Biodiversity Conservation and Livelihood Improvement Project (BCRLIP)

Launch & Training Workshop for Satpura Landscape

on

Biodiversity Concerns and Human Well Being: Towards Landscape Approach



Pachmarhi, Madhya Pradesh

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भारतीय वन्यजीव संस्थान
Wildlife Institute of India

Biodiversity Conservation and Rural Livelihood Improvement Project (BCRLIP)

(2011-2017)

Background

The spectacular diversity of physical features, wide array of climatic regimes and biogeographic location along with a cultural heritage of compassion for all life forms makes India uniquely rich in biodiversity with about eight percent of world's flora and fauna. India is also the seventh largest and the second most populous country in the world with about 70% of its population rural and poor. Living in close proximity to forests, more than 200 million people, including a large proportion of indigenous communities, have direct livelihood links with forests and natural ecosystems. Their subsistence livelihoods require fuel, housing, food, water, and health-care herbs. Empirical information suggests that 8000 species of plants and numerous species of fauna constitute this base of human dependency. Concurrently, natural resources and biodiversity rich areas are also under pressure for meeting the infrastructural and industrial demands of a high growth economy, well networked with the global economic order. Cumulatively, both the subsistence and developmental necessities of India exert significant pressure, severely impacting biodiversity rich areas and the natural world. India constantly confronts the danger of rapid loss of biodiversity, exacerbated by poverty and impoverishment of largely rural poor.

For managing competing land uses to secure biodiversity conservation with development across a vast human dominated landscape, the country has made significant efforts. A protected area network covering about five percent of the geographical area, combined with additional provisioning of ecological, social and economic services from the production forests attempt to balance the otherwise seemingly disparate demands of conservation and development. Guided by global agreements and mandated through national policies and programmes, the forest departments as custodians of ecological security of the country, have been experimenting with new approaches to management. The results from over two decade long joint forest management of the production forests and ecodevelopment around protected areas have indicated that conservation success is positively related to the well being of the proximate communities, and inclusive management paradigm based on participatory management arrangements offer the best opportunity for integrating development with conservation. Thus biodiversity rich areas need to be integrated in the wider landscapes through sectoral linkages and strategies to engender benefits to people and to receive wider social acceptance.

Landscape is a complex, heterogeneous and relatively large land area, which consists of a mosaic of patches of critical biodiversity areas connected through corridors over a matrix of

multiple land uses. Conservation of biodiversity at landscape level requires a comprehensive multi-sector and multi-scale approach for understanding the entire landscape in its ecological and socio-economic and cultural attributes. Through participatory governance, convergence of conservation and development works is attempted so as to protect biodiversity rich areas, while simultaneously providing livelihood linked opportunities to the proximate communities. Landscape approach is an extension of the idea of participatory management, as demonstrated in India Ecodevelopment Project and Joint Forest Management programmes, to be implemented over large landscapes that would include protected areas, production areas and human settlements. Integrating conservation planning with sectoral development plans and programmes would ensure that biodiversity rich areas become relevant to society and are seen as essential ingredients of sustainable development. Not integrating conservation with development at wider landscape scale is likely to enhance severity of fragmentation of habitats and loss of corridors, increase incompatible land use in the vicinity of biodiversity rich areas, accelerate natural resource use conflicts and decrease opportunities for the society to participate in conservation.

In the above context, the landscape approach to conservation is viewed as an appropriate national strategy for integration of area development, while maintaining biodiversity values and ensuring ecological integrity. The biodiversity values have not been fully incorporated in the national economy, due largely to lack of mainstreaming of conservation in national development planning processes. Landscape approach appropriately widens the horizon of planning and implementation of conservation programmes and attempts to ensure that while the ecological integrity of the landscape is maintained, the country continues to discharge its function as a welfare state for its huge natural resource dependent populations.

Need for BCRLIP

The successful attempts and good experience in testing new models of biodiversity conservation in and around the protected areas and inclusive management in the joint forest management areas have subsequently focused the need to adopt a broader and holistic approach to conservation, integrating the range of development and land related concerns in the biodiversity rich areas and the lands surrounding them. The Biodiversity Conservation and Rural Livelihoods Improvement Project (BCRLIP) visualizes a multi sector and, seemingly antagonistic, multi theme project on a landscape. Therefore, BCRLIP can be considered as a sequel to earlier participatory biodiversity conservation initiatives. BCRLIP is to further test the Government of India's approach in mainstreaming conservation objectives within larger landscapes and provide a better understanding of how to improve the management of conservation areas in consonance with improved local community access to resources and other livelihood options. Learning from international institutional programmes in this area, and building on the existing national and regional knowledge of participatory management of

forests and wildlife, this project offers excellent opportunity for synergies through inter and intra-sectoral cooperation, additional engagement of civil society, including local communities, NGO's, and the private sector.

Biodiversity Conservation and Rural Livelihood Improvement Project

The Biodiversity Conservation and Rural Livelihood Improvement Project (BCRLIP, 2011 to 2017) is funded by IDA and GEF through the World Bank and implemented through implementing partners by the Ministry of Environment, Forests and Climate Change. It visualizes a multi sector and multi theme planning and action on a landscape with primary aim of enhancing institutional capacity for integrating sustainable livelihoods and biodiversity conservation at the landscape level to enhance the conservation of globally significant biodiversity and to promote human livelihood opportunities The project provides access to new knowledge and global good practices for dealing with conservation and development trade-offs, and developing new conservation management paradigms. The project is implemented as a Centrally Sponsored Scheme, amounting to Rs. 137.34 crore, spread over six years. It is operational since July, 2011 and is at present in its third year of implementation.

While, there are a range of policy instruments dealing with various kind of land uses, most of them operate in sectoral isolation with inadequacy of institutional space for inter-sector coordination. Conservation actions target forests and protected areas, using restricted access approach. The developmental sectors focus on their respective areas of operation, without adequately building safeguards on ecological and biological values of the landscape. Resolving conflicts on sustainable resource use for human development through narrow sectoral approaches has not yielded desirable results and it is expected that the project would encourage management processes that appropriately widen the horizon of integrated planning and implementation of conservation and area development programmes adopting participatory resource management techniques.

Scaling up management to 'landscape' level, if properly implemented, is expected to facilitate overall development in two ways. Firstly it will enable forest departments to rationalize management on a larger canvass so as to secure biodiversity and also ensure sustainable availability of bio-resources to the needy, particularly the subsistence dependent populations. Secondly, it will afford an opportunity to the forest-wildlife sector to come forward as a development support agency in the company of other line agencies by dint of better provisioning of not just bio-resources but also livelihoods. Supported by meaningful awareness measures and institutional arrangements, it will enable a better understanding of the natural area functions and the mandate of the forest-wildlife sector in preserving these functions for benefits to the society from local to global level.

Objective

To develop and promote new models of conservation at the landscape scale through enhanced capacity and institutional building for mainstreaming biodiversity conservation outcomes.

Strategy

Improving policies, tools, methodologies, knowledge and skills for building inter sectoral linkages and alliances to holistically support biodiversity conservation objectives, improvement of rural livelihoods, development of lessons and replication of successful participatory conservation models, with improved cost-effectiveness and sustainable funding for conservation of biodiversity at landscape level.

Project Components

1. Demonstration of landscape conservation approaches in two pilot sites, subsequently increased to four sites (Askot, Uttarakhand; Little Runn of Kutch, Gujarat; Agasthyamali (Tamilnadu and Kerala); and Satpura (Madhya Pradesh and Maharashtra).
2. Strengthening knowledge management and national capacity for landscape conservation (Wildlife Institute of India and Field Learning Centres at Gir Conservation Area, Gujarat; Periyar Tiger Reserve, Kerala; and Kalakkad-Mundanthurai Tiger Reserve, Tamilnadu).
3. Scaling up and replication of successful models of conservation in additional landscape sites.
4. National co-ordination for landscape conservation (Ministry of Environment, Forests and Climate Change).

Project Partners

1. Ministry of Environment, Forests and Climate Change, GOI, New Delhi
2. Forest Departments of States (Gujarat, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu and Uttarakhand)
3. International Development Agency (IDA)
4. Global Environment Facility (GEF)
5. Beneficiaries including local stakeholders

Funding Outlay

Cost (In Crore)	Financiers
INR 69.12	(IDA)
INR 36.36	(GEF)
INR 27.27	MoEF (GOI) and the State Governments
INR 04.32	Beneficiaries
INR 137.34	**TOTAL**

Project Implementation

The implementation arrangements for the project are based on implementation and monitoring at the national, state, landscape and community levels. At national level, MoEF coordinates the project through its Conservation and Survey Division ensuring timely release of funds and reporting, assisting with project supervision, learning and ensuring the replication of participatory landscape concepts to the other sites. At State level, each State is required to have a State Landscape Society for implementation and monitoring of project activities. At the landscape level, the intra departmental and community linked integration would be attempted through the Regional BCRLIP Society, to be chaired by the District Collector or a senior forest officer. The Divisional Forest Officer or equivalent would have the role of Member Secretary of the Regional Society, who would be assisted by contract ecologist, sociologist, community mobilizers, and other specialists at the landscape level. At the community level, planning and implementation of livelihood and small scale conservation investments at the village level will be implemented through existing or new village-level institutions (e.g. User groups in LRK and Van Panchayats in Askot).

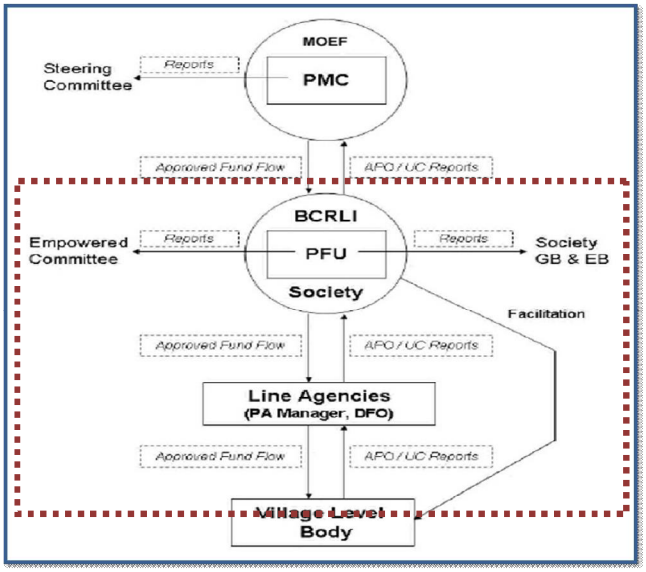
The three Field Learning Centres (i) Periyar Tiger Reserve, Kerala, (ii) Kalakad-Mundanthurai Tiger Reserve, Tamil Nadu and (iii) Sasan GIR, Gujarat will modulate the trainings based on their experiences from the previous India Ecodevelopment Project (IEDP) and capacity building activities defined in the Project Component 2. The planning and management teams would provide hands-on-training in participatory methodologies in the field training centers and have established societies through which their specific activities will be coordinated and implemented. The Wildlife Institute of India, an autonomous institution under MoEF, is responsible for the National Capacity Building component. WII will interact with the pilot landscapes and field learning centers to distil lessons and good practice to inform the development of National Curriculum for landscape conservation, which will be implemented through new annual, WII conducted training courses in classroom or in the field.

Key Outcome Indicators

1. 4 lakh ha of 'Conservation Land' effectively managed.
2. At least 50,000 ha of targeted 'Production Land' of the demonstration landscapes are managed for conservation outcomes and sustainable livelihoods.
3. An institutional and methodological framework for integration of conservation and sustainable livelihood goals fully developed and applied through demonstration in the landscape sites.
4. At least 2 new sites/ landscapes adopting conservation best practices that emanate from the project.

Institutional framework at the Landscape site level

At the State level, an empowered Committee chaired by the Chief Secretary with Member Secretary as Chief Wildlife Warden of the State will steer the project in the desirable direction through enabling policy environment. At the landscape level, the BCRLIP society will have an Executive Committee that would receive funds for the landscape and would approve village based microplans and disburse funds for implementation. At the community level, the existing or new Community Based Organizations (Van Panchayats in Uttarakhand; User groups in Gujarat, EDCs and JFMCs elsewhere) will be supported through participative planning to identify activities in the landscape that would help in conserving the biodiversity of the landscape as well as provide opportunities for livelihood improvement. Wildlife Institute of India and the Field Learning Centres will help in capacity enhancement of staff, community organization and other stakeholders to adopt landscape level management.



***MoEF**: Ministry of Environment and Forests; **PMC**: Project Management Cell; **PFU**: Project Facilitation Unit; **GB**: General Body; **EB**: Executive Body; **APO**: Annual Plan of Operations; **UC**: Utilisation Certificate; **DFO**: Divisional Forest Officer*

Supervision and Evaluation

1. **Implementation Supervision Missions**:-The Bank conducts semi-annual supervision missions to assess progress made in the implementation of the project activities. Supervisions are conducted jointly by MoEF and site teams. Up till date four Supervision Missions have been undertaken by the World Bank and have evaluated the progress at all the implementing agencies and have provided them the way forward during the brain storming sessions in each supervision mission along with providing the road maps for all the agencies consisting of the activities to be fulfilled by the next supervision missions.

2. **Review Meeting by MoEF**:-Ministry of Environment and Forest organized a Review Meeting dated 4th-5th January, 2013 at Wildlife Institute of India, Dehradun to review the status of progress of work (physical and financial) of each implementing agencies and their strategy of work for the upcoming financial year; discussion of the matrix of potential sites prepared by WII for scaling up BCRLIP in two new additional sites, on the basis of indicator based selection criteria. The officials of the Forest Departments of the implementing State Governments, Ministry of Environment and Forests and the specialists from the World Bank marked their presence in the meeting and in the discussion regarding the finalization of the two new additional sites.

Conclusion:

BCRLIP is a challenging project, for it is for the first time that management of landscapes for integrating conservation and development is being attempted. The experience of the past three years of project management suggest better preparatory arrangements in terms of formation of State level and Regional level Societies; appointment of required personnel, both staff and contractual professionals; review of institutional and administrative issues, especially related to Community Based Organizations; flow of information between state and non-state actors; capacity improvement of local stakeholders to take up the responsibility of implementation and simple and timely flow of funds. The project is expected to conserve globally significant biodiversity in four landscapes and develop capacity for increased future conservation. The project also aims to enhance the capacity of the government officials, local community, facilitate convergence of sectoral planning and develop stakeholder consensus to effectively manage biodiversity within biodiversity rich areas and lands surrounding them. Following outputs are envisaged as the end product of the project:

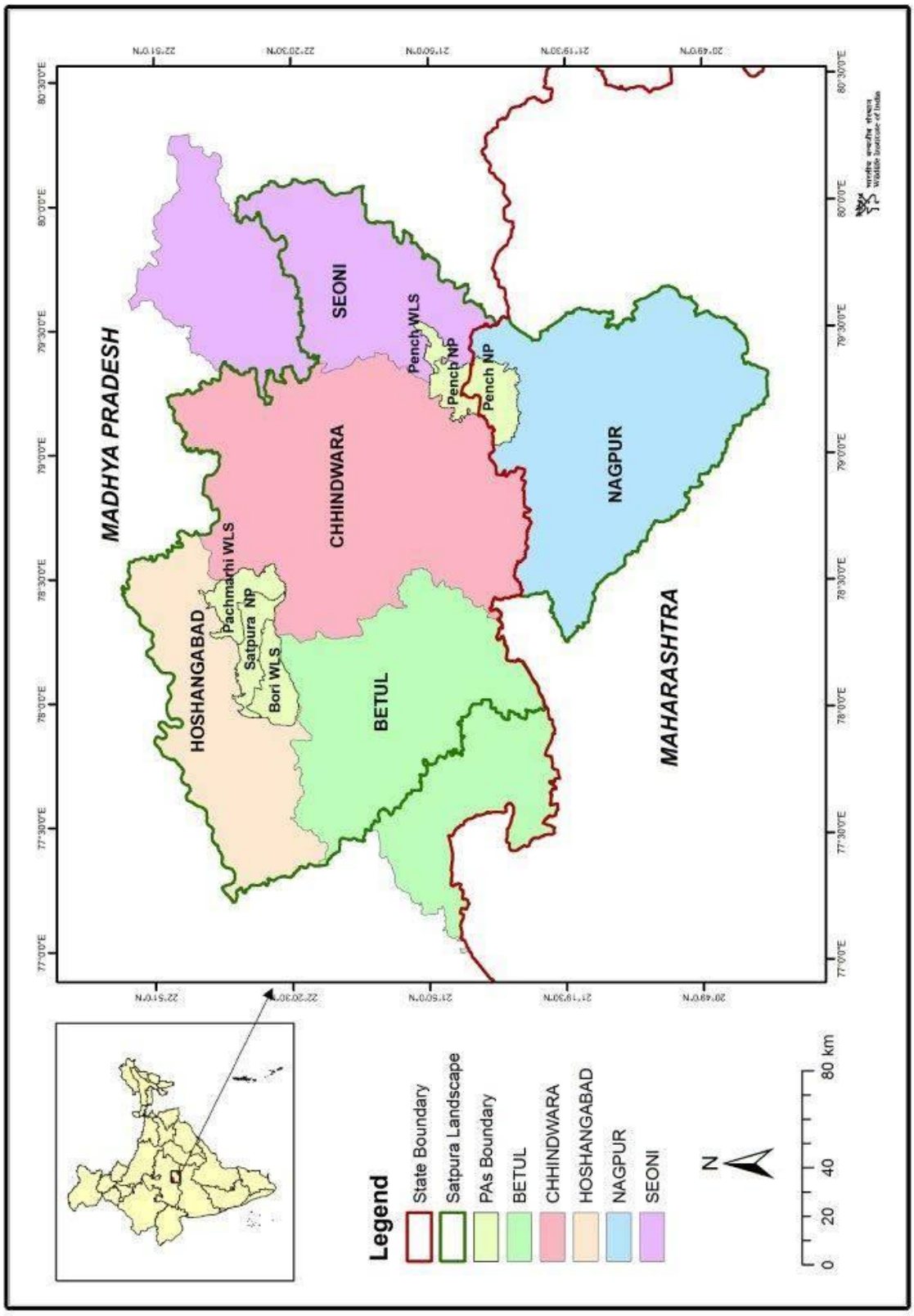
1. Ecological mapping of the landscape identifying biodiversity rich areas in the landscape and linkages with human well being.
2. Landscape level conservation management plan.
3. Updation of existing management plans of the protected areas for better management of ecosystems and habitats.
4. Mechanism for integrating biodiversity considerations in Production areas.
5. Vibrant participatory conservation and Livelihood development.
6. Evaluation of ecosystem services and procedures for their accounting in local economy.
7. Development of decentralized knowledge management centers in the form of Field Learning Centers and dissemination of participatory approach to conservation.
8. National Capacity Building through national curricula development and training programmes for wider dissemination of landscape approach to conservation.

BCRLIP - Consultations, Workshops and Training Programmes since 2011-12 till date

S. No.	Dates	Venue	Organizer	Details
1	23rd Nov. to 1st Dec., 2011	Pithoragarh, Jauljibi, Madkot & Pangu	WII	Reconnaissance visit by WII team to Askot Landscape and consultative meetings with officials & Van Panchayat representatives.
2	22nd to 24 January, 2012	Thekkady, PTR	WII	Consultation & training workshop for FLC PTR by WII team on preparation of training modules.
3	1st to 3rd March, 2012	Mundanthurai, KMTR	WII	Consultation and training w'shop for FLC KMTR by WII team on preparation of training modules.
4	11th to 12th June, 2012	Bajana, LRK	WII	Consultation workshop on implementation of BCRLIP by WII with LRK staff and stakeholders.
5	13th to 14th August, 2012	IHC, New Delhi	WII, MoEF CC & the World Bank	Workshop on 'Planning Green Infrastructures in Biodiversity rich landscapes'. Officials of MoEF, WB, WII, Roads and transport sector and national experts.

S. No.	Dates	Venue	Organizer	Details
6	21st to 25th September, 2012	Bajana, LRK	WII	Spearhead team training by WII to LRK staff and project facilitators on microplanning,.
7	13th to 18th October, 2012	Hyderabad	MoEF CC	Side event CoP11.
8	1st to 7th November, 2012	Dharchula, Pithoragarh	WII	Spearhead team training by WII to Askot staff and villagers on microplanning.
9	1st to 7th November, 2012	Bajana LRK	WII	Microplanning support workshops and preparation of model microplans by WII for LRK at. LRK staff, facilitators and villagers.
10	17th to 18th April, 2013	World Bank office, New Delhi	World Bank	APO finalization workshop by World Bank at World Bank office, New Delhi. All implementing agencies and MoEF and WB.
11	21st to 23rd April, 2013	Pithoragarh, Jauljibi	MoEF CC & WII	Consultation meeting with district administration, forest officials, Line departments, MLA Dharchula & Vanpanchyat representatives by additional secretary MoEF & WII.
12	5th to 6th June, 2013	Thirunelveli, KMTR	WII	Training workshop for FLC KMTR on structure, content and design of training manuals
13	8th July, 2013	IHC New Delhi	MoEF CC & WB	Workshop on strategies for landscape conservation at IHC, New Delhi. Officials of WB, MoEF, WII, Implementing sites and national experts.
14	18th to 19th July, 2013	Sasan, Gir CA	WII	Training workshop for FLC GIR on structure, content and design of training manuals.
15	5th to 9th August, 2013	WII Dehradun	WII	Landscape mapping and monitoring workshop by WII for technical staff and mid level officers of implementing sites at WII.

S. No.	Dates	Venue	Organizer	Details
16	20th to 21st August, 2013	IHC New Delhi	MoEF CC	Workshop on Human Wildlife conflict at IHC, New Delhi. Officials of MoEF, WB, WII, national experts and implementing agencies.
17	19th September, 2013	IIM Ahmedabad	WII & Gujarat Forest Dept.	Orientation workshop for Policy and Decision makers of Gujarat Govt. at IIM, Ahmedabad. Gujarat Govt officials, top forest officers, senior officers of other deptt. in Gujarat, MoEF, WB, international consultant and local NGOs.
18	20th September, 2013	Bajana LRK	WII & Gujarat Forest Dept.	Site level workshop by WII for field implementation team at LRK, Bajana. MoEF, WB, Gujarat forest department, district level officers of other departments, local NGOs and villagers.
19	17th to 22nd October, 2013	Nainital, Pithoragarh, Munshyari	WII	Consultation meetings by WII with CCF Kumaon, DFO Pithoragarh, Forest officials & Van Panchyat representatives
20	3rd to 4th April, 2014	IHC New Delhi	MoEF CC	Workshop on new landscape sites at IHC, New Delhi. Secretaries from Kerala, MP and Maharashtra, forest officials from implementing sites, WII, WB and national experts.
21	14th to 15th May, 2014	TNFA, Coimbatore	WII	Combined consultation with KMTR and PTR on finalization of training manual for middle to senior level officers
22	7th to 8th August, 2014	Trivandrum	WII & Kerala Forest Dept.	Policy level workshop for Augasthayamalai landscape on Biodiversity conservation & Human well being.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Pench WLS
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CHHINDWARA
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Satpura NP
Bori WLS
HOSHANGABAD
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Approach Paper **Draft for Discussion**

Implementing Landscape Approach to Biodiversity Conservation in India

1. The Context

1.1 India: A Mega- Biodiverse Region

Endowed with a rich cultural and natural diversity, India, one of the world's mega biodiverse nations, occupies an important position in the comity of nations by dint of her commitments towards achieving the goals set by the 'Convention on Biodiversity' (CBD) for conserving biological diversity, its sustainable use and fair and equitable benefit sharing.

A country with wide variety of physical features and climatic conditions, India offers a diversity of habitats and ecosystems such as forests, grasslands, wetlands, deserts and coasts. With about 8% of world's biological diversity, it hosts a wide assortment of nature's living signatures, represented by 45,500 species of plants (11% of the world flora) and 91,000 animals (7,5% of world's fauna). The floral wealth includes about 7% of world's flowering plants, 12% of pteridophytes, almost 20% of bryophytes, 16,3% of algae and more than 20% of fungi. Similarly, the animal world is equally diverse consisting of 11.72% of world's fish, 4.66% of amphibia, 7.91% reptiles, 13.66% of birds and about 9% mammals.

Similar are the treasures of living organisms of lower orders. Human interaction with such richness of biological resources has resulted in the evolution of millennia old cultural and religious uniqueness of India. One of the eight primary centres of origin of cultivated plants and acknowledged centre of crop diversity, India has about 375 closely related wild cultivars. Nearly 140 breeds of domestic animals like cattle, sheep, goat, horse, camel and poultry, are also found here. About one fifth of the country's land is under forest cover and extensive areas of naturalness dot the country along its length and breadth. Because of such diversity and peoples' intricate relationship with nature, prudent resource use forms the foundation of the conservation ethos of India.

1.2 Competing Demands

Reflected as anecdotal advices in the religious scriptures, or as official dictate in the edicts of Ashoka as early as 252 BC, the collective wisdom of India always espoused the cause of

conservation as peoples' reverence to nature and its utility for human development and societal well-being. The Constitution of India, harmoniously blending the democratic ethos and conservation necessities, has given the right for sustainable and dignified living to the people of India, however, it also imposes upon them the duty to protect nature, upon whose spiritual and material foundations the Indian society has evolved. However, along the six decade long journey of conservation and development in independent India, the challenges to make this happen have only increased.

With only 2.4% of the world's land area, and about one percent of forests, India is home to a human population, largely rural, of *ca* 1.2 billion. This is about 16% of the world's population! The traditional, land-linked resource appropriation strategies continue to exist in Indian villages, which collectively account for holding of 19% world's livestock. Living in close proximity to forests, more than 200 million people, including a large proportion of indigenous communities, have direct livelihood links with forests and natural ecosystems. Surviving on subsistence economy, they earn their living by procuring food, fiber, fuel and structural material from forests, which are the largest repositories of the magnificent biodiversity of India. The forest systems, though not accounted adequately in national economy, meet nearly 40% of the domestic fuel wood needs (240 million metric ton) and 30% of fodder needs (280 metric ton) of the people of India. Besides, they are harvested annually to provide over 12 m^3 of timber and numerous non-timber products. However, Indian forests suffer from low productivity; for example, annually our forests produce only 0.7 m^3 of standing biomass per hectare against a world average of more than two cubic meters per hectare. Still, the commodity valuation of the forest products alone, in national economy, would be worth about Rs.3,00,000 million per annum, if accounted properly. Rapidly increasing human population and consequently, increased pressures on biological resources put sustainability of biodiversity under great threat. In the human developmental journey, India is transforming into an expanding village or a sub-urban conglomeration, and its biodiversity rich areas are shrinking slowly but surely.

After independence, India has moved fairly remarkably on the path of growth and economic development. Post economic liberalization, beginning during the last decade of the 20^{th} Century, India has been moving along a trajectory of seven to eight percent annual economic growth, bringing economic prosperity and social security to a large number of her people. While, India is still far away from completely meeting the Millennium Development Goals (MDGs), its levels of poverty are progressively decreasing. People move much faster to very long distances and they buy and sell commodities more frequently than ever. Country sides are slowly transforming into small business hubs, connecting to the rural production centres through progressively increasing linear infrastructure, criss crossing the country's geographical space.

Management of competing land uses is the greatest challenge for conservationists for securing biological heritage's perpetuity, because the extensive alteration of landscapes for human use

with resultant ecological and social transformation invariably comes at a cost of unimaginable magnitude, and India is no exception to it. In fact, India grapples with much more complex problems than many other nations when it comes to balancing conservation with development across a vast human dominated landscape and the challenges and threats to conservation often look insurmountable. Resolving conflicts over resource use, through narrow sectoral approaches has not yielded desirable results, and India still confronts the danger of rapid loss of biodiversity, exacerbated by poverty and impoverishment of largely rural poor, who live in close proximity to biodiversity rich areas and traditionally depend on them for subsistence.

1.3 Managing the Paradox

India's approach to protecting biodiversity and utilizing it sustainably for human well being focuses on according special status to biodiversity rich areas. Prior to British Rule, the regulatory management did not have a pan-Indian character, Commodification of forest and wildlife resources to meet the strategic needs of the Empire began segregating local human use from the need of the state. With the progressive intensification of resource use and gradual strengthening of centralized governance of people and resources over time, the preservationist approaches began gaining ascendency in social and political praxis of conservation. The preservationist or exclusion approach, which restricted entry and use of locals in government forests, was completely institutionalized through the colonial resource governance policies. Represented by reservation of forests, restriction on resource use, including hunting, and notion of property and ownership, these policies are considered by many, to have changed human relationships with forests and wildlife forever.

While this changed relationship manifested in constant conflicts between local resource users and the governments, it did ensure that at least some of the country's magnificent landscapes enjoyed protection and existed for posterity. Immediately after India's independence, large portion of forests, pastures, wetlands etc., which were under feudal private ownership with equivocal or absent land records, were reverted to the government through abolition of feudal rights and privileges. Unfortunately, in the near absence of rational and integrated land-use policies for these lands, most of them have been severely denuded; directing people's resource appropriation towards relatively better protected government forests and associated lands. Nonetheless, recognizing rapidly growing space and resource necessities of an ever increasing human population, the government continued to take measures to protect biological diversity of India in the form of consolidating government forests and creating a network of Protected Areas (PAs). While, the Indian Forest Act of 1927 created the instrument for exclusionary use and spatial segregation, it was the promulgation of Wildlife Protection Act in 1972 that increased biodiversity conservation efforts, with special focus on PAs.

1.4 The PA Network

Facilitated by the recommendation of the then Indian Board for Wildlife in the 1960s, and influenced by strong global voices to protect environment during early 1970s, the Indian government demonstrated its strong political will in promulgating the Wildlife (Protection) Act (WPA) in 1972. The WPA was remarkable in its legal and social ramifications and provided strict protection to biological diversity in designated areas in an otherwise policy and administrative environment favouring agriculture expansion, increased food production, infrastructure development for energy, water and communication and urban development. The WPA, the first unified legislation in the country for wildlife protection and its subsequent amendments, institutionalized constitution of PAs.

PAs have been variously visualized as preservation of biological representativeness guided by bio-geographic zonation, and species specific conservation areas, such as Gir for lion or Kaziranga for one-horned rhinoceros. At many places, they were created to protect catchment areas of large hydro-electricity projects, such as Periyar, and for natural pristine values like in the Valley of Flowers national park. However, legal prohibition of commercial extraction and resource use by local people from a national park and a strong regulatory framework in the wildlife sanctuaries have been one of the major causes of animosity between people and PAs, for thousands of enclaves and human settlements exist inside them and efforts to engage local communities in PA management have been very few and far between. Set up on the philosophy of complete human exclusions from wildlife areas, PA management remained largely inward looking and has therefore been unable to overcome the socio-political impediments for mainstreaming conservation, resulting from constant human-wildlife interface conflicts.

Currently, India has 4.9% of her geographic area in PA network; with 102 national parks, 515 wildlife sanctuaries, 49 conservation reserves and 4 community reserves. However, the network is still inadequate in ecological representativeness and conservation measures have often favoured a few charismatic species. Conservationists broadly recognize three gaps in PA network related to representativeness of the totality of habitats and ecosystems, insufficiency of ecological boundaries and management effectiveness. Although the PA network has contributed remarkably to biodiversity conservation, it has not yielded desirable outcomes as incompatible land uses and degradation of areas surrounding PAs continues and they exist as a series of islands within a sea of humanity, impeding movement of wildlife populations and genetic exchange. Increasing degradation of natural resources has resulted into enhanced levels of human-wildlife conflicts and a greater need for harmonizing development imperatives with conservation concerns is felt. Significantly, anthropogenic pressures continue to threaten the very existence of the PAs, despite a few examples illustrating convergence of community development and conservation goals. Conservation planners therefore agree that in order to secure ecological and biological values of

natural systems, it is necessary to visualize management efforts across large landscapes, where multiple land use areas are interspersed with biodiversity rich areas in a mosaic of patches and corridors.

2. Rationale of Landscape Approach to Conservation

2.1 What is Landscape

Definition of the term 'landscape' relates to the way content is perceived for scientific understanding and the management context. While perceptions would vary in interpreting the term, landscape will necessarily include user-defined landscape boundary and structure that will represent biological and social attributes and influence its functions. Landscape is a, complex, heterogeneous land area, which is understood as an embodiment of ecological patterns and processes, which is variable for species to species. A landscape will include a relatively large area, consisting of a mosaic of 'patches', or landscape elements. A landscape can also have an assemblage of interacting ecosystems, which is repeated throughout the landscape in similar form. Therefore, before a landscape planning exercise takes place, the framework for landscape approach need to set forth with the declaration of intent and defining boundary for management implementation.

For managing landscapes, three key components must be visualized beforehand. The land units within the landscape, such as forest, grasslands, wetlands, agriculture, pasture etc. would constitute the first components, followed by an understanding of interactive ecological processes that take place within them. Agricultural productivity, freshwater availability, forestry sector production and production of non-wood forest produce, all depend on interactive processes operating within the landscape, and thus constitute a significant component of the landscapes. At the centre of most landscape level initiatives are the stakeholders operating within or deriving benefits from the landscape and they constitute the third component. Sustainable resource management is the key to successful landscape management and landscape planning, therefore, requires comprehensive understanding of these three components.

2.2 Land-use and Interacting Processes

Conservation of biodiversity at landscape level requires a comprehensive and multi-scale approach that includes both, the PAs and biodiversity rich areas and the surrounding 'matrix'. The matrix includes production areas, human habitations and associated infrastructures, and wild, unprotected areas. In the Indian context, more than 90% of the forest areas vest in the governments. The government forests include PAs, Reserve Forests and Private Forests vested in governments. The Reserve and Private Forests constitute the major production forests for governments, and are intricately connected with the PAs. Outside the forest areas, village

lands, largely under agriculture and horticulture land uses, village commons, water bodies and wastelands, and developmental infrastructure completes the landscape matrix. The matrix is the key to landscape management as it refers to the dominant patches that connect the landscape and have controlling effect over key ecosystem processes. The matrix contains a variety of land uses and ownerships, not necessarily the biodiversity rich entities only and it predominantly produces vital goods and services for human development. From conservation standpoint, the matrix plays critical role in supporting populations of a species, regulating movement of species, buffering critical biodiversity areas and maintaining the integrity of valued ecosystems.

In most cases, the landscapes for biodiversity conservation would encompass known priority biodiversity rich areas, often centered on PAs and other managed lands and extending to a matrix of rural and urban settings, bisected by linear and other development infrastructures. This would typically include, but not limited to, (i) representation of all native habitats, (ii) maintenance of viable populations of native species, (iii) maintenance of essential ecological processes, and (iv) resiliency to ecological changes. While in some instances, it might not be possible to conserve and manage all of the biological and ecological processes within a defined landscape, conservation planning requires planners to identify specific areas or zones, which are critical for conservation of species and ecological processes. A spatial planning or zoning approach within the landscape is required to ensure that critical conservation objectives are met

2.3 Evolution of Landscape Approaches

Ensuring sustainability of biodiversity in the face of increasing human resource use is being addressed through various innovative strategies and programmes in India. Globally, perhaps the first attempt to visualize synergies between conservation and development of human environment was made in the concept and design of 'Man and Biosphere Programme' (MAB) of UNESCO in 1970s. A long term intergovernmental and interdisciplinary programme, it was arguably the most practical solution conforming to the broad principles of landscape management for reconciliation of biodiversity conservation with resource use requirements. It desired *in-situ* conservation of biodiversity, contribution to sustainable economic development of proximate communities and facilitation of long term ecological studies, environmental education and capacity building of stakeholders. In a participatory framework, MAB designated Biosphere Reserves as large land units, consisting of multiple land use ownerships or allocations. For management purpose, it brought out the concept of spatially demarcated zones, wherein a securely protected core zone would be created for conserving biodiversity surrounded by a well defined buffer zone, where cooperative human development activities, compatible with sound ecological practices will take place. Presently, there are 17 Biosphere Reserves in India, spread along the length and breadth of the country. However, institutional

weaknesses, deficient intra-agency coordination, lack of rigorous spatial planning and legislative inadequacies have not helped this model to take centre stage in the discourse on integrated management at landscape level.

While the Biosphere Reserves and most PAs situate themselves on the land-centric, coarse filter approach to conservation, many conservation programmes have targeted species of conservation importance. Among them, tiger continues to be the iconic species driving the conservation agenda of the country. Launched in 1973, the Project Tiger; now known as National Tiger Conservation Authority (NTCA) outlined an 'ecosystem approach' to wildlife management, wherein protecting tiger, which is at the apex of the food chain in a given ecosystem, protects most of the values of the system. Project Tiger became a role model for scientific management of PAs in India, and today, the 41 tiger reserves extend over an area of *ca* 35,000 km^2 in some of the finest forested landscapes of India. The approach to tiger conservation requires consolidation of 'source' populations of tiger through strict protection in inviolate areas or critical tiger habitat (similar to a core zone), and managing 'source-sink' dynamics by restoring habitat connectivity and adopting co-existence agenda in the legally defined buffer zone or 'matrix', surrounding the inviolate space. The approach highlights the need to manage buffer areas as dispersal corridors, requiring habitat amelioration and local social and economic development. The approach emphasizes mainstreaming wildlife conservation concerns in various production sectors in the buffer areas of such reserves.

By extending buffer areas to non PA lands also, the tiger conservation moves beyond the boundaries of the PAs, and also mimics the MAB model in terms of spatial arrangement of large areas, especially segregation of core and buffer zones. Unfortunately, institutional and technical inadequacies in managing buffer zones have not helped the cause of tiger conservation at landscape level. Consequently, the local communities, local political leadership and most of the non-PA administration tend to perceive the extension of buffers beyond PA boundaries as an extended intrusion to resource use privileges of local people and others. The approach is also confronted with ambiguity in the application of inclusive agenda in dealing with local communities that still reside within the notified critical tiger habitat. Today, about 1500 villages with *ca* 65,000 families reside in the tiger reserves in India, and the relocation process to create inviolate space has been difficult and painfully slow. Given the political empowerment of local communities and economic aspiration of the country, it is highly challenging to scale up the model as an overall conservation solution, although it certainly takes the country close to synergizing conservation and development by adopting landscape level approach.

One of the most overwhelming directional changes favouring participation of local people in forest conservation was brought about by the National Forest Policy of 1988, which attempted to shift orientation of forest management from colonially defined commercial forestry to community centric management for livelihoods and ecological security. The emphasis on inclusive management of forest resources reinforced the idea of joint forest management

programmes (JFM) in the country, which had begun to take shape of consultative management, in social forestry and farm forestry activities during the 1970s. The key inputs of the JFM process included initiatives at sensitizing people on conservation and enhancing their capacities to reduce dependencies on forests through development of alternative livelihoods. The JFM programmes became one of the standard forest management instruments, when in June 1990, the JFM circular was issued by the Government of India asking state governments to involve local communities and voluntary organizations in regenerating and protection of degraded forest areas. The JFM circular highlighted management focus on communities' rights and privileges on biological resources, institutional arrangements for constituting JFM committees commensurate with the democratic ethos of the country and benefit sharing between local communities and the governments. Today, more than one lakh JFM committees are managing about 20 million hectare of forest area, involving about 22 million people. While effectiveness of JFM programme remains in debate, on ground, it has firmly established the role of local community in forest regeneration and protection.

However, such a partnership has not been easy to build in PAs, for PAs apparently did not seem to provide economic or social incentives to local people. Globally, PAs are considered as the most important tool of nature conservation, and function on the principle of partitioning of land for resource allocation over competing land uses. Introducing participatory practices in PA management is credited to National Wildlife Action Plan of 1983 (NWAP), which highlighted need to orient PA management towards a people-centric approach. Experience gained from international initiatives, especially from the Integrated Conservation and Development Project (ICDP), suggested that sustainable development could only occur, if people took charge of activities of development and conservation. Thus, ecodevelopment emerged as an approach to manage wildlife in an inclusive human developmental domain. It aimed at reducing human dependence on PAs through sustainable landuse of community spaces as well as by generating alternative livelihood options for the local people. Introduction of ecodevelopment as a strategy for synergy between development and conservation in India was formally announced in the NWAP and the Government of India introduced it as a component of Forestry Research Extension and Education Project (FREEP) in 1992. Encouraging results from FREEP led to the India Ecodevelopment Project (IEP), which was implemented at seven PA sites from 1996 to 2003. Coupled with recommendations of the Tiger Task Force, established by the Prime Minister of India in 2005, IEP has been the catalyst for providing clarity in methodology and approach for an inclusive and integrated approach to conservation.

The IEP demonstrated that given an effective and committed field leadership and political and policy support, it was possible to link communities with PA conservation. The idea of Regional Planning, as an integral part of management planning of the PA, brought forward the need to continue to expand the inclusive agenda through inter-sectoral integration at regional level. These emerging learnings promoted the idea of expanding conservation planning to non PA

lands and provided tools and methods to do so, which encouraged some more project based initiatives on similar lines. A WII-USDA Forest Service collaborative project on 'Management of Forests in India for Biodiversity and Productivity: A New Perspective', was implemented in India from 1996 to 2002 in four different landscapes, designated as 'Conservation Areas' and refined methods for managing forests for multiple use, using landscape approach. In 2002, the WWF-WII trans-boundary Terai Arc Landscape (TAL) project began its implementation in Nepal and Indian Terai regions. This initiative attempts to reconnect 11 PAs in Nepal and India into a single functioning landscape, encompassing critical habitats for long term conservation of tiger, elephant and rhinoceros. A recent initiative is the ICIMOD led integrated management project on conservation and development in the trans-boundary Mount Kailash Sacred landscape.

2.4 The Need for Landscape Approach

The concept of landscape approach to biodiversity conservation has emerged from the recognition that (a) PAs alone are inadequate to achieve the conservation goals, since the ecological processes, including the movement of species and their populations require large areas that often go beyond the boundaries of the PA, (b) problems associated with sustainability of PAs often emanate from beyond the PA boundaries, and (c) without addressing livelihood security of proximate communities, success of conservation measures will remain doubtful.

It is now well known that conservation success is positively related to well-being of the proximate communities, and thus PAs need to be integrated in the wider landscapes through sectoral linkages and strategies to engender benefits to people and to receive wider social acceptance. Given that the human developmental concerns outweigh conservation considerations in political discourse, it is imperative to demonstrate developmental opportunities in conservation management. Embracing the interrelationship of nature and culture, one of the significant developments of CBD is initiation of a comprehensive 'Programme of Work on Protected Areas' (PoWPA) in 2004. A focused and target driven programme, the PoWPA requires countries to create a representative and effectively managed PA system integrated with sectoral development plans and programmes. This integration would ensure that the PAs become relevant to society and are seen as essential ingredients of sustainable development. This is also recognized as the best strategy to buffer local, vulnerable communities from the impacts of climate change and ensure continued provisioning of ecological services.

Not integrating conservation with development at wider landscape scale would definitely enhance severity of fragmentation of habitats and loss of corridors, increase incompatible land use in the vicinity of conservation areas, accelerate natural resource use conflict and decrease opportunities for the society to participate in conservation. Taking note of the emerging trends and challenges, the 'Aichi Biodiversity Targets', agreed by Parties in COP 10 in the form of

'Strategic Plan for Biodiversity 2011-2020' require countries to address underlying causes of biodiversity loss by mainstreaming biodiversity across governments and society. To achieve this, India has to move ahead from its existing PA centric approach to a much wider, participatory and inclusive landscape approach to biodiversity conservation.

The experience gained through several concurrent conservation efforts, described above, has gradually expanded the horizon of PA management and biodiversity conservation. The idea of integration transcends across the continents and has contributed significantly to conservation in action. There is a clear recognition and understanding of the need to manage biodiversity at landscape levels, using scientific backstopping from landscape ecology and conservation biology, and managing human interface using participatory resource management approaches. The National Wildlife Action Plan (2002-2016) embodies the principles of conservation within a broad framework that also includes community participation, habitats and connectivity restoration and cross-sectoral cooperation beyond the boundaries of the PA.

In the above context, the landscape approach to conservation is viewed as an appropriate national strategy for integration of area development, while maintaining biodiversity values and ensuring ecological integrity. Despite a long history of conservation, India has to still find an effective way to harmonize conservation with rapid pace of development. While the PA centric approach of conservation has undoubtedly yielded positive results by way of conserving some of the rarest and unique elements of biodiversity, it has been found inadequate for meeting long term conservation goals due to geographic and sectoral isolation. The biodiversity values have not been fully incorporated in the national economy, due largely to lack of mainstreaming of conservation in national development planning processes. Landscape approach appropriately widens the horizon of planning and implementation of conservation programmes and attempts to ensure that while the ecological integrity of the landscape is maintained, the country continues to discharge its function as a welfare state for its huge natural resource dependent populations.

3. Implementing the Landscape Approach

3.1 Basic Premise

The conservation fraternity recognizes that adopting landscape conservation will require a comprehensive process of planning at regional level, wherein the biodiversity rich areas will have to be connected to each other through a matrix of corridors and multiple land use categories. The matrix of multiple use lands should incorporate ecological concerns in planning and implementation, for which legal and policy support needs to be elicited. The conservation agencies attempting to extend ecological concerns in the matrix of multiple land uses should

build alliances with local communities, political leadership and developmental agencies operating in the region. The sectoral isolation at landscape level must give way to inter-sectoral linkages and thus inter-agency cooperation and coordination, besides community participation becomes the key for determining success of landscape conservation approach.

The landscape approach recognizes mosaic of land uses within a large landscape, involving variety of land governance such as PAs, forests and other public lands with commercial interests, common properties of the communities, private lands for production, including agriculture, fisheries and horticulture, and underlying ecological and socio-economic complexities. It visualizes that all biodiversity rich areas are embedded in a heterogeneous landscape, both structurally and functionally, in which natural resource extraction of multiple types occur. It also recognizes that a complex relationship, involving multiple stakeholders, exists between resource conservation, its use and human development. At policy level, it desires to establish a unified approach to land governance for biodiversity conservation, including in the human dominated landscapes. The approach calls for a process of collective action, in which all human actors interacting with a landscape and its elements understand, value and conserve biodiversity, while simultaneously attaining the goals of social and economic development. The successful implementation of the approach lies in faithfully understanding, through a participatory process, the ecological, socio-economic and institutional milieu, within which planned interventions would be made in the landscape.

Given that the heterogeneous landscape exhibits the total character of a region and integrates all natural and human induced patterns and processes, landscape level planning would be an organizational process with methodological innovations enabling various stakeholders to work together, share information, identify opportunities and threats collectively and set themselves goals and objectives of management in tune with a shared vision. By being custodians of most of the biodiversity in the country, the forest and wildlife department officials would have a facilitation and coordination responsibility, which will require effective communication skills and a willingness to participate and reach out to the world of non-forests, non-PA characteristics. The conservation of biodiversity requires a coordinated strategy, effective communication and joint participation by all concerned. Due to non-linearity of ecological issues, sectoral administrative governance and a vociferous democratic social order, the drivers of this approach will need skills and knowledge of adaptive management, so that 'learning by doing' consistently improves the overall long term outputs and outcomes of the approach.

3.2 Key Principles of the Landscape Approach

Landscape is a dynamic system and thus the approach focuses at a large geographical area with multiple interlinked land units to recognize and understand condition of natural resources therein, human influences impinging on their sustenance and opportunities for conservation. Of

utmost importance is sustainability of natural systems and processes, for they determine the quality of human development. Following key principles define the contour of the approach:

- Biocentricity in management perception
- Integrative landscape vision for ecological, production, development and livelihood outcomes
- Inclusive approach for management and sustainable productions
- Participatory governance at policy and implementation levels
- Stakeholder consultation and management for shared vision for the landscape
- Policy harmonization in respect of natural resources, viz. land, water, forest, agriculture, horticulture, fisheries, roads, hydro-electricity, subsistence dependence etc.
- Adaptive planning and management involving inter-sectoral coordination

The landscape approach recognizes management of diverse land uses for multiple objectives, including ecological and economic security of the region. The democratic processes embedded in participatory governance support integrated management through multi-stakeholder decision making process. Long term perspective on the landscape requires well established institutions and mechanisms to enhance inter-sectoral coordination.

4. The Implementation Approach

The approach aims at securing biodiversity conservation and associated ecosystem functions, sustainable production of goods and services and livelihood security of local communities through institutional arrangement of stakeholders' coordination and adaptive management.

However, successful implementation of this approach would depend on better understanding and analysis of the following key issues:

4.1 Scientific Backstopping

Without the knowledge of the ecological and biological characteristics of the landscape and interactive processes embedded in human resource use, strategic planning would be meaningless. Since landscapes are managed at large spatial scales and the interaction between spatial patterns and landscape processes determines the health of the landscape, it is necessary to use technologically supported and statistically designed ecological methods to understand these patterns and social processes. In view of land characteristics, diversity, resource use and developmental projects, all entrenched in the landscape with specific structures and functions, biodiversity concerns can be better dealt with holistically, rather than

through a fragmented and sectoral approach. More than the core biodiversity areas, where some inventories and ecological studies are likely to be available, scientific investigations would be required in understanding matrix characteristics and influences.

Management of buffer zones or the matrix around biodiversity rich lands can help in safe dispersal of wild populations, or ecosystem restorative activities could improve water discharge in human use areas. Buffer zones around core areas are to be used to connect patches of conservation significance through corridors with multiple land uses. Having a significant effect on connectivity, the condition of matrix and disturbance level therein is critical for movement and dispersal of species, especially the ones with large home ranges. A critical area for scientific enquiry would be identification of disconnected local populations and the metapopulation dynamics. Whereas, a substantially large population of a species of conservation significance might have adequate protection within the large, contiguous core or inviolate area, it will be necessary to look for small populations existing in smaller patches (sink habitats) of the matrix and examine the connectivity that still allows movement of such distressed species between the sink habitats and the source population.

Incidentally, several protected areas in India have buffering support from the adjacent managed forests, where, over the years, forestry practices have been gradually reduced or modified so as to become compatible to PA management. In consonance with the directives contained in the National Forest Policy (1988), such forests need to be identified and brought under landscape based matrix management, for which scientific database should be created. It must be realized that failure to manage buffer zones has been the Achilles' heel in applying effective landscape conservation approach. While reasons of failure lie mostly in the governance domain, inadequate scientific information on the landscape does contribute to failure.

In order to evolve meaningful decision making for effective implementation, a detailed list of spatial database on various themes, including land features, biodiversity distribution and socio-economic profile is required to be created. The spatial database would help identify critical areas for biodiversity conservation within the landscape, key dispersal corridors, areas of high pressure and vulnerability, and for identifying opportunities for rationalizing and refining land use and protected area boundaries to improve conservation and development management. It is critical for spatial planning to recognize and map the variation in biological attributes across the landscape. In addition to inventory of biodiversity across landscape features, for key species, characterization of habitats will be required for meeting necessary ecological requirements of the species. Biodiversity richness, uniqueness and rarity would be key parameters in defining biological significance.

The spatial database should also have attribute information on the socio-economic condition, resource use pattern and other economic and developmental activities. This information would

help in identifying areas where human activities are significant, and have potential to impinge on the ecological integrity of the landscape. Stakeholder needs and interests are closely interrelated with land use activities. The analysis of stakeholder groups would determine players and issues for engagement in negotiations and decision making. The perspective of local communities on issues of conservation and livelihood is important to capture, as the communities are required to be represented in the planning process. Such an analysis would also indicate the degree of efforts required to bring everyone on board.

Finally, through use of scientific methods and community participation, the planners need to prioritize the areas, where the resource use and developmental threats significantly compete with the biological and ecological needs of the key species or habitats. This would enable identification of areas important from conservation standpoint and provide opportunities for directing investment on such areas for improving conservation status. It is recognized that biodiversity loss is often driven by underlying factors at some distance in space or time from the actual site of loss. Such underlying causes may include policies, especially economic development policies that may compete with conservation goals. It might also include governance, particularly processes by which decisions regarding resource use are made and enforced. There could be factors determined by market trends in global, regional and local demand for resources. Landscape planning and management would involve informed and participatory decision making and hence, rigorous scientific justification would be required to forward arguments in favour of conservation efforts in the landscape.

4.2 Centrality of Participation

Up scaling conservation efforts to landscape level will bring forth challenges, predominantly related to community participation and inter-sectoral coordination. While the landscape management involves a combination of activities and investment at multiple levels, the initiatives are required to be designed by local communities with full support from government and civil society organizations operating in the landscape. The approach requires providing centrality to local communities and participatory processes in matters of governance over landscapes in action. This is likely to be achieved by involving the stakeholders right from planning stage and further empowerment them to accomplish implementation and monitoring of conservation and livelihood improvement programmes, using a participatory 'shared or common vision' approach. At the centre of most landscape level initiatives is the adoption of conservation agenda by local communities, political leadership and development agencies of the government. To make this happen, people need to be moved away from deep seated, entrenched positions on 'common interests', for which project proponents should equip themselves first on improved methods of communication, negotiation and conflict resolution in order to effectively manage 'landscape level dialogue'.

It is absolutely necessary that the whole dialogue process is designed to enable the local stakeholders to take central position in decision making. The project proponents need to work with communities and other stakeholders as partners and advisors, so that there is a clear understanding of the intent and output of the planning. It must not be forgotten that there is likely to be trust deficit among various stakeholders, especially between local people and government agencies dealing with conservation. Effectively communicating the approach and methodology of planning to people would help in removing the likely suspicion from their minds of government induced new restrictions on resource use or another way of further extending PA regulations in the landscape. The key to success is to have a clear understanding and knowledge about preparatory requirements for conflict resolution and consensus building.

Local communities perceive natural resources differently than the conservation practitioners. It corresponds to their understanding of the livelihood value of the landscape, the opportunities available and the risk and threats associated with resource utilization. While society at large reaps the benefits of conservation, the proximate village bears the social and ecological cost. Since the resources and their use are in the centre of power equation, many interests develop over a particular resource or a bundle of resources. However, the complexity involved in making value judgment on a particular resource could be resolved to a certain extent by identifying, *a priori*, key 'institutional actors', who help in finding common ground among all, using participatory methods. Implementation programmes at landscape level would need movers and shakers and they ought to be the local community.

Experience tells that societies are largely governed by the interests of the powerful. Globally, from a very rational-scientific modernity, the human societies have now reached a post modern stage of multi-polarity of voices. Enhanced demand for a more representative democratic world, coupled with critical perspective on linear, scientific solutions is progressively shifting power from centralized, individual centric arrangement to appropriately decentralized participatory institutions. In such situation, the institutional actors play a vital role in institutionalizing power shift for integration of conservation and development. Therefore, the art of landscape planning also lies in converting some of the local villagers into institutional players.

Lessons coming from various participatory programmes in India reinforce the premise that one way to strengthen and empower community based organization (CBO) is to make them responsible for public expenditure on conservation and development as power and authority flow from money, literally. The CBO represent a mini government at local level. They have a democratic body, with elected representatives and executive committees for governance, supervising day to day activities. The capacity of CBO should be enhanced to gain working knowledge of financial propriety in public expenditure, and maintenance and accounting of public funds. A greater transparency, public auditing of quality of works and investment profiles, and a public forum for arguments and grievance redressel make the CBO based financial management more productive. Public fund management and authority for decision

making on the utilization of such funds help in improving the self esteem and dignity of community members, which enhances opportunities for empowerment.

4.3 Complexities of Mainstreaming Processes

By successfully demonstrating the landscape approach, the project may lead policy makers and conservation practitioners to discuss and develop a comprehensive and integrated land and natural resource use policy, based on landscape management concept. Policies evolve from the process of joint decision making. Policies also streamline course of action and minimize arbitrariness in decision making and use of power. In a democracy, policies are the reflection of people's wish, debated and agreed in people's house, and articulated through executive arms of governance. A competent judiciary watches over the policy formulation to guard against unconstitutional provisions. As a constitutionally defined welfare state, India has witnessed a great political will to support conservation agenda, despite threats of derailment periodically in the face of consistently growing human developmental demands. Through enabling constitutional provisions, the power to govern has been devolved down to the Village Panchayats and Gram Sabhas, whose representatives carry enough political power in the hierarchy of political positioning.

Political goodwill helps in promoting inter-sectoral coordination through facilitation of dialogue across administrative turfs. It is therefore, necessary to engage the political leadership at various levels, right from the beginning, to elicit their support for successful planning and implementation of landscape approach. In various participatory conservation programmes, so far attempted in India, the integration of sectors and mainstreaming has been attempted by creating empowered bodies at the highest level of governance and similarly at regional levels with appropriate devolution of authority. Such bodies do help in resolving, to a certain extent, intra and inter sectoral conflicts and drive the agenda towards common goals. The mainstreaming would require extending biodiversity concerns in local area or district development planning, and dovetailing of livelihood opportunities for the local people in conservation programmes.

Biodiversity management is usually viewed as management of forests and wildlife, wetlands and other natural areas and forest officials view this task as their responsibility. On the other hand, social development programmes are considered to be the responsibility of the district development agencies. Experience coming from the country indicates that inter-sectoral integration is happening sporadically and it is due to localized individual efforts and alliances. For every successful story, there are a numbers of half-hearted attempts or failures. Even intra-sectoral differences act as serious impediments for the success of the approach. Therefore, there is a justifiable need to create a work environment, in which the recipients of developmental benefits determine the investment portfolios spread across a number of

development sectors. This is perhaps the greatest challenge, because it demands radical reforms in governance and exercise of political and administrative powers.

While government policies are progressively moving towards sectoral linkages and coordination, the 'mental models' of public functionaries continue to hold on to one's own turf and to act in isolation. A strong sense of identity and assumed uniqueness in the role play strengthens this attitude. Thus, ice breaking for sectoral integration requires dissolving of turf boundaries for 'common interests'. It is here that the community empowerment could work. For the village development, the conservation concerns of the landscape or part of the landscape with which the village interacts could be articulated in the village level plans, aggregated finally into a district level development plan. The landscape approach attempts to capacitate CBO to reach out to various government and non-government agencies for seeking financial and technical support for their development, utilizing various sectorally distributed developmental programmes.

The forest and wildlife departments, indeed have a central role as facilitators to this entire process, for they are the custodians of forests and terrestrial natural systems, and by successfully implementing this approach, they gain by conserving valuable repositories of biodiversity. However, the role of district development agencies cannot be undermined. In fact, the District Collector is the most important government functionary at landscape level, who actually coordinates functioning of all departments to meet the welfare objectives of the district. His/her role in landscape conservation is of paramount significance and the project officials must work in close cooperation with the district administration.

Landscape approach emphasizes that any action in the landscape is connected to every other action there. Thus, for example, when the officials responsible for promotion of agriculture in private lands advocate use of pesticides for achieving higher productivity, the conservation demand would be to either stop it or to minimize it. The villagers may only look for the short term economic returns from such activities. Educating people about conservation thus becomes necessary and the project proponents will have even greater challenge to make this happen. Normally, land use at community level tends to reflect investments driven by short term market incentives. Therefore, alignment and integration would be the key processes to secure tradeoffs between conservation and local area development and spreading conservation education and awareness would form an important ingredient of mainstreaming. An indicative list of various stakeholders operating at landscape level is attached as **Annexure-I** to highlight areas of cooperation and specific roles that the stakeholders could play in integrated landscape level planning and implementation.

5. The Planning Process

Application of landscape approach is essentially a participatory process, supported by good science and social science feedback. Within the landscape, there are two levels of planning –

one, that broadly characterizes the landscape, identifies the key features for long term conservation and identifies resource use and developmental sites; and two, the village level microplans, identifying specific activities that would be undertaken by the CBO for enhancing livelihood opportunities and for undertaking public works targeting conservation and local area development. Whereas, the former would be a perspective plan with guidance for all agencies and CBO on landscape management, the latter is an activity and operational plan by and for the local people. Aggregated at the level of the landscape, the microplans would represent the sum of all activities that would enhance conservation status of the landscape and provide livelihood opportunities and developmental benefits to all participants.

The experience gained elsewhere amply illustrates that the framework for such planning includes, but not limited to:

- Delineation of landscape boundaries and area,
- Creation of spatial database on physical, biological, socio-economic and developmental attributes,
- Participatory situation and trend analysis in terms of resource use and sustainability, supported by technical feedback,
- Development of a shared or common vision for the landscape and deriving goals and objectives of management,
- Identification of an array of alternative strategies to meet identified objectives and their evaluation for deciding on the best options,
- Putting together a perspective plan and completion of consultation process on plan strategies and action,
- Using landscape based information and vision, development of CBO driven site specific microplans,
- Plan approval based on democratically agreed and approved procedures,
- Implementation of approved strategies and activities, keeping centrality of participation in project administration and financial management,
- Participatory and accountable monitoring, social auditing and evaluation of various activities, and
- Adaptive management through establishing procedures for mid course corrections.

Of critical importance in this entire process is to first, obtain broad agreement for conservation action or ecologically compatible development within the landscape. The negotiation process should include all land owners, land users, landless resource users and government agencies controlling lands and activities over such land units. The process of developing shared vision should not be a one off activity; rather it should evolve initially from the village level microplanning and reach the pinnacle at a landscape level discussion. The negotiated landscape vision provides:

- a decision support framework for landscape level integration of conservation and development,
- an understanding of the trade-offs between conservation, resource use and socio-economic development objectives, and
- clarity of roles and responsibilities of key players within the landscape.

The second critical issue is identification of strategies for implementation to secure effective management options for conservation in the biodiversity rich cores, while ensuring compatible land use and development actions in the matrix. It is important to ensure that the strategies should be evaluated in terms of their benefits for conservation, feasibility, and human and financial costs. Implementation of multi-strategies that involve a large number of partners requires good coordination and excellent trust and communication between the partners. In designing the strategies, it is important to be realistic with clear and achievable outcomes, be adequately funded, and have clear responsibilities defined for each of the partners.

Third criticality in the implementation of this approach resides in effective participatory monitoring of changes that are likely to take place. In order to assess whether the strategies that are being implemented in the landscape are working, it is necessary to be able to monitor status of threats and pressures on the biological resources within the landscape. For conservation outcomes, a suite of key biological indicators are needed to be identified and monitoring protocol built. The monitoring of village microplans and activities should be monitored through social audit and special financial auditors. The success lies in adaptation and continued improvement based on the process of monitoring feedback and evaluation. A structured monitoring and evaluation protocol is therefore essential.

The success of this approach is linked to application of technical and process skills of participation and coordination. Systematic capacity enhancement programmes should therefore be designed in a manner that various target groups, including government officials, representatives of people, entrepreneurs, volunteers and NGOs, media managers at local level and the CBO members, all of them developing a common understanding about the approach and its necessity for integration of development and conservation. However, implementation of such strategies and activities is complex and would require capacity building of project staff as well as staff in all agencies that operate in the landscape. The CBO and the members of the regional societies will equally need capacity enhancement inputs to understand the linkage between conservation and development and be confident enough to usher in a new resource governance environment. Institutional strengthening for governance is a must and the human resource development inputs should target to create a common platform to enable government, non-government and local community members to negotiate and take collective action for long term conservation of the landscape, while improving the human development index of the region. For the landscape level planning and implementation to be successful another requirement would be to systematically bring about altitudinal change in the

government functionaries at various tier of governance. Appropriately designed capacity building programmes in landscape level biodiversity conservation would have to be planned and implemented at the national and state level training academies particularly the LBS National Academy of Administration (LBSNAA), Mussoorie and the Indira Gandhi National Forest Academy (IGNFA), Dehradun that train young district administrators and foresters, respectively.

6. The Way Ahead

While some would like to call the landscape approach a new initiative, some others would rather see it as a refinement over already existing participatory governance programmes. The concept may be relatively new to India, but it has been gaining global recognition as the right approach for conservation in the 21st century; centered on stakeholders' participation, inter-sectoral cooperation and building capacity. It expands the scope of biodiversity conservation by including social and cultural values for planning livelihood opportunities, so that a much wider group of people participate and acquire local leadership in natural resource management.

Various outcomes of successful implementation of landscape approach are likely to include a range of environmentally friendly measures within the landscape that would also ensure human well-being and economic benefits to local communities. It would definitely result in strengthening and effective land management in forests, grasslands, wetlands and community managed lands in non-protected areas to provide corridors for ecological processes and genetic exchange to take place. With a responsible resource use regime in place, the approach promises to promote land based eco-friendly agriculture, horticulture, fisheries and dairy and livestock management practices. Overall, a better governance of natural resources is expected to emerge and local people would begin to see themselves as partners in the government's development and conservation agenda.

However, it is easier said than done. As emphasized earlier, the crucial components for the wider acceptance and success of the approach include informed participation by local people and smoothening of cross sectoral linkages, for which policy advocacy, and political and administrative support should be amply available. It will not only depend on willing participation by local communities, but also on coordinated and integrated planning at local, provincial and national levels. The challenge is to institutionalize these arrangements for taking the idea of landscape approach to conservation to many more places and replicate. Government players, especially the forest department functionaries are required to reach out and drive this idea of cooperative management and governance with enthusiasm and commitment enabled by key contributions from district development agencies.

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Annexure I

Indicative list of stakeholders with potential role

FORESTS
• Agro-forestry & REDD+ • Green India mission • Creating new habitats/ forests • Watershed • Catchment Area treatment • Use of CAMPA funds
REVENUE
• Land use management • Zonal and spatial planning • Innovative financing (PES) • Beneficiary tracking system
AGRICULTURE
• Sustainable production • Agro-biodiversity & landraces • Climate Smart Agriculture • Increased water use efficiency
ENVIRONMENT
• Stricter EIAs • Compliance with environmental management • Liabilities • EPA model
RURAL DEVELOPMENT
• Mainstreaming with flagship schemes of RD • Expanding the scope of NREGA
ROADS/RAIL/ TRANSMISSION
• Infrastructure planning & coordination • Applying Environmental codes of practices
PLANNING
• Regional planning • Area development • River basin planning approach • Infrastructure and industrial clusters