup>th</sup> century and the settlement was completed in the year 1886 by one Mr. Alexander Anderson. The report so furnished by Mr. Anderson after completion of settlement is commonly known as the **Anderson Report**. Forest settlement in Kullu followed the broad categorization of forest as per the Indian Forest Act of 1874 that is the reserved and protected forest mainly. In Kullu bulk of the forest area was categorized as protected forest with very small areas to be constituted as reserved forest. Mr. Anderson had even noted in one of the discussion that since the villagers depend on the forests for their very existence and commutation of rights will be most unjustifiable expropriation. The decision of classifying most of the forest as protected led to final classification of forestland into four types<sup>40</sup> These are Reserve forests; Demarcated Protected forests Class I, Demarcated Protected forests Class II and Undemarcated Protected forests based on the recommendation of the then Inspector General of Forests.

Reserve forests were created in areas remote from habitation where there were limited or no rights or in areas close to villages where there was sufficient other forest land available for use by local people.

Good quality forests with large number of rights were not reserved but placed in the protected category, thereby ensuring that local people were still able to exercise their rights. Class I forest were generally those remote from habitation containing valuable timber species such as deodar; rights were clearly defined in these forests.

Class II forest were considered to be less valuable commercially and on this greater number of rights were permitted. Class II forests were different from undemarcated forest as in these forests grazing rights were clearly defined and the land could not be alienated for cultivation.

Undemarcated forests were considered to be a land resource for cultivation and a supply of grazing and tree product needs. A detailed appendix of the rights as provided in different categories of the forest under Anderson Report in annexed herewith as Annexure II.

There were certain rights provided to the individuals because of the unique social or demographic conditions of the state. One of the most contentious right is the Timber Distribution right. As per these rights a family owning a piece of land in Himachal Pradesh is permitted to fell a tree once in every five years to build or repair a house. This Right has even been recognised and upheld by the Hon'ble Supreme Court in the ongoing

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40 Reserve Forest, Demarcated Protected Forest Class I, Demarcated Protected Forest Class II and Undemarcated Protected Forest Class III.

Godavarman case<sup>41</sup>. As this right is appended to the land owned by a family or an individual, hence it becomes pertinent to briefly discuss this right.

These rights date back to the forest settlements held in the late 19<sup>th</sup> century. Since then the Forest Department has regularly issued detailed guidelines for distribution of Timber under T.D. rights. There is diversity in the process of distribution of Timber under the TD mechanism through out the state. This diversity is mainly because of the varied demography of the State. In Kullu the *min khata* holders of the land who have acquired ownership of land under the tenancy law or under any other scheme of the government enjoy the concession of getting timber for their bonafide domestic use. The timber so granted is for bonafide domestic use, which is mainly construction or repair of houses, for marriages or cremation ceremonies etc. Lahaul, one of the tribal areas of Himachal, is snow covered for about more than six months in a year and can hardly sustain any vegetation. Since Lahaul is very close to Kullu hence such a diversified approach is adopted in timber distribution within this region. The reasons for diversification through out the state are quite similar.

### *2.3.3 Rights over Non-Timber Forest Produce and Other Biological Resources*

The rights over NTFP flow from the settlement record and are practiced as prescribed. The State of Himachal Pradesh has enacted few legislations and regulation on some of the NTFPs i.e. resin and some of the medicinal plants. But there is no uniform legislation on NTFPs applicable through out the State. The Acts or Regulations so enacted concentrate more on the strengthening States control on regulation of trade of such NTFPs rather than regulating the collection. The permit for movement of MFPs is issued by the Pradhan of the Gram Panchayat. The regulations that exist take care of trade and provide for granting of permits and licenses to deal in non timber forest produce and medicinal and aromatic plants. The forest department has also imposed royalty fees on collection apart from the permit fees. The rights to NTFP form an important source of livelihood and thus any methodology that is developed has to take into account the volume and costs of NTFP that is harvested from forest land.

### *2.3.4 Settlement of Rights in Protected Forests*

All government forestlands and wastelands, the protection of which is necessary, are constituted as Protected forests<sup>42</sup>. Similar to reserve forests, the final declaration of forests as protected is preceded by inquiry and recording of the rights of the government and private persons by settlement & survey. If the inquiry and record of rights involves a lengthy process, the declaration of the area as protected forests can be made pending the inquiry. After the demarcation and completion of record, the collector of forests will issue a proclamation<sup>43</sup> inviting claims and objections of the right holders pertaining to their rights into the said forests. After the expiry of the stipulated period, the Collector shall hold an inquiry into the rights of government and of the private persons at a place that is close to the concerned forest. In the said inquiry the DFO or his nominees appears, plead or act on behalf of the Government before the collector forests and furnishes written statements regarding rights and concessions exercised by the right holders

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41 Order dated 12.12.1996

42 Rule 20.

43 under section 29 of the Indian Forest Act.

Finally, after the settlement of rights, the State government publishes the notification.

### *2.3.5 Settlement of Rights in Reserve forests*

The government may declare any forest or wasteland, which is the property of the government or over which it has proprietary rights or to the whole or part of which the government is entitled, as 'reserved forest'<sup>44</sup>. For that purpose firstly a proposal for issuing a notification under section 4 of the Indian Forest Act, is submitted to the government by the Chief Conservator of Forests<sup>45</sup>. The Notification under the said provision declares the government's intention to constitute such land as reserve forests<sup>46</sup>.

After the notification the FSO publishes a Proclamation specifying the situation and limits of the proposed reserved forest, which requires all the persons claiming any right in or over such forest, to present their claims within the prescribed period. The FSO is required to inspect himself and to afford full opportunity to the villagers to present their claims on the spot. Even if a claim is not brought to his notice, it is his duty to ascertain all that may be ascertainable on the subject from the records of the Administration<sup>47</sup>.

The claims on which the FSO has to adjudicate are of two classes: Claims to land and Claims to rights of the nature of easements, such as rights of pasture or of forest produce<sup>48</sup>

The Forest Settlement Officer after finalizing the inquiry and submit a summary report, containing the abstract of the rights/privileges and concessions on the land.

When all the claims preferred by the villagers have been inquired into and decided and the prescribed limitation period<sup>49</sup> is over the FSO takes up the draft notification, which will be drawn separately:

- (i) Where no claims (neither rights or concessions) have been admitted;
- (ii) Where claims (rights) have been admitted;
- (iii) Where only concessions have been admitted;
- (iv) Where both neither rights or concessions have been admitted

*A list of rights to be recorded as provided under the Himachal Pradesh Forest Settlement Rules of 1969<sup>50</sup> is enumerated below:*

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<sup>44</sup> Rule 5 of the FS Rules and Section 3 of the IFA.

<sup>45</sup> R-5 (ii) FSR.

<sup>46</sup> Section 4 IFA.

<sup>47</sup> Rule-12, *ibid*.

<sup>48</sup> As provided under Sec 12 of the IFA

<sup>49</sup> Section 17 of the IFA.

<sup>50</sup> See Annexure of Form G of Forest Settlement Rules

Table-1 **Details and Kinds of Rights to be recorded at the time of forest settlement**

| S No. | Details and Kinds of Rights to be Recorded  |
|-------|---|
| 1     | Number of the forest in which or any part of which these rights can be exercised. |
| 2     | Name of the Mauza   |
| 3     | Name of the Villages having rights  |
| 4     | Number of houses  |
| 5     | Population  |
| 6     | Number of Families  |
| 7     | Number of Ploughs   |
| 8     | Number of Cattle admitted to free grazing   |
| 9     | Dwelling Houses   |
| 10    | Cattle Sheds (Misc Wood)  |
| 11    | Wood for agricultural implements  |
| 12    | Fire wood from fallen wood (in head loads per annum)                              |
| 13    | Charcoal for agricultural implements (in head loads per annum)                    |
| 14    | Wood for cremation of dead body or Arthi  |
| 15    | Wood for marriages  |
| 16    | Wood for Kohlu and Ukhal Musal and Mai (Suhaga)                                   |
| 17    | Wood for Gharat (water mill)  |
| 18    | Wood for repairs of Kuhl  |
| 19    | Misc under wood bushes etc for fencing  |
| 20    | Fodder Grass  |
| 21    | Fodder Grass for Sale   |
| 22    | Grass for Ropes   |
| 23    | Grass for thatching   |
| 24    | Grass Leaves for fodder   |
| 25    | Dry leaves for manure   |
| 26    | Green leaves for manure   |
| 27    | Bark of Trees and Creepers for Tanning  |
| 28    | Bark of Trees and Creepers for Medicines  |
| 29    | Bark of Trees and Creepers for Ropes  |
| 30    | Side branches of Dhaman trees for ropes   |
| 31    | Fruit and Roots   |
| 32    | Bamboo in score per annum   |
| 33    | Stones for building   |
| 34    | Slates and Stones for Ghartas   |
| 35    | Sand, Clay and Lime Stones for domestic purpose                                   |
| 36    | Roads and Ways  |
| 37    | Irrigation Canals   |
| 38    | Water for Mills   |
| 39    | Fishing   |
| 40    | Burning Ghat  |
| 41    | Wild Honey  |
| 42    | Water for drinking for human beings and animals                                   |

The above list gives a glimpse of the types of claims that accrue on forest land and that may have to be valued if the beneficiary is deprived of such forest lands.

#### ***2.4. Rights/Privileges/Concessions in different categories of forests:***

After explaining the various categories of forests and the procedure for settlement of rights in those forests, it is now important to have a look at the kind of rights or privileges or concessions that are being allowed in specific categories of forest. Here both the

existing as well as past rights would be discussed. These rights have been traced from the above mentioned Anderson report. It is important to note here that the framework for rights as enumerated in the Anderson report is still relevant and prevalent, though the forest classification has undergone a minor modification. The Anderson report categorises the forests in three broad categories for detailing the rights, privileges and concessions for those categories of forests. The categories so provided are reserve forests, 1<sup>st</sup> class Protected Forest and 2<sup>nd</sup> Class Protected Forest. On the contrary the present legal regime on forestry in the state of Himachal Pradesh categorizes forest under two broad categories, reserve & protected forests.

#### *2.4.1 Rights/Privileges/Concessions in reserve forests:*

As explained earlier the reserve forests are the most restricted category of forests. As per the Anderson report the rights to forest produce or grazing in a reserve forest is subject to such conditions as may be prescribed by the government during the settlement process. The government has the power to close any part of the forest with the sanction of competent authority for such time as may be necessary, and all or any of the rights admitted in the forest may be suspended in such portion for such time, provided that the area open for the exercise of these rights be sufficient and in a locality reasonably convenient for the exercise of these rights.

#### ***Rights exist till the object on which rights subsists -exist!***

The Government is not bound to take any special steps to prevent the ceasing of object to exist in the ordinary course of nature on which the right of the right holder has been admitted and nor can the right holder do any thing to prevent such cessation. The right of the right holder on such an object will exist only till the time the object is in existence.

The present legal regime on forestry in the State is similar to the earlier one. The present regime provides for three types of rights reserve forests. First claim to ownership by a forest dweller, second right to pasture and forest produce and finally the practice of shifting cultivation, which the Forest Settlement Officer may prohibit without any compensation.

#### *2.4.2 Rights/Privileges/Concessions in Protected Forests*

The Anderson Report divides Protected Forests in two classes for prescribing rights and concessions. But under the present legal there is no such division so for the sake of brevity the categorization of Anderson is being followed in the present section for documenting rights and concessions of individuals over forestland.

#### *2.4.3 Rights/Privileges/Concessions in 1<sup>st</sup> Class Protected Forests:*

In the 1<sup>st</sup> Class PFs rights of user are appended to cultivable land on which land revenue is being paid or of which the revenue has been assigned, and may be acquired and alienated only with such land. These rights may be exercised only for bona fide agriculture and domestic purposes of the right holders, and only on behalf of their own cattle, sheep and goats, and not for the supply of the wants of industries and nor for purely pastoral as distinguished from agriculture purposes.

No forest produce acquired in the exercise of these rights of users, except bamboos, fruits, flowers, medicinal roots and leaves, may be sold or watered or supplied to any but the purpose for it was acquired; provided that right holders may, *during the pleasure of the government* ( emphasis supplied), sell fire wood, torches, charcoal, grass, lime, slates and plastering earth.

The rights of the user are also laden with responsibility and subject to the condition that all right holders shall render every assistance in extinguishing any fire occurring in any forest within which they have rights, whether they have been called upon to do so or not; and in cases of willful neglect government may order that all or any rights within specified limits be suspended for any time considered proper. Wherever, a limit in time has not been imposed on the exercise of any right it does not necessarily follow that the right is in reality exercised every day and always through out the year, but it implies that the periods during which the right is exercised as and when provided by the competent authority.

#### *2.4.4 Rights/Privileges/Concessions in 2<sup>nd</sup> Class Protected Forests:*

The report under this class of PFs first details the range of rights that may be exercised without permission but subject to certain conditions as laid down. For a detailed listing of the rights See Annexure II. The conditions so laid down for exercise of the listed rights bare semblance to the ones provided for the 1<sup>st</sup> Class PFs. Here too rights come with responsibilities. Hence it is provided that rights of user are subject to the conditions that all-right holders shall render every assistance in extinguishing any fire occurring in any forest within which they have rights, whether they have been called upon to do so or not; and in case of willful neglect, government may order that all or any rights within specified limits be suspended for any time it considers proper.

Further the right holders shall maintain in proper repair of boundary pillars of the forests in which they have rights; that right holders shall be responsible for the pay and uniform of the *Rakha* (Guard) in charge of the forests in which they have rights. One-third share of the gross income from the local sale of trees from these forests will be paid to the officials of the *kothis* from which the trees were sold, in consideration of their assistance in the management of the forests and in enforcing the proper exercise of the rights and the rules issued by Government. This share may be divided in such a manner as the Local Government may direct. It confers no right whatsoever in the forests, and if the assistance in consideration of which it is given is not rendered, the Local Government may withdraw the grants.

Thus it is clear that an elaborate system of rights and privileges exists in Himachal Pradesh and detailed settlement guidelines and procedures were followed. This needs to be taken into account in evaluating such forest lands if they are diverted for non forestry purposes. These rights that exist, as stated in the Forest Conservation Guidelines, do not contravene or attract the provisions of the FCA and hence they are mandated to be taken into account not only for receiving benefits but also in any costing methodology that may be developed.

**CHAPTER V: SOME CONCLUSIONS – INPUTS INTO METHODOLOGY FOR ESTIMATING VALUE OF FOREST LAND**

- The reasons for acceptance or rejection of any proposal for clearance under the Forest Conservation Act is not in the public domain which if made public could go a long way in ascertaining the value of forest land or conditions under which value are put on forest land.
- The conditionality attached to clearances for activities such as mining provides a lever in the hand of the central government to regulate unsustainable mining. However, the preference of mining over retaining forest land and equitable valuation has not been given consideration under the guidelines.
- The conditions that can be attached to a lease on forest land could include a fiscal valuation of forest land and a differential treatment may be required to such lands which are being used for commercial purposes as compared to those non forestry activities or uses which are non-commercial.
- The exclusion of the state from clearance for leasing of forest land especially in light of the Samatha Judgment seem to grant an undue favour to the state and the Samatha Judgment can surely have a persuasive value to include the state and hence the compensation that may be necessary in order to assess the true value of forest land.
- The three types of conditionalities viz., general, standard and specific, that may be imposed under CA provides a opportunity to work out a methodology for estimating the value of forest land and in any new estimation methodology the above conditionalities are a prerequisite.
- The Forest Settlement Rules of Himachal Pradesh provide for a fiscal instrument to calculate costs if a right is commuted. Thus for example if the FSO commutes a rights of pasture or forest produce by granting money this should be calculated by 20 years purchase of the annual value of the rights as ascertained by the FSO and if the rights has been commuted in lieu of land then this should be calculated by the annual value of the land
- The rights to NTFP form an important source of livelihood and thus any methodology that is developed has to take into account the volume and costs of NTFP that is harvested from forest land.
- A detailed list of rights is required to be recorded as provided under the Himachal Pradesh Forest Settlement Rules of 1969 which gives a glimpse of the types of claims that accrue on forest land and that may have to be valued if the beneficiary is deprived of such forest lands.

- An elaborate system of rights and privileges exists in Himachal Pradesh and detailed settlement guidelines and procedures were followed. This needs to be taken into account in evaluating such forest lands if they are diverted for non forestry purposes. These rights that exist, as stated in the Forest Conservation Guidelines, do not contravene or attract the provisions of the FCA and hence they are mandated to be taken into account not only for receiving benefits but also in an any costing methodology that may be developed.
- There have been several rights which have been either converted as privileges such as *nistar* in Madhya Pradesh and several rights which are deemed to be so are actually recorded as privileges. The exact status of the nature of rights are essential to ascertaining any value of forest land on which such past rights existed. The degree of claim can be another basis for a differential treatment to calculating any value of forest land.
- Valuation of forest land especially where privileges or rights have been exercised for free has to be treated separately from those rights or privileges are being exercise by payment of a fee or where they are commuted. Similarly works for bonafide requirements of individuals or communities and those for public utility works have to be treated differently than those that are for commercial needs.
- An important institutional question in case of valuation of forest lands such as village forests whether Panchayats need to be involved over which they exercise control as well discretion in valuating forest produce that are within their jurisdiction.
- The PFs in Karnataka presents a very unique and at the same time demonstrates a representative sample of the nature of complexity that is associated with Protected Forest Category in general. It is clear from the Karnataka example that several erstwhile categories under earlier regimes are broadly classified as PFs. In Madhya Pradesh too, it has been seen that earlier Zaminadary and Malguzari Forests are now called PFs. Similarly in Himachal Pradesh the 1952 Notification has converted earlier forests as PFs. In all cases the rights are yet to be settled. These examples also represent classic forest conflict situations in all these states. It is clear that forest land especially which are PFs and where the settlement procedure is yet to complete will have to be treated specially and differently as far as any estimation methodology for forest land is concerned. This is because the nature of rights, privileges and concessions in the PFs are varied and contested.
- The rights or privileges which are generally admissible at a district level as in Karnataka presents yet another unique set of privileges relating to forest lands. Here an administrative boundary has been considered for exercise of privileges and not a legal category that is normally taken as a unit for exercise of rights and privileges.

- There are special privileges where they apply to the removal of the forest produce by cultivating *ryots* and villagers for their bona fide use.
- There are privileges that are related to specific places, they may be specific to certain categories of people; then privileges are associated with different classes of produce including MFP, minor minerals, related to water etc; then there are privileges which are general and special; then there are privileges that are legally ascertainable and those that are only administratively allowed. The above presents a complex regime of rights and privileges in Karnataka and clearly presents a challenge for any estimation methodology.

*Annexure 1*  
*Conditions for Different Classes of Forest as Provided Under The Anderson*  
*Report*

**GENERAL CONDITIONS FOR RESERVED FORESTS**

**I. The rights continued in the Reserved Forests of Kulu proper, Inner Sahraj, Outer Sahraj and Rupi, with exception of rights admitted to the Rai of Rupi, are subject to the following General provisions: -**

1. All rights to forest produce or grazing are subject to such conditions as to payment or otherwise as Government may see fit to impose at a revision of the Land Revenue Settlement.
2. All rights are appendant to the cultivated land of the recorded rightholder, and may be acquired and alienated only with such land.
3. Forest produce obtained in the exercise of admitted rights may not be sold or bartered or alienated in any other way.
4. A right to forest produce is extinguished when the object over which the right is exercised ceases to exist; and Government is not in any way bound to take a special steps to prevent the object (admitting of the exercise of the right) ceasing to exist in the ordinary course of nature, nor may the right holders take such steps.

**Illustration: -** A phat is being covered up with young kelo or kail. Government is not bound to, and the right holders may not, cut down the trees or in other ways endeavor to ensure the continued existence of the phat.

5. In case of dispute as to the number of cattle, sheep or goats that any right holder may graze, or the number of trees he may cut, the number must be determined with reference to the relative amount of revenue paid by each rightholder, the total for all right holders never exceeding the recorded maximum.
6. A portion of any forest may be closed with the sanction of competent authority for such time as may be necessary, and all or any of the rights admitted in the forest may be suspended in such portion for such time, provided that the area open for the exercise of these rights be sufficient and in a locality reasonably convenient for the exercise of these rights.

**II. The rights allowed to the Rai of Rupi in the reserved forests of Rupi are subject to the following General Provisions: -**

1. Forest produce obtained in the exercise of admitted rights may not be sold or bartered or alienated in any other way.
2. A right to forest produce is extinguished when object over which the right is exercised ceases to exist, and Government is not in any way bound to take a special steps to prevent the object (admitting of the exercise of the right) ceasing to exist in the ordinary course of nature, nor may the Rai take such steps.

**Illustration: -**If the chestnut trees in a forest all die out, Government is not bound to, and the Rai may not, plant such trees to ensure the continued exercise of the right to take chestnuts.

3. A portion of any forest may be closed with the sanction of competent authority for such time as may be necessary, and all or any of the rights admitted in the forest may be suspended in such portion for such time, provided that the area open for the exercise of these rights be sufficient and in a locality reasonably convenient for the exercise of these rights.
4. The Rai may charge whatever consideration he thinks proper the license to snare musk deer and hawk.
5. The Rai is responsible that the nets and puarex are in reality suitable for the capture of musk deer and hawks, and not intended for the capture of pheasants or other game.

### **GENERAL CONDITIONS APPLICABLE TO ALL 1<sup>ST</sup> CLASS PROTECTED FORESTS**

1. The soil and all the produce of these forests belong to the Government, subject to the recorded rights of user.
2. The rights of user are appendant to cultivated land paying revenue, or of which the revenue has been assigned, and may be acquired and alienated only with such land. They may be exercised only in proportion to the area cultivated, and the revenue paid or assigned, and the Government may, whenever it considered it necessary in the interests of the forests, or of whether right holders defined by members the extent of any of the rights which a right holder may exercise. They may be exercised only for the bond fide agricultures and domestic purposes of the right holders, and only in behalf of their own cattle, sheep and goats, and not for the supply of the wants of tea or other industries, nor for purely pastoral as distinguished from agriculture purposes.
3. No forest produce acquired in the exercise of these rights of users, except bamboos, fruits, flowers, medicinal roots and leaves, may be sold or watered or supplied to any but the purpose for it was acquired; provided that right holders may during the pleasure of government sell fire wood, tources, charcoal, grass, lime, slates and plastering earth.
4. During the currency of the present revenue settlement rights will be exercised without payment. At the next revenue settlement Government may assess all or any of these rights to revenue in such a way as it may consider proper, and may charge a price for trees and other forest produce.
5. Trees for building purposes will not be given when the right holders applying for them has already got a suitable building in a reasonably convenient locality and of size sufficient for his requirements for instance, A sell half his holding to B, who applies for trees to build a house on the land purchased. A has on his land a house conveniently situated or the cultivation of the land sold. B is not entitled to trees, as he bought only the right of A, who is not entitled to another house.
6. When trees have been given for building purposes, the buildings shall be constructed within the local limits of the hamlet (graon) where the cultivated land on account of which the trees are given is situated.
7. The proprietors of the land and also their agricultural tenants may exercise he rights admitted within the limits specified; but tenants at-will, will get trees to building purposes only through the proprietors of their land.
8. Deodar trees from these forests may not be claimed even of payment.
9. Green trees may not be cut within 40 yards of any temple or of any building connected with any temple. Dry deodar trees standing within this area shall be applied to be repair of the temple buildings, and on application to the forest officer will be given for that purpose.

10. Nets, traps and snares may not be set without the permission of the Assistant Commissioner, and subject to the condition he may impose; but such permission will be given in cases where a right to set nets and snares for the capture of the hawks and musk deer was recorded at the 1<sup>st</sup> Revenue Settlement.
11. The rights of the user are subject to the condition that all right holders shall render every assistance in extinguishing any fire occurring in any forest within which they have ghats, whether they have been called upon to do so or not; and in cases of willful neglect government may order that all or any rights within specified limits be suspended for any me considers proper.
12. Wherever, a limit in time has not been imposed on the exercise of any right does not of necessity follow that the right is in reality exercised every day and always I the year round, but it implies that the periods during which the right is exercised opened on circumstances so various and changing that it is impossible to fix them.

## **RIGHTS AND CONDITIONS FOR 2<sup>ND</sup> CLASS PROTECTED FORETS, KULU PROPER**

### **1. Right holder may exercise such of the following rights as have been admitted to them, subject to the condition herein laid down, and to the rules which the local government may from time to time issue for the regulation of these rights: -**

- (1) To graze cattle (except buffaloes) sheep and goats at the time given in the record when any limit in time has been imposed.
- (2) to take trees:-  
for agricultural implements and domestic utensils; for the construction and repair of dwelling-houses, cattle and grass-sheds, and other agricultural buildings;  
for the construction and repair of temples and of dwelling attached to temples;
- (3) to take the following articles of forest produce: -
  - (a) grass of all kinds for fodder, thatching, rope-making and other domestic and agricultural purposes;
  - (b) flowers, ferns, plants for medicinal, domestic, and agricultural purpose;
  - (c) brushwood for fencing and other purpose;
  - (d) branches of trees for fodder, manure, hedges, charcoal and ropes;
  - (e) fallen leaves for manure;
  - (f) leaves and bark of certain trees and shrubs for tanning, incense, rope-making, medicinal and other purposes;
  - (g) dry wood for fuel, torches and other purposes;
  - (h) fruits and roots for food, washing, dyeing, medicinal and other such purposes;
  - (i) stumps of trees for torches and manufacture of oil;
  - (j) bamboos for basket-making and other purposes;
  - (k) stones, slates, earth, clay and limestone, for building, plastering, for the manufacture of earthen vessels, mill-stones and other purposes;
  - (l) wild honey.
- (3) Special conditions: -
  - (1) The following trees may not be cut without permission: -
 

|           |                    |
|-----------|--------------------|
| 1. Deodar | 11. Yew            |
| 2. Box    | 12. Cypress        |
| 3. Walnut | 13. Shisham        |
| 4. Ash    | 14. Olive          |
| 5. Elim   | 15. Horse chestnut |
| 6. Alder  | 16. Celtis         |

- |              |              |
|--------------|--------------|
| 7. Blue pine | 17. Mulberry |
| 8. Chil      | 18. Hill tun |
| 9. Spruce    | 19. Kakaran  |
| 10. Fir      | 20. Poplar   |

Provided that-

- (a) spruce and fir, and chill, or failing these, kail may be cut without previous permission for the bier and the cremation of dead, but notice must at once be given to the Rakha;
- (b) one branch of a yew suitable for the Bastar-Deo ( Household God) may be cut without permission on the construction of a new house;
- (c) the stumps of these trees may be cut without permission;
- (d) dry standing and fallen trees of these kinds may be cut and removed without permission, except deodar, box, walnut and ash.

(2) The following trees may not be lopped nor injured in any way: -

- |           |            |
|-----------|------------|
| 1. Deodar | 5. Alder   |
| 2. Box    | 6. Yew     |
| 3. Walnut | 7. Cypress |
| 4. Ash    | 8. Shisham |

(3) The following trees may be lopped for fodder: -

- |                   |             |
|-------------------|-------------|
| 1. Elm            | 5. Mulberry |
| 2. Olive          | 6. Hill tun |
| 3. Horse chestnut | 7. Kakaran  |
| 4. Celtis         | 8. Poplar   |

- (4) The following trees, viz., blue pine, chil, spruce and fir may be lopped for charcoal; and spruce and fir may be lopped for manure; but in both cases the trees may be lopped only to one-third of their height, and the trees must be not less than two haths in girth at 3 haths from the ground.
- (5) With the exception of the 20 trees mentioned above, all trees, shrubs and brush wood may be cut and lopped without permission, provided that Government may at any time remove any species of trees, shrubs, or brushwood from the operation of this clause and include it in clause (1), and impose such conditions on the cutting or lopping of such trees, shrub or brushwood, as it may consider necessary, subject always to the provision that the right-holders are entitled to have their bonafide wants supplied from the forests.
- (6) Stones, slates, earth, and clay may removed without permission from established quarries, provided damage is not done to the trees mentioned in clause (1); but new quarries may not be opened without permission.

*Except as herein provided, the rights detailed in para I may be exercised without permission.*

### 3. General conditions: -

- (1) The soil and all the produce of these forests belong to Government, subject to the recorded rights of user.
- (2) The rights of user are appendant to cultivated land paying revenue or of which the revenue has been assigned, may be acquired and alienated only with such land. They may be exercise only in proportion to the area cultivated and the revenue paid or assigned; and the government, whenever it considers it necessary in the interests of the forests or of other right holder may define by members the extent of any of the rights which a right holder may exercise. They may be exercise only for the bonafide agricultural and domestic purposes of the right holders; and only in behalf of their on cattle, sheep and goats, and not for the supply of the wants of tea or other industries, nor for purely pastoral as distinguished from agricultural purposes.
- (3) No forest produce acquired in the exercise of these rights of users, except bamboos, fruits, flowers, medicinal roots and leaves, may be sold or watered or supplied to any but the purpose for it was acquired; provided that right holders may during the pleaser of government sell fire wood, tourches, charcoal, grass, lime, slates and plastering earth.
- (4) During the currency of the present revenue settlement rights will be exercised without payment. At the next revenue settlement Government may assess all or any of these rights to revenue in such a way as it may consider proper, and may charge a price for trees and other forest produce.
- (5) Trees for building purposes will not be given when the right holders applying for them has already got a suitable building in a reasonably convenient locality and of size sufficient for his requirements for instance, A sell half his holding to B, who applies for trees to build a house on the land purchased. A has on his land a house conveniently situated or the cultivation of the land sold. B is not entitled to trees, as he bought only the right of A, who is not entitled to another house. When trees have been given for building purposes, the buildings shall be constructed within the local limits of the hamlet (graon) where the cultivated land on account of which the trees are given is situated.
- (6) The proprietors of the land and also their agricultural tenants may exercise he rights admitted within the limits specified; but tenants at-will, will get trees to building purposes only through the proprietors of their land.
- (7) Green trees may not be cut within 40 yards of any temple or of any building connected with any temple. Dry deodar trees standing within this area shall be applied to be repair of the temple buildings, and on application to the forest officer will be given for that purpose.  
No trees standing within 10 yards of any public road may be cut except with the permission of the Assistant Commissioner.
- (8) Nets, traps and snares may not be set without the permission of the Assistant Commissioner, and subject to the condition he may impose; but such permission will be given in cases where a right to set nets and snares for the capture of the hawks and musk deer was recorded at the 1<sup>st</sup> Revenue Settlement, subject always to the condition that the nets and snaras are of the form most suitable for the capture of hawks and musk

- deer, and are not intended for the capture of pheasants or other winged game.
- (9) Wherever, a limit in time has not been imposed on the exercise of any right does not of necessity follow that the right is in reality exercised every day and always I the year round, but it implies that the periods during which the right is exercised opened on circumstances so various and changing that it is impossible to fix them.
  - (10) Portions not exceeding one-third of the area of each forest may be closed against the exercise of all or any rights, regard being had to the due and convenient exercise of recorded rights.
  - (11) The rights of user are subject to the conditions:-
    - a) that all-right holders shall render every assistance in extinguishing any fire occurring in any forest within which they have rights, whether they have been called upon to do so or not; and in case of willful neglect, government may order that all or any rights within specified limits be suspended for any time it considers proper;
    - b) that right holders shall maintain in proper repair of boundary pillars of the forests in which they have rights;
    - c) that right holders shall be responsible for the pay and uniform of the Rakha in charge of the forests in which they have rights.
  - (12) The practice of cultivating sirson and bhang in thatches may continue as heretofore; but this is not a right, and may be prohibited in case of abuse or for other cause.
  - (13) One-third share of the gross income from the local sale of trees from these forests will be paid to the officials of the kothis from which the trees were sold, in consideration of their assistance in the management of the forests and in enforcing the proper exercise of the rights and the rules issued by Government. This share may be divided in such a manner as the Local Government may direct. It confers no right whatsoever in the forests, and if the assistance in consideration of which it is given is not rendered, the Local Government may withdraw the grants.

*Annexure VI*  
*List of Laws Referred*

**Himachal Pradesh**

1. The HP Forest (Settlement) Rules 1965
2. The Guidelines and Instructions to regulate Timber Distribution to Right Holders and Connectionists.
3. The Himachal Pradesh Forest Produce Regulation Act 1982
4. The Chamba (1943) and Mandi (1937) Minor Forest Produce Acts
5. Rules Empowering Panchayat Pradhan to Issues Passes for NTFP Collection
6. State Amendments to India Forest Act 1927 (as applicable to the State of Himachal Pradesh)
7. Himachal Pradesh State Forest Policy
8. Himachal Pradesh Village Common Lands Vesting and Utilization Act, 1974
9. H.P. Participatory Forest Management Regulations, 2001

Land

1. HP Land Revenue Act, 1953
2. Notification Dated 25<sup>th</sup> Feb 1952
3. HP Nautor Rules 1968