Strengthening biodiversity conservation through community oriented development projects

An environmental review of the India Ecodevelopment Project

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India Ecodevelopment Project

- **Globally significant initiative**
- **A national priority project to:**
  - ***Promote biodiversity conservation and sustainable development***
  - ***Integrate community welfare and local people concerns in PA management***
  - ***Encourage scientific excellence in biodiversity conservation initiatives***

Project Objectives

- Improve PA management by strengthening institutional capacity
- Reduce negative impacts of local people by increasing their participation in conservation efforts
- Strengthen policy framework and management effectiveness
- Prepare future biodiversity projects

Implementation time frame: 1997 - 2002

Finance plan: US$ 20 million GEF grant
US$ 28 million IDA credit

Benefits and outputs

- ***Strengthen PA management planning, restore degraded ecosystems and habitats, improve fire and poaching control, improve PA infrastructure and staff efficiency for effective conservation***
- ***Enable communities to meet their needs in an environmentally sustainable manner thereby reducing unsustainable use of biodiversity resources***
- ***Provide a firm base of public support for biodiversity conservation***

Key considerations guiding the investments and activities under IEP

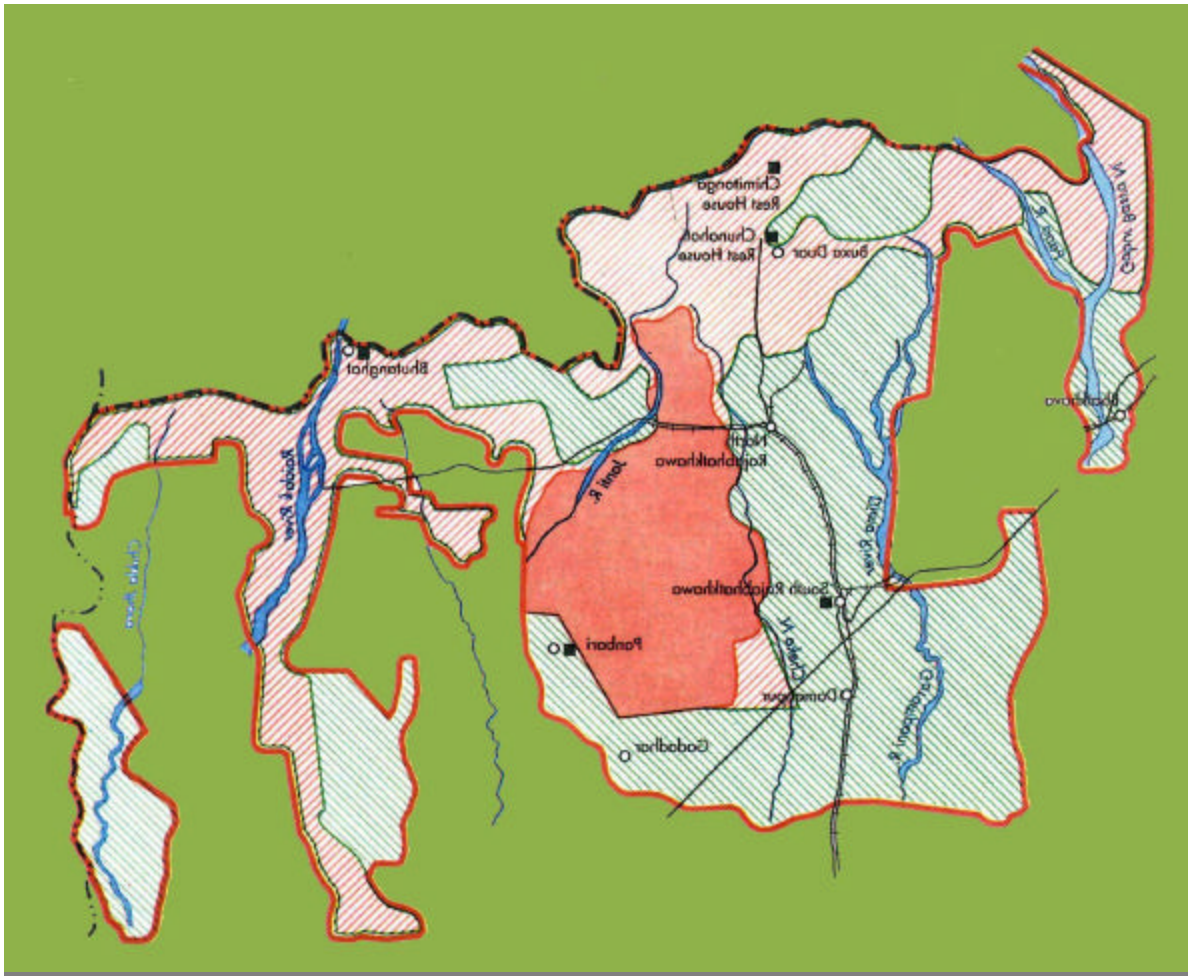
- ***Alternative livelihood options will reduce biotic pressure on PA resources***
- ***Livelihood and traditional practices significantly influence biodiversity conservation***
- ***Alternatives to ensure resource security and sustainability under IEP will improve conservation prospects***

Project implementation sites

7 Protected Areas in the country and villages within 2 km of their PA periphery

Buxa Tiger Reserve

Covers an area of 761 km² with a core zone of 341.5 km² designated as a sanctuary of which 117 km² proposed as a national park



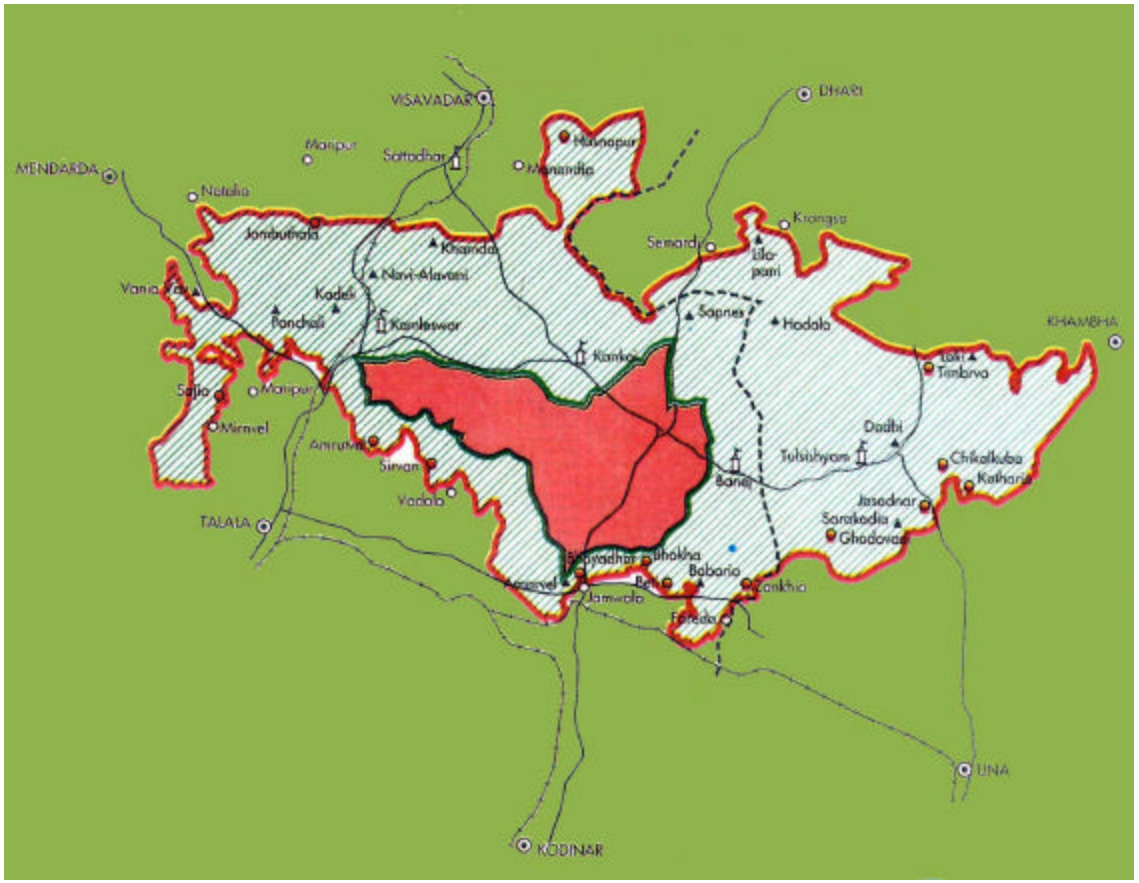
Buxa Tiger Reserve

Biodiversity values

- Unique floral and faunal elements of eastern Himalayas
- Clouded leopard, goral (mountain goat), Malayan giant squirrel and the animals of the gangetic plains including tiger, leopard, elephant and otter are the characteristic species of the area

Gir National Park and Sanctuary

Covers an area of 1,412 km² of which 258 km² constitutes the national park



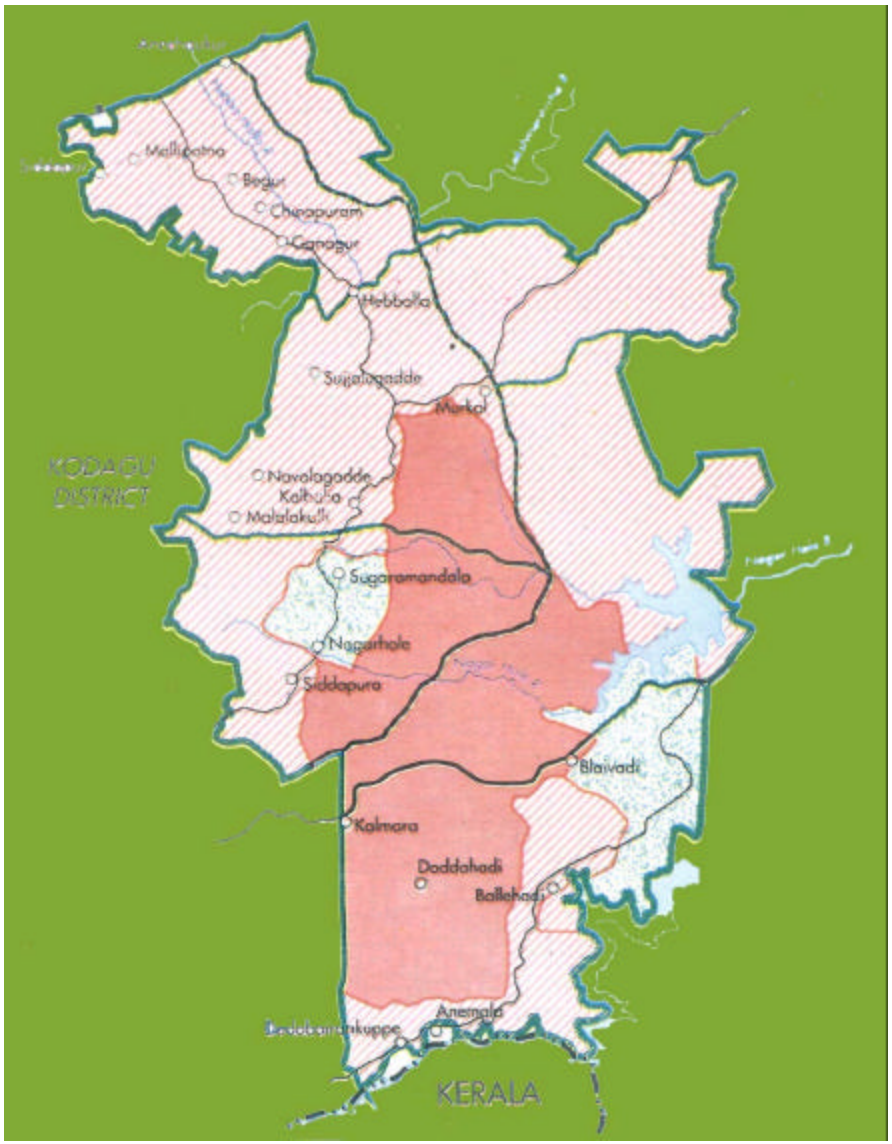
Gir National Park and Sanctuary

Biodiversity values

- The only home for last surviving Asiatic lions in the wild
- Highly productive grass and shrub land habitat for four horned antelope, Indian Gazelle and large carnivores including leopards and striped hyena
- PA is also notable as a habitat for florican, marsh crocodile and star tortoise

Nagarhole/Rajiv Gandhi National Park

Covers an area of 643 km² with a core zone of 192 km² and a tourism zone of 110 km²

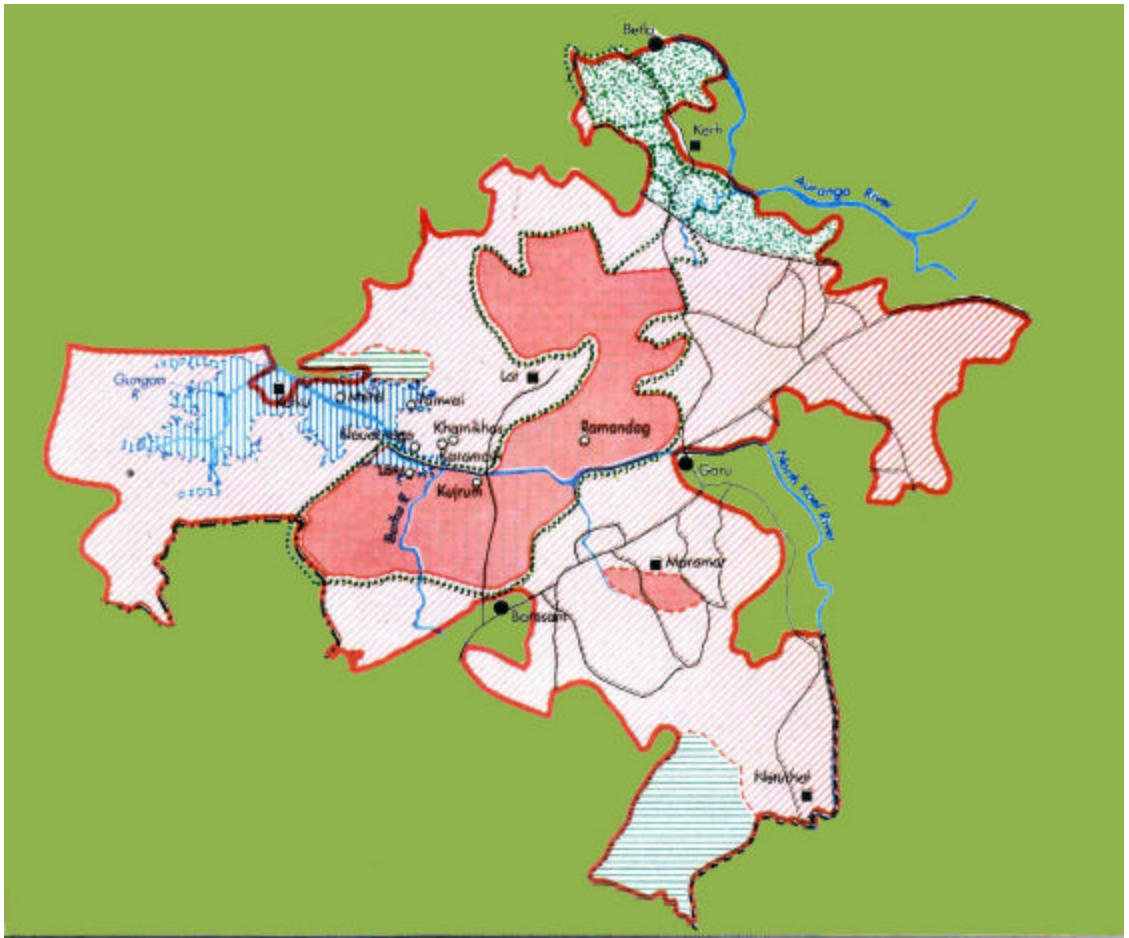


Biodiversity values

- **The floral and faunal species reflect association with elements of ‘Western Ghat’, a global hotspot of biodiversity**
- **Small areas of low lying swamps locally known as ‘*hadlus*’ offer unique and critical habitat**
- **One of the largest conservation areas and a central link in the migration of elephants to other PAs**

Palamau Tiger Reserve

Covers an area of 1026 km² with a core zone of 213 km², a buffer zone of 76 km² designated as the sanctuary and 47 km² of reserved forests

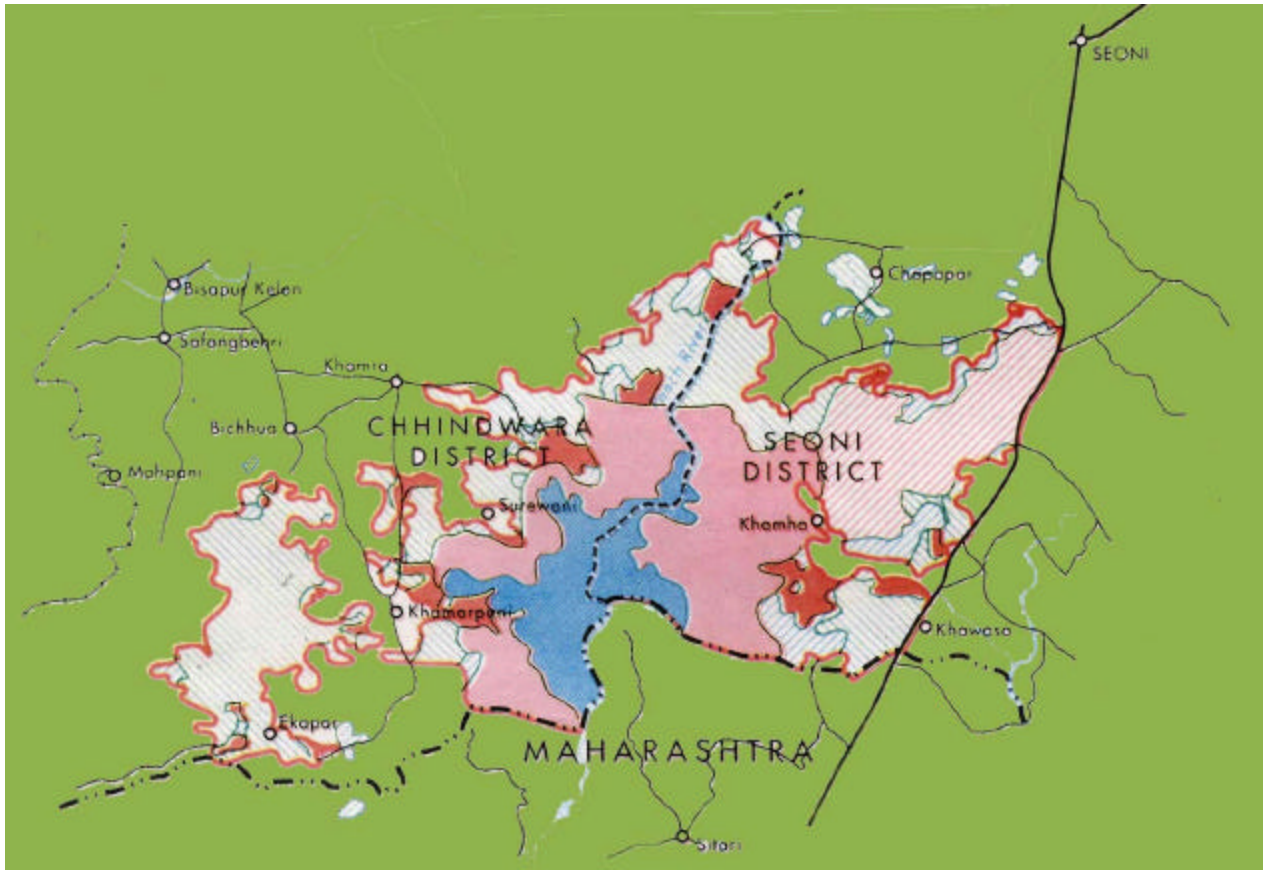


Biodiversity values

- **Characterized by dry deciduous forest, teak plantations and grassy blanks**
- **PA offers habitat for highly diverse predators/prey animal communities and large populations of tiger, leopard, striped hyena, wolf, India bison and elephants**
- **More than 170 species of birds**

Pench Tiger Reserve

Covers an area of 757 km² with a core zone of 293 km², tourism zone of 55 km², wildlife sanctuary of 118 km² and 308 km² of reserved and protected forests

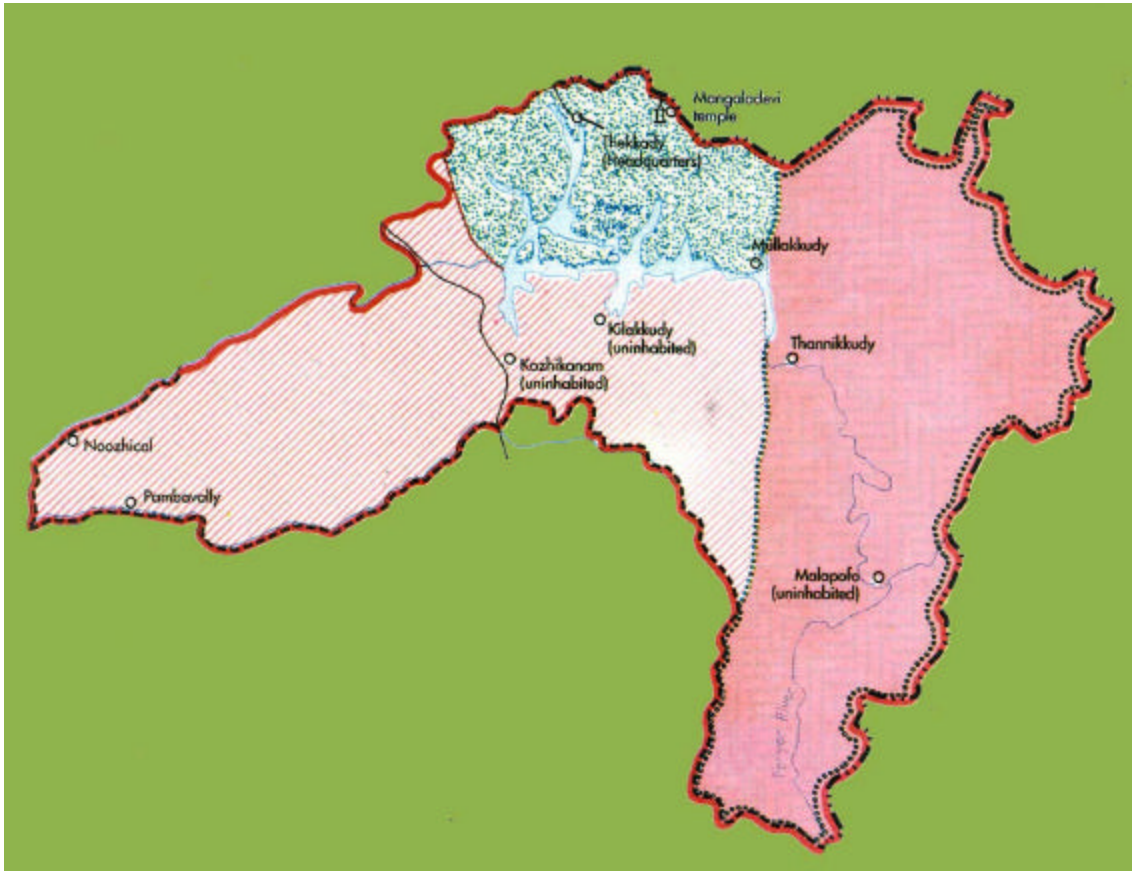


Biodiversity values

- **Extensive stands of dry deciduous teak and mixed forest typical of central Indian highlands**
- **PA maintains regional connectivity that is critical to the large predator/prey system by providing access to Kanha National Park which is one of the finest habitats for central Indian fauna**
- **40 species of mammals and 168 species of birds**

Periyar Tiger Reserve

Covers an area of 777 km² with a core zone of 350 km², a buffer zone of sanctuary covering 377 km² of which 50 km² is designated as the tourism zone

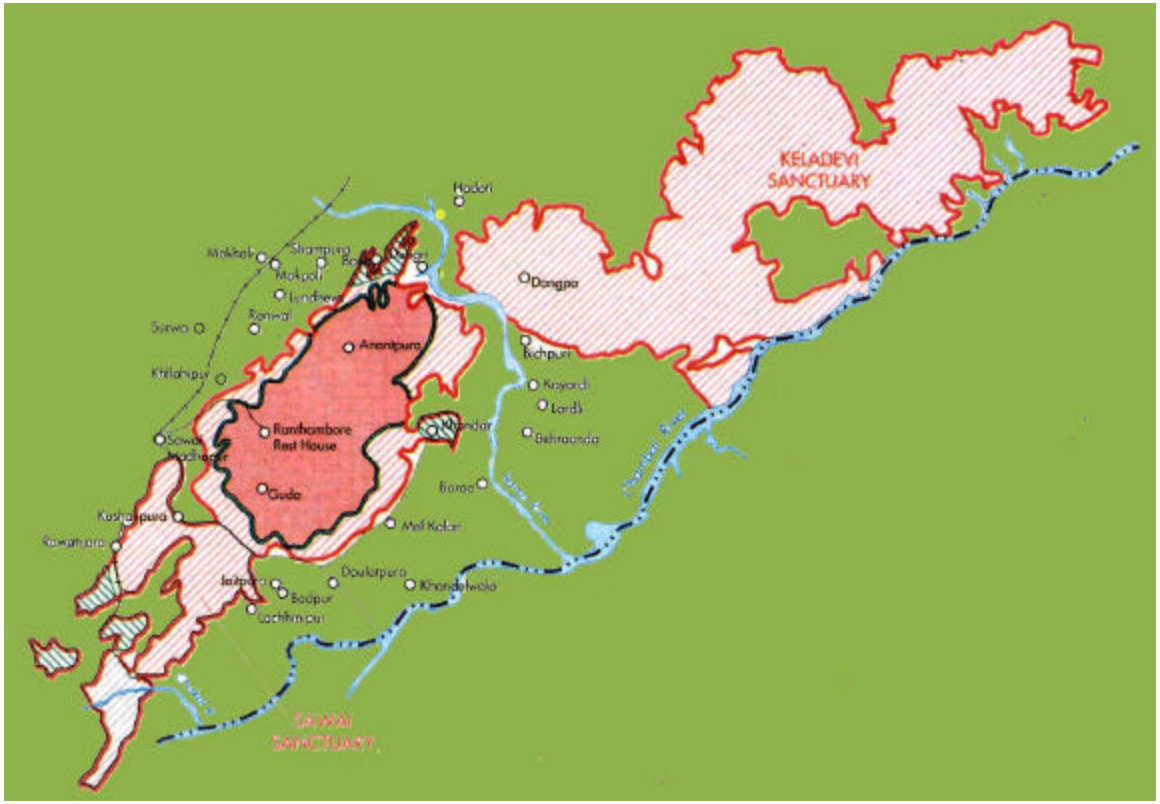


Biodiversity values

- **Home to 5,000 of India's 15,000 species of flowering plants**
- **The biodiversity values of PA reflects high endemism**
- **60 monotypic genera and 2100 species of plants, 120 species of lower vertebrates, 15 species of birds, 350 species of butterfly and 700 species of moths that are endemic to the region**
- **Nilgiri langur, lion tailed macaque and striped necked mongoose are endemic to the region**

Ranthambore Tiger Reserve

Covers an area of 1346 km² (392.5 km² national park, 127 km² sanctuary, 7.5 km² game reserve and 133 km² under reserved and protected forests)



Biodiversity values

- **Pure stands of *Anogeissus pendula* characterizing the semi- arid zone represented only in RTR**
- **Complex grazing system of RTR has rich assemblage of large predators and prey species that typify the semi arid biogeographic zone**
- **Species of conservation significance are tiger, leopard, striped hyena, Indian gazelle, caracal, ruddy mongoose and marsh crocodile**

Conservation threats

- Intense pressures from indigenous communities and population living in and around the PAs
- Traditional rights and leases
- Traditional grazing by livestock
- Fuel, fodder and timber extraction
- Extraction of non-timber forest products
- Public thoroughfares
- Encroachment for cultivation
- Poaching
- Forest fires, floods and droughts
- Political insurgency

Other PA specific threats

Buxa Tiger Reserve	▪ Urban settlements, tea estates, saw mills and cane processing units outside the PA ▪ Ivory poaching ▪ Dolomite mining ▪ Encroachment for orange orchards
GIR National Parks & Sanctuary	▪ Nomadic pastoralist settlements in PA ▪ Seven public roads and state highways through PA ▪ High pilgrimage and tourism pressure
Palamau Tiger Reserve	▪ Flooding by hydroelectric project
Pench Tiger Reserve	▪ Collection of leaves of D*iospyros melanoxylon* for cheroot production ▪ Fishing in the reservoir of Pench Hydel Project (since 1990)
Periyar Tiger Reserve	▪ Subsistence of large tribal population ▪ Heavy tourism and pilgrimage pressure ▪ Commercial plantation of eucalyptus

Nature of investments and activities

Improved PA management	▪ Construction of watch towers and road ▪ Power fencing to reduce man-animal conflict ▪ Check dams for conserving water ▪ Road closure for restricted access ▪ Redefining PA boundaries and tourism zones
Habitat improvement	▪ Construction of water holes ▪ Weed eradication and control burning ▪ Relocation of villages outside PA ▪ Plantation. for habitat improvement
Reducing grazing pressure	▪ Tree and fodder plantation ▪ Cattle breed improvement ▪ Pasture land development
Reducing fuel wood collection	▪ Fuel wood plantation and distribution of LPG
Reducing resource dependency	▪ Livelihood alternatives (poultry farming, basket weaving, vegetable production) ▪ Creation of trading opportunities and enterprise development ▪ Community farming ▪ Community oriented works

Environmental review of the India – Ecodevelopment Project

Objectives

- Establish clear linkages between conservation and investments and activities
- Review project investments for technical, financial, social, institutional and political feasibility
- Review project actions and investments for ecological and environmental sustainability to improve conservation prospects
- Identify measurable improvements in biodiversity conservation in all project sites

Evaluation approach

- **Acquisition and synthesis of relevant information**

Reference of documentation ***(PA management plans, village microplans, biodiversity status reports, other technical reports)***

Stakeholder consultation ***(Discussions with PA managers, villagers, site consultations and stakeholder workshops)***

Personal observations during site visits

- **Application of SEA for environmental review**

Evaluation process

India-Ecodevelopment Project
(Activities, Policies, Programme)

Identification of impact indicators and development of matrices

- Impacts not known
- Negative impacts
- Net positive impacts

Impact significance

Reversibility		Mitigation feasibility	Magnitude	
Long term impacts	Short term Impacts	Technical, financial, political, social and institutional	Number of environmental components impacted	Primary, secondary & tertiary impacts

Review Outputs

- Detailed EIA studies to determine impacts not known
- Approval of activities, with no significant impacts
- Identification of activities with significant impacts that can be mitigated
- Identification of activities with significant impacts that can not be mitigated

Salient findings

- Investments and activities under IEP are in accordance with ecological profile and PA objectives and in complementary to PA management activities
- Most village eco-development activities are beneficial and have resulted in measurable positive impacts on biodiversity conservation
- Some specific actions and policy decisions have social and environmental implications (e.g. area recommended under GIR national park and fishing rights in Pench TR)
- Some activities that have high social acceptability may have low operational feasibility (e.g. dairying and trading)
- Social and institutional feasibility of some activities is critical for long term success for conservation

Lessons learnt

- Some project assumptions can undermine the benefits of IEP

Project assumption	Activities	Lessons
Support for conservation can be best achieved by satisfying community needs	Undertake trust building activities – development of approach roads, wells, pasture lands and sharing costs for these benefits	• Input intensive with no direct benefits and passive benefits varying within groups • Conservation links weak
Local people's impact on biodiversity can be mitigated through alternatives resources	Alternative options for livelihood and resources - basket weaving, mushroom and vegetable farming, pig and goat rearing, development of community pasture land and use of LPG and biogas	• De-linking livelihoods from natural resources weakens interest in them • Non acceptability due to lack of experience and confidence in them and financial investments needed for a switch over
Sustainable use of natural resources is determined by well perceived 'link' between resource conservation and livelihoods	Promote channels for sale of MFPs harvested sustainably	• Market forces and middlemen influence economic trends and benefits • Internal conflicts due to inequitable benefits
Communities will support conservation if they have a stake in decision	Benefit sharing, participatory planning and management, (e.g. community orchards and management of Sabrimala pilgrimage) constitution of EDCs	• Weak processes • Stakes too limited to sustain interest • External threats undermine efforts

Lessons learnt

- **The IEP failed to address external threats to biodiversity conservation that were far more significant**

  External sources of threats

  - **Interstate boundaries**
  - **International boundaries**
  - **Insurgency**
  - **Major development projects (dams, irrigation canals, minerals extraction)**
  - **Infrastructure development (roads, transmission lines, hotel and resorts)**
  - **Tea and rubber estates**
  - **Saw and veneer mills**

India Ecodevelopment Project

- Provided ample grounds for optimism for the success of the conservation projects
- The ‘learning by doing’ experience of this project provided adequate guidance and scope for improvement in future initiatives