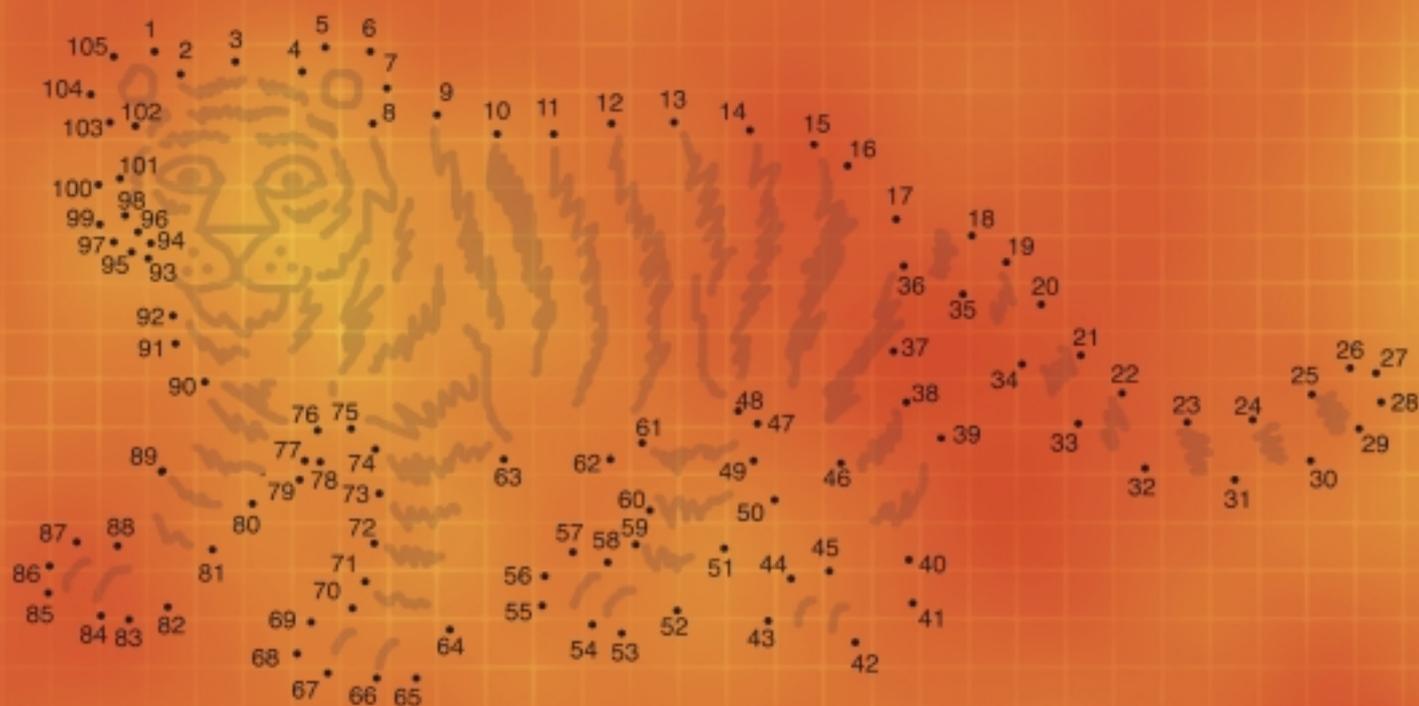


THE REPORT OF THE TIGER TASK FORCE

JOINING THE DOTS



GOVERNMENT OF INDIA

THE REPORT OF THE TIGER TASK FORCE

**JOINING
THE DOTS**

GOVERNMENT OF INDIA

The Tiger Task Force was constituted pursuant to the decision taken during the second meeting of the National Board for Wildlife on March 17, 2003

The Ministry of Environment and Forests (Project Tiger) set up the task force vide notification no.6 (4)/2005-PT dated April 19, 2005 to review the management of tiger reserves.

The terms of reference of the Task Force are as follows:

1. Suggest measures to strengthen tiger conservation in the country.
 2. Suggest measures to incentivise the local community in conservation of tigers.
 3. Suggest measures to incentivise local forest staff posted in sanctuaries/national parks and ensure an effective HR plan for tiger conservation/wildlife managers.
 4. Suggest measures to improve the methodology of tiger counting and forecasting.
 5. Suggest methods of transparent professional audit of wildlife parks and placing data on tiger conservation in the public domain.
 6. Suggest a new wildlife management paradigm that shares concerns of conservation with the public at large.
2. The Project Tiger Division of the Ministry of Environment & Forests would be facilitating the working of the Task Force and render all necessary help.
 3. The Task Force should submit its report within three months from the date of this notification.
 4. The sitting fees and travel cost would be reimbursed to the Members of the Task Force as per norms.

The Members of the Task Force are as follows:

- (1) Ms Sunita Narain, Director, Centre for Science and Environment. - Chairperson
- (2) Shri H S Panwar, Ex-Head, Project Tiger and Ex-Head, Wild Life Institute of India. - Member
- (3) Prof Madhav Gadgil, Environmental Historian and member, National Board for Wildlife. - Member
- (4) Shri Valmik Thapar, Member, National Board for Wildlife. - Member
- (5) Shri Samar Singh, Ex-Secretary, Govt. of India and Member, National Board for Wildlife. - Member

© 2005 Union Ministry of Environment and Forests (Project Tiger)

Published by
Project Tiger,
Union Ministry of Environment and Forests
Annexe No 5, Bikaner House
Shahjahan Road, New Delhi – 11
www.projecttiger.nic.in

Contents

Introduction	v
Executive summary	vi

01 The assessment 1-14

1.1 Conserving the tiger	2
1.2 The Sariska shock	14

02 A paradigm change 21-26

Making conservation work	22
--------------------------	----

03 The way ahead 27-143

3.1 The institutional agenda	28
3.2 The protection agenda	36
3.3 The illegal trade agenda	51
3.3a Domestic enforcement agenda	56
3.4 Innovative protection agenda	63
3.5 The science agenda	70
3.6 The research agenda	80
3.7 The relocation agenda	88
3.8 The coexistence agenda	99
3.9 The fringe agenda	117
3.10 The tourism agenda	132
3.11 Ecological services agenda	141

04 Action plan for change 145-151

05 References 153-159

06 Annexures

161-206

I. The composition and terms of reference of the Tiger Task Force	162
II. Note of dissent by Valmik Thapar, member, Tiger Task Force	163
III. Response of the Chairperson, Tiger Task Force, to note of dissent	181
IV. Expert consultations based on terms of reference of the Tiger Task Force	184
V. Visits of the Tiger Task Force	187
VI. Experts requested to comment on methodology of tiger estimation	188
VII. Suggestions received on the terms of reference of Tiger Task Force	189
VIII. Methodology for estimating and monitoring tiger status and habitat	193
IX. Investing in institutions for change: strengthening the Project Tiger directorate	198
X. A critique of cadre-building in the forestry sector and suggestions for human resource improvement	200
XI. Amending the criminal provisions of the Wildlife (Protection) Act, 1972	203
XII. Guidelines on establishment of wildlife wings issued 1973-1981	206

Introduction

The Tiger Task Force was set up because of a crisis — the knowledge that the nation had lost its tigers from the protected reserve of Sariska in Rajasthan. But the Tiger Task Force was also set up to look beyond this immediate provocation: there were lessons to be learnt from this tragedy, lessons the nation needed to learn so that the survival of the tiger could be guaranteed. Sariska, then, was not only a crisis but also became an opportunity. Clearly, the time had come to review the past and also to secure the future.

It is evident that all is not well with the Indian tiger. It is this concern that led the Prime Minister, Dr Manmohan Singh, to review conservation efforts at the National Board for Wildlife meeting held in March 2005, to later visit the tiger reserve of Ranthambhore in Rajasthan to assess the situation on the ground and to meet with the chief wildlife wardens of different states. The Prime Minister also asked for the Tiger Task Force to be set up, with a mandate to review tiger conservation and to suggest a new paradigm that shares the concerns of conservation with the public at large. It is clear to us that his concern is a shared one: how we must save the tiger and how we must do that in the particular circumstances of India, where forests are not wilderness areas but also where people live.

This was our objective as we began work. We knew we had to find what has to be done, urgently and effectively, to safeguard the tiger's future. We knew also we were not the first to engage in such a task. India has had a long history of conserving the tiger, in which many have been involved. And much has already been done.

The Tiger Task Force started its work by seeking answers. It organised four consultations: two in Delhi, concerning issues related to conservation and poaching and on the methodology of tiger estimation; one in Nagpur, where tribal activists and non-governmental organisations working on collaborative conservation put forth their opinion; and one in Bangalore, to meet researchers and scientists working on different aspects of habitat and species research.

The Tiger task Force also visited tiger reserves — Periyar in Kerala, Pench in Maharashtra, Pench and Kanha in Madhya Pradesh and Sariska and

Ranthambhore in Rajasthan. In each visit, field managers, foresters and guards told us about their efforts to protect and what they believed had to be done in the future. We also visited villages located within the reserves and outside.

In all, it was an enormous learning experience, most of which we have tried to encapsulate in the report. But even beyond what we have learnt and sought to explain, we can say with confidence the tiger is not alone. When we began our work, we had an initial list of tiger experts, knowledgeable about tiger conservation and involved in its protection. But as we went about our work, we found the constituency of the tiger to be truly widespread. People across the country sent us their views and comments. In these three months, we received information from over 120 people. We met over 200 people on our visits and more than 100 attended consultations.

We would like to thank them all. We cannot, obviously, include all the suggestions, but all have been heard carefully; this has helped us devise our strategy for the future. It is clear that one problem of the tiger has been its 'exclusive' constituency; our hope is that this report will provide ways in which this group of supporters is enlarged and gets included in the future efforts for tiger conservation. The tiger needs all these friends, and more.

We thank the Union ministry of environment and forests for their cooperation; in particular, Dr Rajesh Gopal, director, Project Tiger, for giving time to the Tiger Task Force. We learnt a lot from him and we hope our report will help him and his colleagues, working on tiger conservation, in their efforts as well.

No report *per se* brings change. It is people, who believe in the report and its ideas, who are the change-makers. We hope our report will find believers as well. We hope that the agenda for tiger conservation will be secured, so that the future of the tiger can be secured. It will need seriousness. It will need commitment. But it can be done.

Sunita Narain
Samar Singh
H S Panwar
Madhav Gadgil

Executive summary

The Tiger Task Force report begins by placing itself in context (see: [The assessment, p 1-20](#)). There is an immediate context to this report: the widely reported and discussed event of the disappearance of tigers in Sariska. There is also a larger context: the discourse and practice of tiger conservation in India.

In terms of the immediate context, the Sariska debacle, the Task Force investigated the affair. The report presents the conclusions (see: [The Sariska shock, p 14-20](#)). The protection system there has completely collapsed. While officials were busy misreporting the record of tiger numbers, poachers roamed about and cleaned the reserve out. A powerful mining lobby, keen to carry out mining operations in the reserve fringe, is thrilled. Local politicians now want the protected area denotified: “What is there to protect?” they ask. Villagers here regard the tiger, and the park administration, as their common enemy no 1: they live sandwiched between the two, and are bitter about their desperately wretched existence and continued harassment. The park management talks about relocation, but has done little. In the meantime, even the one village that had been moved out has come back into the reserve. There is unease all around. In this situation, protection cannot and does not work.

In terms of the larger context (see: [Conserving the tiger, p 2-13](#)), the report finds important, but forgotten, moments in the recent history of official conservation planning. The report of the 1972 task force headed by Karan Singh, *Project Tiger: a planning proposal for preservation of tiger* (*Panthera tigris tigris*) in India, inaugurated the tiger conservation programme in India (and official conservation as well). It is a remarkable blueprint. It gave the programme a promising start.

If “people versus parks” — and its inevitable corollary, “people versus tigers” — is one contentious point of the debate around conservation in India today, the report finds extremely sensitive deliberations upon this issue in the past. It is obvious that some, among those that have given direction to official conservation policy, were horribly aware that in India, forests are not unpopulated tracts of wilderness. The 1983 *Eliciting public support for wildlife conservation — report of the task force*, by a committee headed by Madhavrao Scindia, focuses on the dependence of rural people on forests: “In their precarious existence, enforcement of restriction in

wildlife reserves triggers antagonism”. This report wanted development programmes and funds for villages located in the periphery of conservation zones. It calls these zones “islands of conservation”. “If the land surrounding such effort continues to deteriorate in productivity affecting the availability of resources for communities, these islands are bound to succumb one day to the community’s demands”.

In the 1990s, a furious storm breaks, reminiscent of today. The tiger is in deep trouble. Project Tiger, India’s flagship conservation programme, is in deep trouble. Conservation itself is in deep trouble. This was an opportunity to change directions. But what emerges is: One, the conservation regime re-dedicates itself to a command-and-control mode of wildlife preservation. Two, it becomes no longer necessary to refer to or think of “people” while speaking of or planning for conservation.

The Sariska debacle is irrevocably because of this direction we chose.

3 unavoidable variables

It is incumbent upon the Tiger Task Force to look to the future. The Task Force realises that, so far as conservation policy and practice are concerned, any such blueprint must be predicated upon three unavoidable variables (see: [A paradigm change, p 21-26](#)). As the report puts it, “The protection of the tiger is inseparable from the protection of the forests it roams in. But the protection of these forests is itself inseparable from the fortunes of people who, in India, inhabit forest areas”. There is the tiger. There is the forest. There are the people, living inside these forests and on the fringes of these forests.

All readers of this executive summary are encouraged to look at the map on [page 23](#). It shows three layers: the 150 poorest districts of India; the fact that these are also constitutionally designated Schedule v areas (areas primarily inhabited by tribals); and the fact that these are prime “tiger districts”. Consider also the tables on [page 26](#) *Forest cover and tribal districts*, and *Net change in forest cover in the country since 2001...*. The fact is that communities — not necessarily tribals, but equally impoverished — live in and around those areas the official conservation apparatus protects for the sake of the tiger. Equally, forests in these areas are under

greater strain: fiat forbids use of the forest, but people persist in doing so, often out of sheer need. Enter the tiger, single males no fiat can tie down, trying to wander from forest to forest, but unable to do so because the forests are shrinking and forest corridors brim with disaffected villages arbitrarily resettled out of the forest.

The Tiger Task Force has tried then to unravel the knot conservation policy and practice has today tied itself in.

The way ahead

With this aim in mind, the report moves into the heart of the matter. The Tiger Task Force resolves the problem into 11 distinct, but connected, aspects (see: [The way ahead, p 27-143](#)).

Just reform

Sariska was an eye-opener to the Task Force. It witnessed there absolute institutional collapse. So it is that this segment of the report begins by looking into institutional reform (see: [The institutional agenda, p 28-35](#)). Following the 42nd amendment to the Constitution in 1976, the subject of 'forests' and 'wildlife' shifted from the State list to the Concurrent list. As the report puts it, "the Centre acquired overriding powers to ensure protection and preservation of forests and wildlife". By the 1990s, this arrangement began to function more in the breach. Project Tiger suffered. Without direct stake in protecting wildlife and forests, states treated these as matters to be administered. State politicians found protecting huge swathes of land expensive, even inimical to growth. The Centre had a direct stake, but was too distant from ground realities to be effective.

How should this state of affairs improve? The report weighs two options. One, centralise further (see: [p 29-30](#)). Two, rely on a participatory philosophy of institution-building. The report endorses the latter option. Improve Centre-state collaboration, says the report, strengthening institutions at the Centre that oversee tiger protection, and improving state capacities. The report says local communities must be involved in protecting the tiger; relevant institutions, therefore, must be put in place.

Among a series of recommendations (see: [p 30-35](#)) the report makes with respect to overhauling or transforming institutions of wildlife protection, it says that the Union ministry of environment and forests must be re-organised into two separate departments: that of environment and that of forests. The Project Tiger directorate must be given the legal status of an authority, to facilitate its work and provide it autonomy.

Must protect

But even as institutional reform is undertaken, it is clear that more needs to be done to improve the protection for the tiger immediately (see: [The protection agenda, p: 36-50](#)). After visits to reserves and detailed research, it is the assessment of the Task Force that Sariska is certainly not representative of what is happening in every reserve in the country. But it is also clear that a Sariska-type situation haunts every reserve, where protection is happening, today, against all odds.

The question then is: what can be done to improve protection? The usual answer is: more guns, more guards and more money. This approach, the report finds, solves nothing. Sariska, in fact, has spent more money per tiger and per sq km than almost all reserves in India. It has more personnel per sq km and more protection camps per sq km, than most reserves. Still it failed (see the graphs: [Allocation of funds to tiger reserves from inception to 2004-2005](#), and [Average yearly allocation of funds to tiger reserves from inception to 2004-2005, p 37](#); see especially [What we can learn from Sariska, p 46](#)).

The report delves into all aspects of protection (see: [Funds and protection, p 37-39](#); [Personnel and protection, p 39-42](#); [the vacant staff position, p 42-43](#); [the age of the staff, p 43-44](#); and [infrastructure: p 45](#)) to suggest each reserve must devise strategies to better protect the tiger. This is especially true of a) reserves in northeast India, vast and inaccessible except to local communities, and b) naxalite-dominated reserves.

And less crime

It isn't enough to merely spruce up the reserve management. Conservation in India today possesses an extremely watered-down mechanism to crack down on wildlife crime. A market exists today for tiger skin and tiger parts; as tigers decline elsewhere in south and southeast Asia, the danger for the tiger in India becomes more palpable. Inter-governmental cooperation on protecting endangered species has driven the market underground, making it difficult to detect and so break; also, the world is failing in its attempts to control the illicit trade: as late as 2004, shops in New York exhibited herbal medicines claiming to be made of tiger parts (see: [The illegal trade agenda, p 51-55](#)).

A weak enforcement mechanism thus spells disaster. The report takes up this question in depth (see: [Domestic enforcement agenda, p 56-62](#)). After showing in great detail exactly how weak the Wildlife (Protection) Act, 1972 is in terms of enforcement (see: [p 58-59](#)), the report demands the Act's criminal provisions be amended, and wants a

Wildlife Crime Bureau to be set up immediately. Perhaps, then, India can look after her tigers.

Perhaps India can look after her tigers better by being imaginative in this sphere (see: *Innovative protection agenda*, p 63-69). Poachers rely upon extremely skilled local communities of hunters, who know the forest better than the backs of their hands. Poachers can; money can buy anything, especially extremely poor people. But what if the hunter turns protector? The report records such an initiative in Cambodia. In India, too, such a turnaround is possible: research shows that the Lisu of Changlang district in Arunachal Pradesh could become the best protectors of the Namdapha tiger reserve there (see: p 65-67). Periyar tiger reserve in Kerala proves it can be done (see: p 67-68). Couldn't innovations like this be replicated, where possible, elsewhere in the country?

For this to happen, at least one bridge has to be built: between the conservation bureaucracy and wildlife researchers. The Task Force finds the current disconnect between the two extremely disturbing (see: *The research agenda*, p 80-87). Indeed, it finds weak correlation between the practice of conservation and the knowledge produced on and about it. The report points to the pug-mark method of counting tigers as the best example of this practice becoming unscientific over time, and agrees this method needs to be replaced (see: *The science agenda*, pp 70-79). It reviews the methodology that is being suggested as an alternative and finds it will work better in estimating tigers and their habitat. It wants this method to be tried out urgently.

An outlook that believes conservation means fencing forests off by fiat is too narrow. Many tigers live outside tiger reserves. Thus conservation needs to focus on the larger landscape. It must also be an inclusive effort: the wildlife biologist or community ecologist is equally crucial to it. The Sariska debacle went unnoticed also because information on tiger numbers there was fudged. The Task Force urges for openness and for independent audits that can build and break the 'reputations' of state leaders in managing their tiger populations.

Out in the open

The simplest way to protect the tiger is to render inviolate the space it roams in, catching prey. In India, this means keeping all people out of forests declared as protected areas (as reserves, or sanctuaries, or national parks). As people live in reserves, they need to be 'relocated' so that the space is made 'inviolate' and undisturbed. Conservationists demand it. But what is the situation on the ground?

For the first time, data has been collected on the

number of villages — families and people — that live inside India's tiger reserves. The Task Force places it in the public domain (see: *The relocation agenda*, p 88-98; specifically, see: p 89-91).

The data is not complete — there is no proper assessment of the total number of settlements in tiger reserves. But what does exist proves a) relocation is a logistical nightmare and b) it has a cost that is unaccounted for.

The first is borne out by the fact that in the last 30 years, only 80 villages and 2,904 families have been relocated from different tiger reserves in the country. Readers of this summary could consult the table on p 91 *Costs of relocation*. The Task force has estimated that, roughly, there are 1,500 villages — or 65,000 families, or 325,000 people (@ five per family) — inside the core and buffer zones of tiger reserves. At the current rate of compensation the government gives to families it seeks to relocate (Rs 1 lakh), it would cost Rs 665 crore to relocate all families from tiger reserves. If the rate of compensation is enhanced — say, to Rs 2.5 lakh — it would require Rs 1,663 crore to re-settle all.

There's more. Usually, forest land is used to re-settle families (no agency has the gumption, or political will, to provide revenue land). Today, if a state government were to use forest land and re-settle people, it would have to pay the Centre what is called the NPV, or net present value of the forest it would divert for the purpose of re-settlement. The NPV amount has been fixed at Rs 5.8 to Rs 9 lakh per hectare (depending on the category of forest diverted). Therefore, to re-settle all families from tiger reserves, the government will require Rs 9,645 crore.

This stalemate has to be broken. The Task Force suggests a way ahead. It asks for a scientific assessment of the villages that need to be relocated and it asks for a time-bound programme for this to happen. It asks caution but it also demands speed. The situation today is untenable for the people who live inside. The unwritten policy is that they will be relocated. As a result, no development reaches them, for then they wouldn't want to leave. But relocation does not happen. People become, and remain, trespassers in their own land.

They came back

In Sariska, villagers of Kraska village were offered land by the forest department in a village outside the reserve's core area. They relinquished their land-ownership certificates and shifted to that village, only to face the wrath of its residents. Selling off the new land they had got at low prices, the villagers went back into the core. Now they live in an atmosphere that is war-like: harassed, forcibly

evicted again, they live impoverished and lives.

The Task Force visited Hindala village in Ranthambhore and witnessed the terrible poverty of these people living inside this prestigious national park. They have no water, no schools, no medical facilities. They are harassed if they graze their animals in the land outside their village. “The forest department says it is planning to relocate this village. The villagers told the Task Force that they were prepared to move, but also expressed concern that the villagers who had been relocated from Ranthambhore in the past were facing problems even more severe than theirs” (p 96). A damning indictment of conservation: people preferring to live illegal and wretched lives because official relocation is a promise that does not work.

Other examples

The report looks at other examples of relocation, and finds a pattern exists to the process (see: p 92-94; also see the example of village Pandharpauni/ Navegaon, p 100). Families are usually shifted to the fringe of protected areas. The land they are given is usually of poor quality. Although the land they get is first cleared of all vegetation, it is still categorised as ‘forest land’. The restrictions of the Forest Protection Act, 1980, apply here. So people live a constricted existence. Moreover, they are not allowed to use the resources of the protected forest they live next to.

Relocation was successfully done in the Bhadra tiger reserve in Karnataka. But it cost the state Rs 4.02 lakh per family. Is this then the cost we have to pay?

All this creates a situation where, as people become poorer, they also become desperate (see the example of Bandhavgarh, p 100; see also *Melghat’s conservation conundrum*, p 110, or *Pench: Illegal and threatening*, p 113) and hostile. Since the forest no longer sustains them, they no longer sustain the forest. As for the tiger, it finds itself roaming in a habitat that begins to disappear.

This is not to say

But even with all this learnt, this is not to say there must not exist inviolate spaces for the tiger. The report recommends that “there should be an urgent and realistic review of the number of villages that actually need to be relocated from the reserves. The decision must be based on the fact that the villages that need to be relocated are so made to do so because they are located in the critical habitats — tiger natal areas and conservation priority areas”. Urging “for speed and careful decision-making”, the Task Force “recommends a tight schedule of exactly one year to study settlements and list the ones to be relocated” (p 97).

Being exclusive

A 1989 report estimates three million people live inside the 600-odd protected areas that exist in India today. So, says the report: “If the way ahead is to come to a practical resolution on how to balance, and manage, the livelihood needs of people with the imperatives of conservation, it is important to understand the impact of human resource use on tiger reserve forests: is such use detrimental? What is the threshold beyond which such use begins to so severely degrade tiger habitat that the animal’s existence becomes truly endangered? What if such use is not detrimental?” (see: *The coexistence agenda*, p 99-116; specifically, *An experiment in sustainability*, p 102, with graph *The Soliga know sustainable harvesting*, p 103. These questions also affect the argument of *The fringe agenda*, p 116-131)

Accepting that “this terrain of competing needs is a complicated one”, the report examines why what it calls the “war of conservation” is so widespread in India. Seeking answers, it realises that “in many parts of the country, the rights of local people in forests remain unrecorded” (see, in this respect, the example of Buxa tiger reserve in West Bengal, p 101). Currently, many states are on a spree to prohibit tree- and bamboo felling, cutting grass, collecting minor forest produce within protected areas. The unintended result of this has been heightened tension between people and staff in various protected areas. “In this situation,” the report says, “it is important to examine what the rights are of people living within sanctuaries and national parks. Do they even have rights? What is prohibited? What does the law say on this issue?”

So follows a close examination of the Wildlife (Protection) Act, 1972 (see: p 103-106). Till the 1991 amendment to the Act, a sanctuary could be notified without people’s rights being determined. This was a statutory defect, but the Act was implemented. In notified sanctuaries created 1973-1991, therefore, rights would not have been settled. The 1991 amendment, and then the 2003 amendment, attempted to mitigate this defect. The latter actually provides safeguards: till rights are settled, the state has to make alternative arrangements for fuel, fodder and minor forest produce for people living in areas declared as protected. But these amendments failed to solve problems: settlements did not take place; the enforcement regime was strengthened without safeguards. Says the report:

“There seems to now exist two procedural regimes, and institutions seem to pick one or the other, not tackling the inherited ambiguities caused by the original defect in the law:

- Rights are settled, the sanctuary is notified

and all prohibitions come into force;

- Rights are not settled, but the sanctuary or national park exists; so, all prohibitions come into force but none of the safeguards” (p106).

The law, as interpreted, provides that people living in and around a protected area can collect and remove forest produce for “bona fide needs” but there is no definition of what the phrase means. Moreover, the Act bars rights to property (in this respect see: p 107; see especially *Submission of the Madhya Pradesh government on section 20 of the Wildlife (Protection) Act, 1972, barring accrual of rights* p 108).

In this way, the report clarifies what it means by a “war of conservation”. Now it can ask: is coexistence then possible? How? It recommends “inclusive protection be incorporated into conservation management urgently”, and urges park managers to be innovative. The fact is if people co-habit the tiger’s space then it is imperative that ways are found so that coexistence is harmonious. Anything else is not good for the tiger. Not good for conservation.

Become inclusive

A strategy of inclusive protection should be even more of the essence of future conservation in India because of the internecine conflicts — between people and park managers, or regarding resource use — breaking out on the park fringes (see: *The fringe agenda*, p 117-131). The report details the nature of the interaction between fringe villages and protected areas. Often, they place tremendous pressure on parks (see the example of Bandipur tiger reserve, p 118). Animals, in turn, damage crops (see: p 118), or kill livestock (see the case of Bhadra tiger reserve, p: 119). The table *Compensation paid by tiger reserves from inception till 2002*, in p 120, clearly shows this conflict drains the financial resources of tiger reserves. It also strains the people’s relationship to the forest.

The report then analyses attempts to solve this conflict. It examines the India Ecodevelopment Project — a Rs 288 crore attempt (incidentally this is more than what has been spent on official tiger conservation over 30 years), tested in 7 tiger reserves, to tackle the problem of the negative impact of people upon parks, and vice versa (see: p 120-127). “Where the decision-making was unilateral, at the

behest of the forest department”, says the report, “the attempt quickly failed. Where they were implemented in the right spirit, the schemes (of the project) did pick up the economic baselines of the villages” (see the examples of Nagarhole national park and Buxa tiger reserve, p: 124-125). The key weakness wasn’t in what the project did. It lay in how it did what it did. “The project created parallel institutions in the villages. It did not work with existing delivery mechanisms — the *panchayats* and line departments of programme delivery. Also, a traditionally antagonistic forest department had to rebuild its relationships with villagers. Where senior forest officers took the lead and spent time in the field, things were different.”

It isn’t as if solutions don’t exist. Increase the productivity of forests and pasturelands in the vicinity of a reserve, the report suggests. “If people live in a forest-dependent economy, then it is imperative to evolve policies for forest-development in these areas”. The Task Force also asks the government “to look at how joint forest management and community forestry in fringe forests can be integrated to work both for people as well as wildlife”. It also considers the strategy of monetising the ecosystem services of a forest, and involving local communities to protect forests in lieu of which service they get paid (see: *Ecological services agenda*, p: 141-143).

In the same vein, the report looks at how tourism, that has great potential in providing locals a way to prosperity, is doing exactly the opposite: hotels and resorts operate without any building code of environmental standards. They guzzle groundwater and require waste disposal by the ton. Moreover, they do not contribute to the local economy at all (see: *The tourism agenda*, p 132-140). The report provides successful examples of eco-tourism involving local communities (see: *Innovating in tourism by involving local communities*, p: 138), and recommends government encourage homestead tourism around reserves. Also, it asks that “hotels within a radius of five kilometres from the boundary of a reserve must contribute 30 per cent of their turnover to the reserve”.

The moot point in looking at so many solutions is a simple one. Ease the pressure on people; people respond sustainably. Ease the pressure on the forest; the forest will regenerate. The pressure on the tiger is bound to ease. This paradigm of ‘inclusive conservation’ will safeguard the tiger. Nothing else will. The agenda is within our reach.

01

The assessment

1.1 Conserving the tiger

1.2 The Sariska shock

1.1 Conserving the tiger

Phase one: 1972-1980

In the early 1970s, international concern about the state of the Indian tiger (*Panthera tigris tigris*) reached a fever pitch. In 1969, the IUCN or World Conservation Union held its general assembly in Delhi. Based on an assessment by forester K S Sankhala, the assembly called for a moratorium on tiger killings and asked for urgent action to protect the species. As a sequel to this appeal, the Indian Board for Wildlife initiated action for protection and asked states to ban tiger hunting for five years.

But the international community was not convinced. In 1972 Guy Mountfort, an influential trustee of the Worldwide Fund for Nature (WWF), met (then) prime minister Indira Gandhi, urging her to save the species from extinction. Well known for an abiding concern on environmental and conservation matters, the prime minister set up a group of specialists to study the situation and create a plan for the future. Chaired by Karan Singh, a keen conservationist and currently a Rajya Sabha member, this task force submitted its report in August 1972. So emerged the blueprint for India's tiger conservation programme: Project Tiger, as it came to be known.¹

Initially, Project Tiger was conceived for six years — April 1973 to March 1979. Its objective was “to ensure the maintenance of a viable population of the tiger in India and to preserve, for all times, such areas as part of our national heritage for the benefit, education and enjoyment of future generations”. After due deliberation, the task force decided to begin with eight viable reserves representing different ecosystems where the tiger could be protected in perpetuity. These were:

1. **Manas**, Assam: eastern Himalayan foothills, with semi-evergreen to evergreen forests and heavy rainfall;
2. **Palamau**, Bihar (now in Jharkhand): eastern peninsular region, with *sal* and bamboo forests;
3. **Simlipal**, Orissa: Mahanadi basin, with moist miscellaneous forests;
4. **Corbett**, Uttar Pradesh (now in Uttaranchal): central foothills of the Himalaya, with *sal* as the predominant species;
5. **Ranthambhore**, Rajasthan: Junction of Aravalli and Vindhya, with dry deciduous open forests;
6. **Kanha**, Madhya Pradesh: central peninsular India, with *sal* and miscellaneous forests;
7. **Melghat**, Maharashtra: southern offshoot of Satpura, with deciduous forests dominated by teak and bamboo; and

8. **Bandipur**, Karnataka: miscellaneous forests of the Western Ghats.

The mangrove forest of Sundarban was added when the project was formally launched and these became the first nine tiger reserves in the country. The foreign advisors from the World Conservation Union suggested to the task force that “the best method of protection of the tiger is to have large areas of at least 2,000 square kilometres (sq km), with similar contiguous areas so that a viable population of about 300 tigers in each such area can be maintained”. Interestingly, the advisors also said that the “idea of continuous blocks of 2,000 sq km is to rotate such units by opening one of the units for periodic controlled shooting”.

The task force, however, demonstrated political realism in creating reserves with an average size of 1,500 sq km, and embedding them within already protected reserve forests; the premise was these forests would provide enough space for tigers to roam. The management plan the task force suggested was that each reserve would have a ‘core’ for tigers to breed and live undisturbed in, and a ‘buffer zone’ where limited human activity would be allowed.

In the ‘core’ — a *sanctum sanctorum* of at least 300 sq km — no felling, grazing or movement of humans, except for matters related to reserve management, would be permitted. Said the task force in this respect: “...forms of human disturbance, such as commercial felling, collection of minor forest produce, mining, excessive traffic, heavy grazing by domestic livestock are clearly detrimental and must be phased out for complete elimination.”

Also, the task force was conscious that maintaining a genetically viable population of tigers would require larger areas than the reserves and their contiguous forests provided. The members strongly ruled against any operation to hold tiger populations at artificially high levels by using methods like habitat modification or artificial breeding. They believed, instead, that the reserves would provide a breeding nucleus from which surplus animals could disperse into surrounding habitats.

The 1972 report was remarkable. It presented an exhaustive blueprint: management systems, the administrative framework and legal provisions. It set out measures to counter poaching and to make enforcement more effective. It listed equipment required to manage reserves effectively. In so doing, it inaugurated a clear-sighted beginning for India's tiger conservation programme.

Phase two: 1980-1990

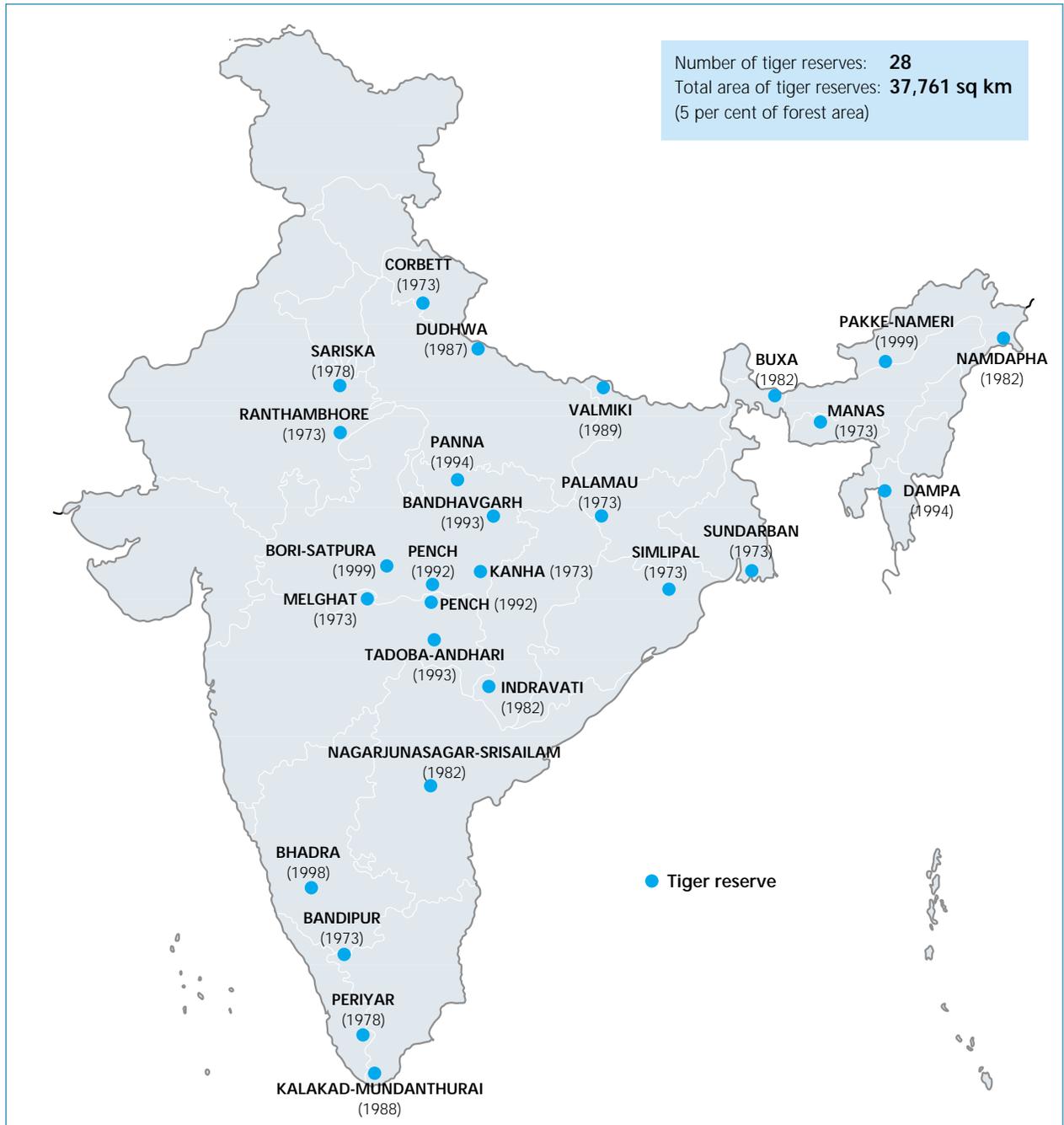
By early 1980s, there were 15 tiger reserves in the country, in an area of 24,712 sq km. Periyar in Kerala and Sariska in Rajasthan were added in 1978, and in 1982, four more — Buxa in West Bengal, Indravati in the then Madhya Pradesh, Namdapha in Arunachal Pradesh and Nagarjunasagar-Srisailem in Andhra Pradesh — became part of the Project Tiger fold.

In the early 1980s, the then prime minister wrote

to all state chief ministers emphasising on the need to follow the detailed guidelines issued by the cabinet secretariat (department of personnel) and the ministry of agriculture.

In 1983, a task force chaired by Madhavrao Scindia, a prominent politician, submitted its report, which if it had been implemented would have secured India's conservation future. Called the Task Force on Public Support for Wildlife Conservation, it

TIGER RESERVES OF INDIA



Source: <http://projecttiger.nic.in> as viewed on June 5, 2005

was set up by the Indian Board for Wildlife (now the National Board for Wildlife) to recommend ways and means of eliciting public support for conservation. The concern was clear: conservation efforts were increasing, but policy makers realised there was a “growing degree of apathy and indeed, antipathy, towards wildlife among different classes and sections of the public”, as the report put it in its introduction.²

This task force focussed on the issue of the dependence of rural people on forests, and what conservation-led policing did to this relationship. It said: “Most communities in the neighbourhood of reserves sustain themselves by eroding marginal land and depleting forest pastures. In their precarious existence, enforcement of restrictions in wildlife reserves triggers antagonism. That discipline is essential to revive essential life support systems that these areas provide is not appreciated for the same reason.” At the same time, the task force also believed cooperation could be possible if the demands of protection were backed by reasonable alternatives.

The report of this task force, conceived as it was by a farsighted politician (the member secretary of this task force, incidentally, was H S Panwar, also a member of the Tiger Task Force), went on to do something unusual in the area of conservation. Instead of blaming people and demanding more protection for reserves — a standard demand — the task force negotiated for better development programmes and funds for villages located in the periphery (fringe) of conservation zones. For this purpose, it recommended the Special Areas for Ecodevelopment programme, with higher per capita inputs on development based upon a conservation bias. It also recommended other measures, including employment benefits from reserves for local people.

Failure to undertake such measures, said the report, would mean the success of management in tiger reserves — the report called them “islands of conservation” — would be short-lived, irrespective of how scientifically it was conceived: “If the land surrounding such effort — sustained islands — continues to deteriorate in productivity affecting the availability of resources for the communities, these islands are bound to succumb one day to the community’s demands.” It also warned these ‘islands’ would be inadequate to meet ecological imperatives, not being able to function as vibrant genetic pools.

The words of this task force were prophetic. Unfortunately, its recommendations were tardily implemented. An ecodevelopment programme, funded later by the World Bank, was initiated in the mid-1990s. But it was not conceptualised as a development initiative, but simply as a programme aimed at putting aside money to wean away villagers

from using the resources of the protected areas. It did not invest enough to meet the challenges which conservation in India faced at that time.

It is important to note here that Madhav Gadgil, another member of the Tiger Task Force, made similar recommendations in a project report on the Nilgiri biosphere reserve (which includes the Bandipur tiger reserve) submitted to the Government of India in 1981. Gadgil’s report suggested these special areas could serve as laboratories of conservation-friendly development, with zones of cooperation around conservation areas and mechanisms for coordination among development programmes and protected area programmes.

Phase three: 1990-2000

The turning point in India’s tiger conservation programme came in the 1990s. Problems erupted and were ‘managed’, not solved. This was also a period, like the early 1970s, when international non-governmental organisations (NGOs) were active in pushing policy in the country.

By now India had 19 tiger reserves, encompassing 29,716 sq km, with a population of 1,327 tigers (1989 tiger census). But as a critical review of Project Tiger, carried out in 1993 by the Union ministry of environment and forests (MOEF), acknowledged: “All in all, Project Tiger faces a new set of problems. Project Tiger saved the tiger from extinction in the nick of time but over 20 years it is clear that expanding human populations, a new way of life based on alien models and the resultant effect on natural resources has created fresh problems that indicate danger for the tiger. Militancy and poaching only add fuel to the fire. This is a serious and critical moment in the history of tiger conservation.”³

In 1994, a Parliamentary Committee on Science, Technology, Environment and Forests recommended an evaluation of the programme to make it more meaningful and result-oriented. The committee felt this was necessary because the “objectives of Project Tiger have not been achieved in as much the tiger population in the country has registered a decline, poaching still continues in menacing proportions and the habitat of the tigers seems to have shrunk in area”.⁴

Following this committee’s recommendations, another high-powered committee headed by J J Dutta, former principal chief conservator of forests in Madhya Pradesh, was constituted. The Dutta committee submitted its report in early 1996. It examined issues of management as well as the interface with local people in reserves. Here was a report that, for the first time, discussed what needed to be done in terms of the legal status of what it called “enclaved villages” — human habitations within national parks. Interestingly, it argued that while the removal of villages from tiger reserves was an ideal

circumstance, it was not a management imperative. In fact, conservation demanded that efforts must go beyond this issue to identify link corridors and management of forests outside the reserves. It also scrutinised issues of personnel as well as administrative and other facilities.⁵

This was also the time when WWF-India released its action plan to save the tiger, enumerated in *The Tiger Call* and *Tiger Conservation Strategy and Action Plan*. The plan focussed on the need to involve local communities as well as measures to improve the anti-poaching enforcement network.^{6,7}

But in the meantime, all hell broke loose: two UK-based organisations, the Tiger Trust and the Environmental Investigation Agency (EIA) released *The Big Cat Cover Up*⁸ and *The State of the Tiger*⁹, reports suggesting everything was wrong with the Indian programme for tiger conservation. They accused Indian conservation institutions of playing into the hands of poachers, and lambasted them for refusing to accept the need for more armed intervention to save the tiger.

The release of these reports was followed by an international media campaign on the imminent

extinction of the tiger; one newspaper opined that “corruption, complacency and the complicity of some communities whose livestock is threatened by the big cat, has produced a second crisis made more complex by money it generates”.¹⁰ The two UK-based institutions demanded radical changes in wildlife protection and management in India — stricter enforcement, increased patrolling and sustained anti-poaching drives. While the Tiger Trust recommended the creation of rapid response teams and combat and hunter patrols, EIA wanted more political will. Significantly, neither had anything going for local communities. Some Indian environmentalists argued “if concerned people are not involved at this crisis point, the same flawed — Western conservation — paradigm would continue to be practised in the country”. This approach, they said, was eco-fascist.¹¹ Such efforts have continued to this day (*see box: Agendas to push*).

In the mid-1990s, those who believed in a different paradigm were in a minority. The larger effort turned to damage control. Many critic-conservationists were taken on board as the tiger conservation programme confidently strode towards its silver anniversary celebrations. The confidence

Agendas to push

On July 12, 2005, on the eve of the prime minister’s US visit, the Union ministry of environment and forests (MOEF) received a draft press statement issued by the US department of state. The press release contained a joint agreement to be signed between president George Bush and prime minister Manmohan Singh. The ministry of external affairs needed the comments of the MOEF before the statement could be released. The statement was simple. It said that the “countries would take aggressive new steps to address the sharp decline in the Indian Bengal tiger population.” The US department of state said it would “give in 2005 approximately US \$4,68,000 (Rs 2 crore) through the private ‘Save the Tiger Fund’ and the ‘Rhinceros and Tiger Conservation Fund’. Joint cooperation would also be established for a long-term monitoring programme.

The MOEF replied there was no need for a bilateral agreement at this stage. It stressed that India needed to evaluate its tiger conservation programme in terms of the challenge of coexistence with local communities. It also had already put into place a tiger estimation programme, which was being evaluated by the Tiger Task Force. It believed it could set its own agenda. It would determine its science for tiger counting.

But a joint advertisement by the US government’s fish and wildlife service and the Save the Tiger Fund, funded by oil giant Exxon Mobil, was published when the prime minister was in Washington.

Saving tigers

Tigers continue to disappear from the wild. Earlier this year an investigation found that the entire population of tigers in India’s Corbett Tiger Reserve was wiped out by poachers. In 2003, almost 50 tigers lived in this reserve. Unfortunately, Corbett is not the only place where tigers are falling prey to poachers.

Poaching to provide tiger parts for medicines and ornamentation has pushed the world’s tiger population to a crisis point where, without decisive action now, the species could disappear from the wild forever.

Over the past 100 years, the population of wild tigers fell from more than 100,000 to fewer than 7,000. Many people had predicted the tiger was doomed and would not survive into the 21st century.

To pull the tiger back from the brink of extinction, the National Fish and Wildlife Foundation, with the support of ExxonMobil, founded the Save the Tiger Fund in 1995.

The Save the Tiger Fund, which now also receives the support of the Critical Ecosystem Partnership Fund, has helped strengthen the conservation community at some of the world’s remaining tiger habitats through concerted efforts in conservation of not just tigers, but also their prey, their habitats and the livelihoods of their human neighbors. Working together, we have made great strides in stabilizing tiger

populations in portions of their range. However, the challenges still loom large.

In September, Save the Tiger Fund will launch the Campaign Against Tiger Trafficking (CATT) as a means to bolster global efforts to stop illegal trade in tiger parts. CATT will work to foster the unprecedented international cooperation necessary to save the world’s remaining tigers from going the way of those that have vanished from the Corbett Tiger Reserve.

This week Prime Minister Manmohan Singh of India will visit the United States and meet with President Bush, highlighting the important relationship between these two nations. These working to save the tiger will find ongoing interactions the governments of India and the United States address the fate of this remarkable animal and consider what they can do to arrest the decline of the tiger. Concrete measures include bilateral exchanges on wildlife law enforcement, training in park protection, joint international law enforcement and agreements to limit the destructive trade in tiger parts.

The leaders of India and the United States have a rare opportunity to conserve the tiger, which serves as a symbol for protecting the environment. They can start by candidly acknowledging the tiger’s plight and then take steps to help save its future.

Decisive action on tigers is needed now




was a veneer: there exists little evidence in reports, deliberations or minutes of the Project Tiger steering committee that much was done to stem the tide against the danger the tiger was in. Core issues, such as those concerning people living inside and on the fringes of the reserves, were given short shift. There was also little institutional reform.

In November 1998, the government and conservationists celebrated the 25th anniversary of Project Tiger. In 1999, the Millennium Tiger Conference was organised, which only repeated the agenda of the last conference.¹² A review of the reports shows that criticism against Project Tiger had — strangely enough — ebbed. Conservationists praised the programme, saying it had stabilised tiger numbers in the last 30 years.¹³ In 2001, the Union ministry of environment and forests published its *Status Report on Project Tiger*, but this provided little analysis of the real situation.¹⁴ A decade had been lost.

Project Tiger today

By 2005, India has 90 national parks and 501 wildlife sanctuaries covering an area of 1,56,934 sq km (roughly 22 per cent of the forest area and 5 per cent of the land area of the country).

Of these, 28 have been declared tiger reserves, spread over 37,761 sq km in 17 states. These reserves constitute roughly 5.6 per cent of the recorded forest area and over 1 per cent of the country’s geographical area. The total tiger population recorded in the 2001-2002 ‘census’ is 3,642, but over half of these tigers live outside tiger reserves (*see table: Tiger population over the years*).

Number of national parks:	90
Total area of national parks:	36,882 sq km (5 per cent of forest area)
Number of sanctuaries:	501
Total area of sanctuaries:	120,052 sq km (17 per cent of forest area)
Total protected area:	156,934 sq km (22 per cent of forest area)

Source: Project Tiger directorate

Project Tiger funds

Since its inception in 1973 till 2002-2003 (a period of 30 years), the Central government has provided Rs 172.65 crore as financial assistance to the parks. If the contribution of states till March 2004 is added, the country has spent Rs 373 crore on protecting 1,500-odd tigers in 28 reserves.

In the 10th Five Year Plan (2002-07), the outlay for the programme has been doubled — from Rs 75 crore (Rs 15 crore annually) in the previous Plan to Rs 150 crore (Rs 30 crore annually). This includes provisions for ecodevelopment and beneficiary-oriented tribal development schemes, meant to relocate tribals from within tiger reserves.

Over time, the funding mechanism for the programme has changed. Till 1979-1980, Project Tiger was completely funded by the Centre. Then in the 6th Five Year Plan (1980-85), Central funding for recurring items was reduced to 50 per cent; now, states had to contribute a matching grant for the same. This arrangement persists till today: states spend 50 per cent on recurring salaries and establishment costs, while Central assistance is used for non-recurring costs related to the maintenance and protection of tiger reserves. The Central government also pays the entire cost of relocation of villagers from tiger reserves, research projects and ecodevelopment projects.

In 1991-1992, the ecodevelopment scheme was introduced to carry out development activities in villages adjoining tiger reserves. In the 9th Five Year Plan (1997-2002), the scheme had an outlay of Rs 54 crore. In the 10th Plan, it was merged with the ongoing umbrella schemes of Project Tiger and the development of national parks and sanctuaries. In other words, within the Rs 30 crore sanctioned for 28 tiger reserves, there exists a meagre Rs 4-5 crore every year for development activities in the thousands of villages surrounding the reserves. In contrast, between 1996 and 2004, under the India Ecodevelopment Project of the World Bank, Rs 200 crore was spent in seven reserves (roughly, Rs 30 crore per reserve).

A particular problem

A particular problem that has dogged Project Tiger, and today bedevils it, is the manner in which the

TIGER POPULATION OVER THE YEARS

	1972	1979	1984	1989	1993	1995	1997	2001-02
In tiger reserves	268	711	1,121	1,327	1,366	1,333	1,498	1,576
Outside reserves	1,559	2,304	2,884	3,007	2,384		2,010	2,066
Total	1,827	3,015	4,005	4,334	3,750		3,508	3,642

Source: Project Tiger directorate

relocation of persons living in and around tiger reserves — in core and buffer areas — has been tackled. The relocation strategy, as it exists today, works as follows: the Central government provides financial assistance for relocation, and the state government is expected to identify land for relocation. If the latter fails to do so, it looks for degraded forest lands where it can resettle families. It then applies to the Centre for prior approval under the Forest Conservation Act, 1980, for diversion of this land for relocation, an activity classified as a non-forestry purpose.

But even after permission is given and the families are resettled, the categorisation of the land is unchanged: it remains forest land. However, most standing trees are cut down before the land is handed over, thus reinforcing the tragic notion that livelihoods of people are incompatible with standing trees. The reason behind this strange *status quo* lies in the Union ministry of environment and forests guidelines according to which, under the minimum conditions that apply when forest land is diverted for non-forestry purposes (such as relocation) under the Forest Conservation Act, 1980, the legal status of the forest

land will remain unchanged. In other words, the amount of forest land ‘officially’ on record will remain the same, even though the actual land may now be drowned under the water of a dam reservoir, or has been used to build a power station. In such cases, social problems are inevitable: because this land remains categorised as forest land, rules apply to it that are highly restrictive and exploitative, and families that move to such lands inevitably suffer.

How relocation actually works

Relocation of villages from reserves is routed through the beneficiary-oriented tribal development scheme (see table: *Funds disbursed and families relocated under the beneficiary-oriented tribal development scheme in the 9th five year plan*). During the 9th Plan, the scheme’s approved outlay was Rs 19 crore, of which, between 1997-1998 to 2001-2002, a total of Rs 14.39 crore was spent to relocate 2,157 families from different protected areas — approximately Rs 67,000 per family. It is important to note that this scheme is not restricted to tiger reserves, and continues in the 10th Plan as a merged component of the ongoing Centrally-sponsored schemes of Project Tiger as well

FUNDS DISBURSED AND FAMILIES RELOCATED UNDER THE BENEFICIARY-ORIENTED TRIBAL DEVELOPMENT SCHEME IN THE 9TH FIVE YEAR PLAN (NOT ONLY TIGER RESERVES)

State	National park/ sanctuary	Funds disbursed since 9th Plan	Families relocated (Rs/lakh)	Remarks
Madhya Pradesh	Kanha	3.80	25	25 tribal families have been voluntarily rehabilitated outside the national park to make it inviolate
	Kuno Palpur	1,042.28	1,400	19 villages were voluntarily rehabilitated outside the sanctuary to make the area inviolate for future programme of relocation of Asiatic lions
	Madhav	50.00	102	One village has been voluntarily relocated outside the national park to make the area inviolate
Karnataka	Bandipur	14.65	100	One village was relocated from Bandipur tiger reserve during 1992-93 but land was not allotted to it. Land has been allotted now and land development works have been undertaken
	Nagarhole	243.50	250	250 tribal families voluntarily rehabilitated outside the national park to make the area inviolate
Maharashtra	Melghat	46.00	92	3 villages voluntarily rehabilitated outside the tiger reserve to make the area disturbance free
Orissa	Chandaka Dampara	40.00	188	188 tribal families voluntarily relocated outside the sanctuary to make the area free of any disturbance
Total		1,440.23	2,157	

Source: Project Tiger directorate

RELOCATION COSTS — WHAT IS SPENT BY THE GOVERNMENT ON EACH HOUSEHOLD

	Cost (in Rs)
Land development (2 hectares)	36,000
Building materials per family	36,000
Transport of household goods per family	1,000
Community facilities computed per family	9,000
Wood lot and fuel reserves per family	8,000
Pasture and fodder plantation per family	8,000
Cash incentives for shifting	1,000
Miscellaneous activities	1,000
Total	1,00,000

Note: 20 per cent variation in each item subject to the total ceiling cost may be approved when demanded, site specific requirements

Source: Project Tiger directorate

development of national parks and sanctuaries. Thus, we find that the main relocation activity over this period involved villages in the proposed lion sanctuary at Kuno Palpur in Madhya Pradesh. The cost of this relocation did not take into account the cost of land — invariably forest land — used for resettlement.

In the 10th Plan, within the umbrella scheme there is a provision of Rs 10-15 crore towards relocation — roughly Rs 2 crore a year. The government has a budget to provide up to Rs 1,00,000 to every family for its relocation needs (see table: *Relocation costs — what is spent by the government on each household*). With an annual provision of Rs 2 crore, no more than 200 families can be relocated in a year.

Project Tiger: a review

The question is: is Sariska representative of what might be happening in other tiger reserves?

The Task Force has carefully scrutinised the working of the programme, assessing as well the threats it faces and the effectiveness of protection efforts. For its review, it visited a few key reserves; it met all field directors and chief wildlife wardens of tiger habitat states; it consulted a wide range of wildlife specialists and reviewed documents available with the directorate and other agencies. Its assessment based on the above is clear: Sariska is not representative of what is happening in every tiger reserve. But at the same time, a lot more needs to be done to strengthen internal systems of management to ensure that a Sariska-type situation does not recur.

Internal management and supervision

The success of any project and its implementation lies in the internal systems that provide for effective and efficient operations. It is clear that the original architects of Project Tiger had conceived a detailed framework for its management and functioning. As early as 1973, guidelines were issued to states providing operational directions for a comprehensive system of reporting, monitoring and review. The key elements of this system were:¹⁵

- i. All tiger reserves were required to prepare management plans covering a period of six years, to be implemented through annual plans. A format for annual plans was prepared and sent to all states and it was agreed states would implement plans after these were finalised in consultation with the Central government.
- ii. Annual funds would be released only after the Centre received an annual report on work done by state governments. This report was to be received by the third quarter of every financial year.
- iii. State governments had to “carefully select the personnel”. The field director and other gazetted officers (deputy director) were to be appointed only with the Centre’s approval, with a minimum tenure of three years. The pre-term transfer of key officials could only be done after the Centre’s approval. The Central government was also required to facilitate capacity building and training of staff the states recruited.
- iv. The states were given prescribed formats for monthly and half-yearly reports to monitor progress. The second half-yearly report was required to be “comprehensive and analytical so that the Government of India can judge whether the project is proceeding in the right direction”. It was emphasised that reports should be submitted regularly and the release of funds was made conditional to the submission of the annual report.
- v. All reports received from states, from members of the steering committee and from officials were to be carefully scrutinised by the Central government to assess the performance of individual state governments. It was made clear that “on the basis of such assessment the Government of India may, if necessary, divert funds and equipment from one state to another”.

The project’s conceptualisers were deeply conscious of the fact that success would “ultimately depend upon the help and cooperation of state governments and upon the interest they take in it”. This was the core of the management challenge.

At its nascent stage, there was a high degree of political commitment to the project. In early 1981, after the 14th meeting of the Indian Board for Wildlife

The guidelines of 1974: relevant today

“In her DO letter No 694-PM/73 dated December 27, 1973 addressed to the chief ministers of all states and Union territories on the foregoing subject, the prime minister had, among other things, emphasised the need for specialised management of our national park and sanctuaries, optimum utilisation of wildlife staff with experience and expertise and recruitment of additional staff to effectively enforce the provisions of the Wildlife (Protection) Act, 1972. The following important organisational arrangements were accordingly approved by the prime minister and circulated to the chief secretaries of all states and Union territories for implementation, under this ministry’s letter No _J 11013/5/74-FRY/WLF dated December 23, 1974:

- a) At the state level, a beginning was required to be made without delay to established a separate wildlife wing under the overall charge of the chief conservator of forests. This wing was required to be headed by an officer of the rank of conservator of forests in other states. Officers

- who were already trained in wildlife management work were required to be identified and posted immediately to this wing.
- b) Such identified officers posted in the wildlife wing at various levels were not expected to be transferred to the forestry wing unless equally trained officers were available to replace them. When an officer became ripe for promotion in the forestry wing and a suitable officer was not available to replace him, the post held by him in the wildlife wing was required, as far as possible, to be upgraded so that his services, expertise and experience continued to be available to the wildlife wing.
- c) In order to maintain performance standards, all persons directly or indirectly concerned with wildlife management were required to be regularly assessed in their annual reports for their performance in wildlife conservation work.”

This is an extract of a letter by N D Jayal, joint secretary (F&WL), ministry of agriculture and irrigation, dated September 16, 1976 to all state forest secretaries.

(now the National Board for Wildlife), it was found that despite specific instructions and guidelines issued by the Central government, a number of states had not acted; only 13 had set up wildlife wings. All states were, therefore, directed to ensure that separate wildlife wings be set up immediately and that “suitable personnel with aptitude for wildlife work are actually manning those wings”. Detailed guidelines were issued for the formation of the wildlife wings; these remain extremely relevant till date (*see box: The guidelines of 1974: relevant today*).

Then unfortunately, beginning late 1980s, the internal management of the project began to decline steadily. Guidelines issued by the Central government under the specific instructions of the then prime minister Indira Gandhi were conveniently forgotten and, as a result, went into disuse. In fact, the Tiger Task Force would like to put on record the extreme frustration it encountered to locate these crucial guidelines.

By the late 1990s, the only project guidelines that remained in operation, and that states had to follow, involved the submission of the following:

1. Monthly summary of important events/happenings in the tiger reserve — a narrative report;
2. Monthly report on deaths of all wildlife in the tiger reserve;

3. Reports on poaching incidences and unnatural deaths of tigers and leopards (as and when required);
4. An annual report from the tiger reserve (the 1973 format now discontinued); and
5. Annual utilisation certificate and expenditure statement.

The guidelines for the all India tiger census were issued periodically; these continued to stress on the use of the pugmark method. In the late 1990s, a brief note was sent to states outlining the limitations of pugmarks. But nothing much was done at this stage to review and revamp the science of tiger estimation.

What also deteriorated in the 1990s was coordination and internal supervision, critical for any effective programme. It must be noted that such decline began to occur in a period when the role and autonomy of state governments grew. The effective outcome was that, as reserve managements became less accountable to the Centre, monitoring in tiger reserves went from bad to worse. The Project Tiger directorate, weak as it was in this period, became by all accounts an institution that merely disbursed funds and had little control over implementation. Many states stopped submitting monitoring reports; some did not find it necessary to get Central government approval in appointing key officials. The minutes of Project Tiger steering committee meetings

for this period reveal this breakdown.

Lately, there has been an attempt to revamp the internal management systems. As the Project Tiger directorate explained to the Tiger Task Force, the following measures have been taken over the past three years:

1. The formats for monthly, half-yearly and annual reports have been reissued and revived;
2. Directives have been issued to states for regular reports on:
 - a. mortality survey;
 - b. protection initiatives/patrolling and anti-poaching;
 - c. physical assault on staff; and
 - d. disease surveillance and livestock immunisation.
3. States have been directed to conduct independent monitoring and evaluation of tiger reserves;
4. Guidelines have been issued for the management of buffer areas, which have emphasised that communities living in these areas should be involved in the management of the reserves with reciprocal commitments;
5. Guidelines have been sent to states for the regulation of tourist visitation in tiger reserves as well as to calculate the carrying capacity of reserves;
6. Preparation of habitat occupancy maps of tigers, in and outside reserves, has been initiated;
7. In 2002, the directorate also reviewed the census methodology being followed in the country and began a project to revamp the estimation procedure;
8. A project was undertaken to assess the status of the tiger and its habitat, involving the Forest Survey of India and the Wildlife Institute of India;
9. In 2003-2004, the directorate identified experts and commissioned an independent audit of reserves, based on identified criteria and indicators. This report is being finalised;
10. The Forest Survey of India was commissioned to undertake a comparative assessment of the forest cover in and around tiger reserves. Its report has assessed the change in status between 1997 and 2002. The last time such a study was commissioned was in the early 1990s and, therefore, this assessment is important to track changes as may have happened;
11. As a pilot initiative, five tiger reserves have been networked electronically to develop a prototype for a dynamic management information system. The directorate now plans to work on this model to build a country-wide system for reporting.
12. Investments made in tiger reserves since project

inception have been compiled on a customised software and the data is being used for analysis. This data was collected from each tiger reserve and presents, for the first time, an assessment of what has been spent in which activity by reserve managements;

13. The tiger poaching data for the entire country has been compiled and collated;
14. The Botanical Survey of India and the Zoological Survey of India have been commissioned to undertake flora and fauna surveys;
15. In 2005, states were directed to send to the Project Tiger directorate monthly evidences — of sightings, pugmarks and scats.

But in spite of these improvements made to streamline project functioning, the catastrophe in Sariska happened. The fact is that the core problem of Centre-state relations, which impinges on the project, remains unresolved. It is, therefore, imperative to work out models of management that can work in this age.

Threats: the war within

In the late 1980s, the Indian Institute of Public Administration conducted a questionnaire-based survey in the protected area network of India. It discovered that 60-70 per cent of the managers who responded to its survey had filed cases against people for illegal grazing or hunting, setting reserves on fire and other similar offences. The managers also reported physical confrontation with local communities.¹⁶

By then it was clear that conflict — between protectors of the parks and people who lived in and around them — was growing, fast becoming the key threat to conservation. It was because of this perceived threat that the government initiated the ecodevelopment programme in the early 1990s, to provide alternative livelihood options and sources of firewood to people in the vicinity of wildlife reserves. This programme peaked in the late 1990s when World Bank assistance was made available as well. But on the whole, its success has been limited — partly because the investment in the programme was too little, too late as compared to the extent of the problem. In the meantime, the following continued to happen:

- Authorities continued to operate on the premise that local people are the ‘enemy number one’ of conservation efforts: a war, therefore, had to be fought against them. At best, they were to be placated by insignificant hand-outs, but inducting them as partners in the conservation effort was completely out of the question.
- People — an estimated four million — continued to live within protected areas and many more, on

their fringes. The rights of these people in the 'enclaved' villages were never settled, relocation occurred sporadically and they lived an illegal existence — trespassers in their own lands. Conservation imperatives ensured their rights to graze animals and to collect firewood and minor forest produce stood exterminated.

- Park authorities, in turn, invested in protection and enforcement. All this meant increased clashes between people and park protectors.
- Simultaneously, the poverty of the areas outside the parks exacerbated. The parks, in many cases, became isolated islands of protection and resources. The forests outside the reserves were decimated. These areas, under the territorial wing of the forest department, had little resources and received no planning impetus. The grazing pressure became acute, with limited fodder in overgrazed village and forest lands. Also, a lack of investment in irrigation facilities, ranging from small tanks to watersheds, meant agricultural productivity suffered. All this has contributed to the general poverty and destitution of villagers living around parks.
- At the same time, many tiger reserves were infiltrated by insurgents and naxalites; many such reserves are now completely beyond the reach of forest and protected area managements. The rise in insurgency in these areas is widely attributed to the growing alienation and marginalisation of communities living in abject poverty in the country's richest lands. During the National Development Council meeting in 2005, the chief minister of Karnataka — who called for a change in the forest laws — said that the emerging naxalite problem in the Kudremukh national park was directly related to the compulsion to shift age-old tribal enclaves out of the forest.

As a result of these factors, conflict has grown and can be assessed as the biggest threat facing India's tigers and other wild species, indeed the future of India's conservation programme today. A compilation of media reports on tiger reserves exposes this vulnerability clearly (*see box: Human-animal conflict makes news*).

An assessment of threats faced by different tiger reserves, made for the World Bank's ecodevelopment programme, says that in most reserves, the main pressure is from conflicts with local communities as well as armed insurgency. In Palamau tiger reserve, for instance, "one of the biggest threats is the presence of extremists and varied armed gangs who virtually rule the roost and make it extremely difficult for the forest

department to operate".¹⁷ People's alienation fuels the growing threat of extremism and naxalism in these areas.

It is clear that this internal threat must be combated. It is also clear that unless we find ways of managing the competing needs of conservation and people, India's conservation programme will not work.

Project Tiger: an assessment

It is now over 30 years since Project Tiger was launched. It is, therefore, an opportune time to evaluate its strengths and weaknesses so that policy can be designed to protect the magnificent tiger. The assessment of the Tiger Task Force in this regard is as follows:

1. The programme, when initiated, had the highest political commitment. It was carefully crafted so that reserves for the tiger could be created and protected. Its architects also put into place a management system to organise the work that states had to do, including setting up specialised wildlife wings, and ensuring protection. But the problem was that the commitment to the project was never made inclusive.
2. Over time, interest waned at the Centre and the institutions for management lost direction. Their control over activities in states declined with the loss in their own capacities. Management systems and scientific tools did not keep pace with the challenges to protect a species in increasingly complex situations.
3. While state forest departments with limited resources did as much as they could, political leaderships in states were not as committed or involved in the programme. In political circles, over time, interest gave way to anger against the differential treatment meted to tigers vis-a-vis what were perceived to be more important developmental objectives such as mining and hydroelectric projects. The contribution of state governments was rarely acknowledged.
4. At the same time, local people, who lived in the territory of the tiger, were left out of the benefits of the programme. They were made illegal settlers in their own land and denied even their basic needs. These ignored people increasingly turned against the tiger. Their contribution in sharing the ecological space of the tiger was never recognised. They continued to lose their livestock, crops and lives to wild animals, but were rarely properly compensated.
5. There was no real interest group supporting the tiger. On the contrary, interests that were against the tiger — from illegal mining and building

Human-animal conflict makes news

- In the Nagarjunasagar-Srisailem reserve in Andhra Pradesh, 20 cases of tiger poisoning were reported, as naxalites incited people to kill tigers.
- In the Namdapha tiger reserve in Arunachal Pradesh, Lisu tribals in 1998 attacked forest camps and injured foresters.
- In Pakke sanctuary, Assam, 18 wild elephants were reportedly poisoned to death in 2001; in 2002, four more were killed. The administration had to ban the sale of pesticides in the district in a bid to stop the killings.
- In Manas, Assam, forest staff till recently were regularly attacked by militants.
- In the Indravati reserve in Chhattisgarh, no forest guard has reportedly entered the reserve since 2002 because of naxalite control.
- In Palamau tiger reserve, Jharkhand, on one hand there is tension with villagers who are known to kill elephants and on the other, with naxalites who rule the area.
- In Bandipur and its neighbourhood in Karnataka, the dreaded sandalwood smuggler and poacher Veerappan operated with impunity for over a decade, killing large numbers of tuskers, felling fully grown sandalwood trees and murdering government officials. It was widely recognised that he could do this because of the strained relations between officials and the villagers.
- In Bandipur, again, severe drought in 2003 forced farmers to drive their cattle into the forests of the reserve. In 2004, there were reports of electric fences and poison being used by farmers living near the forests to kill elephants.
- In the well protected Kanha tiger reserve in Madhya Pradesh, in January 2005, there were reports of 10 wild dogs and one tiger being found poisoned by neighbouring villagers.
- In Pench, Maharashtra, three tigers were killed in 2004 by villagers in retaliation for cattle deaths.
- In Melghat, Maharashtra, extensive fires allegedly lit by tribals were reported earlier this year.
- In Simlipal, Orissa, it was reported in 2004 that tribals had encroached on forest lands and were clearing them.
- In Ranthambhore, Rajasthan, tensions over grazing continue to run high regularly. In July 2000, police fired 17 rounds to disperse agitating villagers. In August 2002, villagers assaulted police personnel, who retaliated by opening fire and injuring one person. The villagers then invaded the park and laid siege to it with their animals. The siege was lifted after month-long negotiations.
- In the Dudhwa tiger reserve in Uttar Pradesh, tiger poisoning cases have been reported frequently till recently.
- In Buxa, West Bengal, a public hearing organised by the National Forum of Forest People and Forest Workers, alleged that a villager had been murdered by a forest ranger and the matter hushed up. The body was exhumed in April 2005 on the orders of a court. The case has led to unrest in the area.
- In Valmiki reserve in Bihar, five companies of the Home Guards camped inside the forest in April 2005 to hunt down extremists from across the border, even as tensions with local communities living within the park continued.

dams in tiger habitats to poaching and crime — gained ground.

6. Over this period, tiger conservation has become more and more 'exclusive'. As threats to the tiger multiplied, the response of tiger lovers has been to band together into a select group that would control policy and programme formulation. Their attempt has been to centralise decisions, so that they can get the power and its instruments to protect the tiger. Everybody else, they increasingly believe, is against tigers.
7. Over time, the interests of this small group of conservationists has also got embroiled in the tiger. The benefits they make from tourism, filming and conservation is not shared with the people or the parks. The problem is that this leads to even greater alienation of all against the tiger, which they believe is being protected for the sake of a few, against the interests of all.
8. Simultaneously, all that should have been done for the development of forests and rural areas — increased productivity of grazing land, irrigation facilities, employment — has remained undone. The line-departments in charge of development, from rural development to tribal affairs, have also proved inadequate. People remain dependent on forest resources and desperately poor. They have no option but to 'use' the protected reserves. These are the remaining bastions of livelihood resources.
9. The end result: the belief that the tiger can only be protected by building stronger and higher fences

against 'depredators'. In many cases, the protectors (forest guards and officers) have put their lives at stake to save the tiger. In many cases, their efforts have paid off. But as more, powerful, interests converge against the tiger, the purpose of conservation is getting lost, bit by bit. It is, therefore, essential to seek out new directions in the future so that the tiger can be protected.

In summary, it is the assessment of this Task Force that every tiger reserve in the country is not facing a Sariska-type crisis. But the Task Force also believes that the protection of tigers is happening in India against all odds. What we need to understand is that

a Sariska-type crisis haunts every protected area in India — where islands of conservation are under attack from poachers, miners and every other exploitative activity. They are also under siege from their own inhabitants, the people, who live in these reserves and outside the islands of conservation, and who have not benefited from these protected areas but continue to lose livelihood options and face daily harassment. In these circumstances, if the defences are down, protection will fail. Like it did in Sariska. The challenge is to ensure that the siege can be lifted so that the tigers can survive.

With this report, the Tiger Task Force hopes it can provide some answers to this immense challenge.

1.2 The Sariska shock

In December 2004, the nation was shocked to know that tigers may have disappeared from the Sariska tiger reserve in Rajasthan. What had happened there?

By March 2005, the Wildlife Institute of India (WII) confirmed in its interim report (which it followed up with detailed habitat monitoring) that there were indeed no tigers left in Sariska. The prime minister asked the Central Bureau of Investigation (CBI) to inquire into the disappearance: it reported that since July 2002, poachers had been killing tigers in the reserve and that the last six tigers were killed in the summer-monsoon of 2004. The CBI report pointed to the involvement of local villagers. It also suggested the existence of a well-established network of middlemen trading in tiger parts, with the notorious Sansar Chand at its centre.¹

But questions still remained: why did the system fail to recognise the signs of the rot in Sariska till it was too late? What could the country's remaining tiger reserves learn from this episode?

Sariska: a review

The Sariska tiger reserve is spread over about 881 sq km, and has three core areas and a buffer zone. The approximately 400-sq km 'Core-1' is the key tiger habitat and a proposed national park. But it is also home to 11 villages, earmarked for relocation since long. Core-1 also includes pilgrimage sites and is the tourist zone.

During 1995-2003, all census conducted in the park estimated its tiger population at 24-25; this was officially reduced to 16-18 by the 2004 census. In fact, the number of tigers in the park has always been a matter of dispute. In the late 1980s, the then park director had officially recorded that the tiger population was not as previously estimated — 40-odd — but only 18-22. This had led to a furore; since then for over a decade, the park management had chosen to stick steadfastly to an estimated 24-25 tigers.

The Task Force was told informally during its visit to Sariska that even the 2004 census had reportedly counted only 12-14 tigers, but the number was modified to 16-18 to avoid controversy. What is now known is that in May 2004, the then field director had written to Rajasthan's chief wildlife warden that his census team had concluded there were between 16 to 18 tigers; keeping in mind the earlier estimate, this could have led to a controversy. He, therefore, requested permission to conduct another census. This letter was not endorsed to

Project Tiger directorate in Delhi. However, no such census was ever conducted. But in August 2004, the chief wildlife warden wrote to Project Tiger saying that recurring bad weather had damaged most of the impression pads of the pugmarks. He made no mention of the problems of falling numbers or the alarm it had created.

But it is now evident that even this 2004 figure may be a gross over-estimation. The Wildlife Institute of India, investigating the tiger's disappearance in Sariska, verified the census by checking the plaster casts of pugmarks: it found errors in the estimate. According to an analysis the Institute did in March 2005, the data park authorities collected about the number of tiger sightings reported by tourists and forest staff from 1997 to mid-2004 shows a decline 1999 onwards, but park authorities continued to report there were 24-27 tigers (*see graph: Tiger population and sightings in Sariska from January 1997 to July 2004*).²

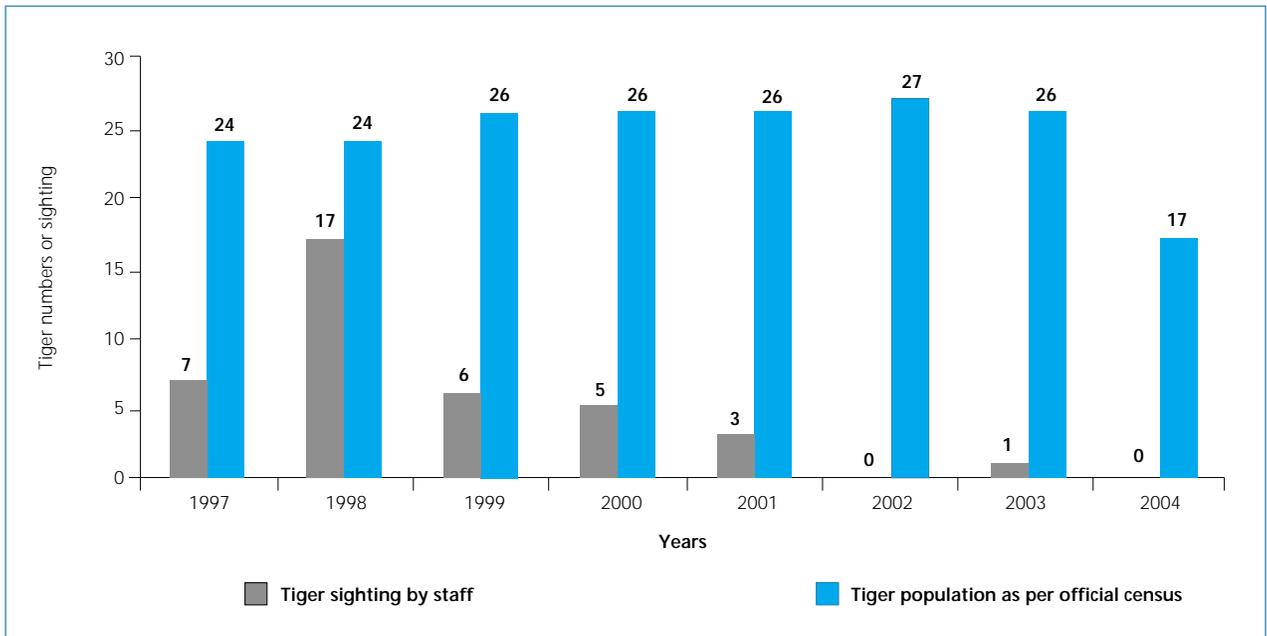
The analysis also says the core of the park, which the Wildlife Institute of India has taken to be 274 sq km, can support only 15 tigers based on the tiger-prey density. The population also has a highly skewed sex ratio, bad news for breeding: the Institute's data shows no cubs were born in the park since 2002, and interrogation of arrested poachers has confirmed only two out of the 10 poached tigers were females.

In other words, there has been a steady decline in tiger numbers in Sariska over the years, which the census was unable to detect; remedial action, therefore, could not be taken. Sariska illustrates the critical need for an efficient methodology to estimate tiger populations.

The reserve has a staff strength of 305 (with four vacancies). There has been no new recruitment since 1987. The average age of the staff is between 45-50 years, which makes on-foot deployment difficult. But the reserve has a good network of roads for patrolling; it has 14 vehicles, wireless facilities and anti-poaching camps located in its remotest corners.³

The reserve has a state highway — the Alwar-Thanghazi-Jaipur highway — passing through its core. An alternative road constructed to bypass the reserve remains unused. The traffic into the reserve, especially pilgrims visiting a temple inside the park, has risen sharply over time. In 2003, 140,000 pilgrims and 15,000 vehicles visited the temple, increasing to 2,00,000 pilgrims and 23,000 vehicles in 2004-2005. During the annual festival in 2004-2005, as many as 30,000 pilgrims and 5,000 vehicles

TIGER POPULATION AND SIGHTINGS IN SARISKA FROM JANUARY 1997 TO JULY 2004



Source: WII 2005, Assessment of status of tiger in Sariska tiger reserve, Rajasthan, Wildlife Institute of India, Dehradun

entered the reserve on a single day. The number of tourists visiting the park has remained between 45,000-60,000 per year (with a decline in 2003-2004 to 40,000). The earnings from entry fees collected by the park authorities and deposited with the state government have been between Rs 28-53 lakh per year.⁴

Human habitation

Conservationists believe human habitations within the core area of the park are leading to degradation and disturbance of tiger habitat. Ghazala Shahabuddin of the New Delhi-based Council for Social Development, who has conducted an extensive field study in Sariska, says that about 40 per cent of 'Core-I' is severely degraded, to the point of being incapable of supporting any prey.⁵

According to park authorities, besides the 11 villages in the core, there are 12 villages inside the sanctuary and five more within the reserve — 28 in all within Sariska's 881 sq km area. In addition, there are nearly 200 villages in the vicinity of the park, whose residents use the forest for firewood and for grazing their animals. Sariska officials do not have any reliable estimate of the number of livestock in the villages, or the number of livestock that enter the park from outside.

It is important to note here that Sariska's officials, and the state forest department, are largely responsible for the problems they encounter in dealing with people in and around the reserve:

Firstly, till date, they have not completed what

is a pre-requisite for declaring an area a sanctuary or national park — the recording and settlement of the rights of people who live there. In Sariska this process, begun in 1983, remains incomplete.

Secondly, the 11 villages in the core area are denied any form of development — roads, schools and even wells. Some years ago, park authorities even prohibited residents from practising agriculture. The move, paradoxically, forced people to keep more goats, thus damaging the ecosystem further.

Thirdly, the rehabilitation of one village undertaken by the department in the 1970s was handled so ineffectively that many residents returned to their original village in the sanctuary. This has led to a crisis of confidence: villagers remember this episode with bitterness. Moreover, villagers of hamlets such as Sirawas and Bandipul have been relocated to spaces that lack basic facilities.

Fourthly, the department has been 'working' on relocation plans without involving local people at all, thus adding to mistrust. Shahabuddin, who has completed a detailed household survey of the 11 villages in Core-I, finds authorities have dealt with relocation in an extremely slipshod and negligent manner, without taking the local people into confidence. In the late 1980s, under a relocation plan, people were shown land situated near a water body. But then it was noted that this land was, in fact, sanctuary land. So the plan was shelved and relations between people and the Sariska

management soured irreversibly.

Researchers working in the park say that as a result of all this, there is a deep hatred for the tiger among local people, and mainly among the pastoralist gujjars. The gujjars blame the sanctuary for everything — their lack of livelihood, inadequate development infrastructure in their villages and, most of all, the persistent harassment. This is extremely unfortunate, as these people are forest-based buffalo-rearers who have traditionally coexisted with animals.

In her recommendations to the Tiger Task Force, Shahabuddin presents the following action points:

- a. Complete the recording and settlement of rights of villages inside the sanctuary, particularly in 'Core-1';
- b. Relocate the few villages necessary for conservation, but with the involvement of and in consultation with villagers and NGOs working in the area;
- c. Provide identity cards to all villagers living within the core zone to prevent unauthorised entry;
- d. Invest in ecodevelopment programmes to reduce the pressure on habitats and firewood plantations and ensure payment of compensation for injury and livestock losses to people urgently;
- e. Share the benefits of tourism with villagers in the park periphery, in exchange for agreements to give up goat breeding and limiting buffalo numbers; and
- f. Use the entry fees to the reserve to compensate villagers for loss of cattle to carnivores and to provide subsidised fodder for their cattle.

Mining interests

Mining began in the area in the 1960s; by 1991, there were over 400 units located mainly within and around the southern boundary of the reserve. In May 1991, Tarun Bharat Sangh (TBS), a well-known NGO, filed a public interest litigation (PIL) in the Supreme Court against this mining, which was steadily destroying tiger habitat. The Court ruled against the mines and directed the state government to stop issuing licenses. The Justice M L Jain committee was set up to prepare a list of the mines within the protected area, and in November 1991 the Court reiterated its earlier order of closure.

But tensions continued. Rajendra Singh of TBS was attacked by miners during his visit to the site with experts. This led to another PIL, as a result of which a miner was fined and briefly imprisoned. In 1992, the Union ministry of environment and forests, responding to the Court directive, issued a notification restricting certain environmentally damaging activities in specified areas of the Aravalli

range. The area of the tiger reserve was included in the restricted zone. Matters came to a head in 1993 when a senior Supreme Court advocate was attacked by miners. The Court responded with a definitive ruling on April 8, 1993, against mining in and around the reserve.

In all this, a few things still remain unknown: did the closure of the mines fuel the anger of local people, now further denied employment opportunities? What role did the powerful mining community play in poaching of tigers?

Sariska: an assessment

The assessment of the Tiger Task Force — based on its field trip to the reserve in July 2005, a detailed review of reports and discussions with concerned officials, researchers and villagers — is as follows:

1. It is clear that there was a management breakdown in the tiger reserve. During the 1990s, the field director in charge of the reserve had been in office from July 1996. But in September 2003, the state government upgraded the post of the field director from deputy conservator to conservator and appointed an official as field director. The field director in position found that he was suddenly downgraded and termed "officer-in-waiting" — a position he held till February 2004. The new field director continued in this position till September 2004. All this was done without any clarity of the roles of the different officials and contributed further to management collapse. The deputy director, who took charge in March 2004, left in June 2004 and his successor was appointed only in September 2004. During the 2004 monsoon period, the assistant field director was in charge of the reserve. Even the field director was on home leave.

This confusion and lack of managerial control was combined with a collapse of internal systems, including that of recording of animal sightings and patrolling. There was no supervision of forest guards to do protection work. Internal roads necessary for surveillance were not repaired; even the worn-out tyres on the anti-poaching jeep had not been replaced. The Project Tiger directorate is on record to the state government regarding these lapses. The Tiger Task Force, too, noted with distress that even today, in spite of the tragedy in the park, Sariska's officials were not maintaining records as required under Project Tiger guidelines.

2. It is also clear that the tragedy *per se* is not only about the lack of resources or staff. In fact, an assessment of financial resources and personnel reveals that Sariska ranks above the national average so far as availability of funds, staff and equipment is

COMPARISON OF MONEY SPENT AREA-WISE IN SARISKA TO THE COUNTRY'S AVERAGE

	Sariska	Average of all reserves
Annual average area-wise fund allocation in tiger reserves from inception (Rs lakh per sq km)	2.58	1.01

Source: Compiled from Project Tiger directorate data

concerned. Therefore, it cannot be argued that more funds are required to solve the problems of this reserve. Rs 22 crore has been spent on the reserve since its creation in 1978. Assuming there were 22 tigers in the reserve (now known to be a gross overestimation), the reserve has spent Rs 1 crore per tiger over this period. On an average, the country spent Rs 23.70 lakh per tiger in this 30-year period (2001-02 census estimates). Compared to that, Sariska has spent four times more — but even this has turned out to be completely inadequate in protecting the tigers! Also, the funds available to Sariska compared to its area are more than double the average for all reserves in the country (see table: *Comparison of money spent area-wise in Sariska to the country's average*).

3. The evidence also points to the role of 'commercial' poaching in the area. Investigations by park authorities reveal that the first case, involving big players like Sansar Chand, occurred in 2001 when two leopards were killed. Unfortunately, because of the collapse of the park's management the case was not investigated fully. The entry of Chand changed the economics of poaching in Sariska: poachers used to insignificant returns now had access to large amounts of money, paid up front. Interrogation of poachers has revealed that since 2002, when three tigers were killed, poaching has increased. In 2003, another three were poached and the last four fell in 2004.

4. Increase in poaching has combined with extremely faulty and negligent conduct of tiger census in the reserve. To add to the chaos, the daily camp register (which records the sightings of animals by staff and which helps verify the census) has not been maintained properly. As a result, the early warning system in the reserve failed. Till 2004, the park's managers believed there were above 20 tigers, which they reduced to 16-18 in 2004. But what is now emerging is that there may have been even fewer tigers — six-10 — left in the reserve. These eventually fell prey to poachers.

5. The breakdown in the park's defences has been aided by the extreme hostility existing among local

people against the park and its tigers. In these circumstances, it is not difficult to understand why the tigers went missing: they were there for the poachers to take. In its investigations, the Central Bureau of Investigation found that many villagers assisted poachers in killing the tigers and skinning and removing the carcasses.

Reports by local NGOs say villagers saw metal traps, used by poachers, on the main tiger trails. There were instances when guards confronted poachers in the park, but were helpless as they were threatened at gunpoint. Even with working wireless sets, they could do little. Moreover, their relations with local people were so strained that they could not get any help from the villages.⁶

Many researchers have recorded the special relationship traditionally existing in Sariska between the gujjars, the tiger and nature. But official interference and constant intimidation has led to such a breakdown that, today, it is widely suspected villagers hired the services of traditional hunting communities to 'protect' themselves and their livestock from the tiger. It is important to note here that the government has no provision for awarding compensation for livestock killed by animals inside a protected area.

Over the years, the park management has done little to resolve these issues. The futile relocation exercise has generated more distrust. The villagers live in extreme poverty and deal daily with the harassment. They do not have an option. They are forest-dependent householders, who have to use the resources of the reserve — the fodder and the grazing lands — for their survival.

When the Tiger Task Force visited Kankwari village, located inside the core area and considered an important tiger breeding ground, it found villagers existing on the edge of survival. They lack basic resources such as education and medical facilities. They earn their living through livestock breeding, but face immense hardships in their daily interactions with the forest department. They are not allowed to carry fodder and other basic material into their village. They live as illegal settlers in their own land. The village is not a revenue village. It is a settlement within the forest, and its rights have never been determined. Therefore, the forest department has never bothered to recognise even the grazing lands the village is entitled to. It is important to note here that according to the information given to the task force during its visit to Sariska by park officials, much of the land under the Sariska tiger reserve has not been recorded as forest in revenue records.⁷

The villagers assured the Task Force they were prepared to relocate, provided they received adequate facilities in the new area. But they distrust relocation immensely, because of their past

experience. They also complained that authorities had backed off after once showing them land for relocation. This heightened the distrust.

5a. It is clear to the Task Force that there is a complete breakdown in relations between the park authorities and the settlements within Sariska. It is also clear that over the years, much more could have been done to relocate people or repair this relationship.

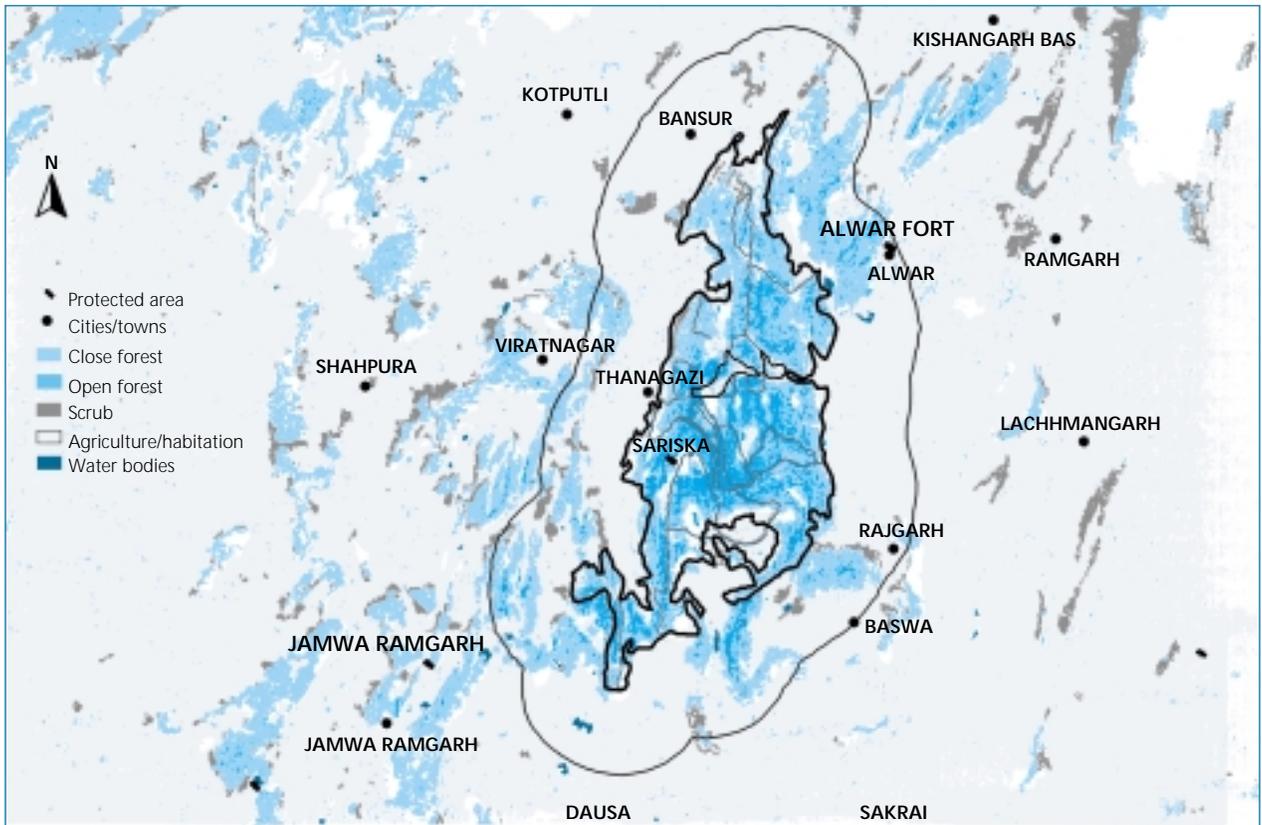
5b. The Task Force also finds it strange that the park administration has no real idea or estimate of the extent of damage done by settlements within the park. In fact, there is considerable confusion about the number of livestock and even the number of households in villages. It is clear that again, much more will have to be done to sort out these issues to advance future plans for relocation.

In this context, it is important to assess the impact of human populations so that policy can be designed. For instance, according to an assessment of tiger reserves in the report prepared by the Forest Survey of India for Project Tiger, the forest cover comprises 674 sq km — 77 per cent — of the 881 sq km area that comprises Sariska. Dense and

moderately dense forests cover 44 per cent of the forested area, the rest being open and scrubland. Significantly, the Forest Survey assessment notes that there has been little or no change in the forest cover between 1997 and 2002. In other words, human impact has not resulted in visible deterioration over this period. Also, according to this assessment, forest cover destruction cannot be the cause of disappearance of tigers from Sariska.⁸

6. Over the years, destructive pressures both within the park and outside have led to shrinkage of tiger habitat: it has been brutally mined, grazed on by countless livestock, even as little has been invested in protecting and afforesting the lands around the park. The Wildlife Institute of India report finds that Sariska is an island, with virtually no forested habitat in its surroundings (*see map: Broad vegetation types of Sariska tiger reserve and its connectivity with neighbouring forests*).⁹ On one hand, the tiger cannot move beyond the park — its habitat has shrunk drastically. On the other, people's resources have also shrunk, forcing them to exert more pressure on the reserve. This is a double jeopardy for the tiger.

BROAD VEGETATION TYPES OF SARISKA TIGER RESERVE AND ITS CONNECTIVITY WITH NEIGHBOURING FORESTS



Source: WII 2005, Assessment of status of tiger in Sariska tiger reserve, Rajasthan, Wildlife Institute of India, Dehradun

Recommendations

The Tiger Task Force is clear that in the present circumstances, this habitat will be easily lost without protection. The pressure from the mining lobby is enormous, and this combines with the alienation of the people to create a destructive situation for the park. After the news of the disappearance of tigers, local politicians have convened meetings in the area demanding the reserve be opened up to grazing and agriculture. Bitterly resentful of park authorities, the leaders and villagers have threatened to take over the park, which they say has no reason to exist since the tigers are now gone.

The Task Force believes Sariska is an important reserve supporting the largest intact habitat of the tiger in the Aravalli ecosystem. The condition of the habitat is good and, therefore, needs to be protected. The reserve is also the catchment for innumerable streams in this otherwise dry region. The Task Force, therefore, recommends that urgent steps need to be taken to restore the park and to rehabilitate tigers in the reserve, as under:

1. The state government must fix accountability for events in Sariska. This is essential, for it will act as a deterrent to other officers in Rajasthan as well as in other parts of the country, given what happened in Sariska is unacceptable.

The actions of the state government in this regard have been inadequate so far:

- Firstly, it has set up a state task force to investigate the matter and to recommend remedial actions, but has now extended its term by another three months, which has delayed the urgent action needed.
- Secondly, it has suspended seven staff members — one range officer, two foresters and four work-charge employees (unqualified guards) — following a report filed by its senior official. These staff members were suspended on the basis of information provided by an arrested poacher, who pointed out to the forest department the beats (areas) that he had killed tigers on. But what is strange is that other apprehended poachers have, since then, indicated other locations where animals were trapped, but no action has been taken against the staff responsible there. The state government suspended the chief wildlife warden in the wake of the controversy. But the charge-sheet against the official was never filed and as per the rules, he has been reinstated.

2. The internal management of the reserve must be improved, so that once tigers are re-introduced the management can ensure it will protect the habitat and the species in the reserve without any disruption.

The Task Force recommends the state government take firm steps to improve the internal working of the park. It must also make a firm, time-bound, commitment to the Project Tiger directorate in this regard and draw up benchmarks for its performance review and assessment.

3. The re-introduction of tigers into the habitat must be done with caution and care. The Wildlife Institute of India suggests three-five tigers can be re-introduced in the initial phase and then supplemented. However, the Institute has cautioned that worldwide experience on species reintroduction demands the work should be done carefully and with a high degree of commitment and involvement of all concerned.¹⁰

4. The relocation of villages within the key tiger habitat must be done with utmost care. The recovery plan being developed by Wildlife Institute of India requires the relocation of certain key villages to minimise disturbance in the habitat. It recommends that Haripura, Kankwari, Umri and Kiraska, with approximately 1,800 people and 7,000 livestock in all, should be relocated on a priority basis.

The Task Force recommends relocation be done with full consultation with affected villagers. Park authorities must also realise that villagers living within the park are forest-dependent and, therefore, the land required for their relocation must be able to either

meet their grazing needs or there must be sufficient investment for them to switch over to land-based livelihoods. The current relocation plan, as envisaged by the park authorities, does not resolve this issue adequately as it only provides limited agricultural land, with minimal irrigation facilities and grazing lands. The Task Force would like to caution the management that if relocation is not done carefully and with extreme sensitivity, it would further strain the relationship between the park and its people.

The Task Force also recommends that park authorities, working in tandem with the Project Tiger directorate, should evolve a plan for the remaining villages that will continue to exist in the park because their relocation is not possible or feasible. In this context, the Task Force suggests there should be a better assessment of the impact of the villages on the forest, ways found to mitigate this impact and to reduce the use of forest resources. The park management urgently needs to work on a plan, in consultation with villagers, to manage resources better. The current situation, which makes all use illegal, is clearly not leading to effective reserve management.

5. A plan must be evolved to manage pilgrimage traffic and to share the benefits of tourism with affected villagers and the park. The impact of pilgrims' presence in the reserve, concentrated along the core area, can be heavy. Therefore, there is a need to regulate numbers and manage this pressure carefully.

The Task Force recommends that the authorities work out a plan for the above, which should consider how the benefits of pilgrimage traffic — entry fees and charges collected from shops — can be shared with local villagers. The Task Force is certain pilgrims will appreciate they are paying homage at a forest shrine, which demands adherence to certain rules and regulations. These shrines are sacred groves, which need community discipline for protection.

The Task Force recommends that there should be a plan to share revenues from tourism, including revenues earned by hotels and other like facilities in the park vicinity, with local communities.

6. The productivity of forests in the areas outside the tiger reserve needs to be improved. It is evident the pressure on Sariska from adjoining villages is unsustainable. But it is equally evident that this cannot be controlled through mere fiat and increased force.

The Task Force recommends that urgent steps be taken by the park authorities, working with the territorial forest department, to consult villagers in co-managing the forests in the vicinity of the park. This plan will require greater investments in soil, water and forest conservation. But it can only be done if villagers realise the benefits of this protection.

The Task Force also recommends that park authorities work on an agreement with the fringe villagers to increase investment in their lands, in return for their cooperation in protecting the reserve.

7. An institutional mechanism to monitor progress in habitat improvement and people's involvement must be put in place. The Task Force recommends the plan for rehabilitation should be carefully monitored by scientists, researchers and local NGOs, who should be part of a park level management committee. All information, including the plans for relocation of tigers and people, should be made freely available to the public.

The Task Force strongly recommends rehabilitation and protection of Sariska as a tiger reserve, but urges once again that this will only be possible if there is a clear plan of action, and determination and commitment to implement its different facets.

02

A paradigm change

Making conservation work

Making conservation work

The current crisis of disappearing tigers in Sariska may be looked upon as a tragedy. But the Tiger Task Force prefers to view it as an opportunity. Here is the chance to take a close and exhaustive look at the manner in which the tiger has been hitherto conserved; to understand where, after 30 years, a programme exclusively devoted to protecting this magnificent animal has gone wrong; and find how today's lacunae may be transformed to the tiger's advantage, so that the future of its protection may be a positive one.

The protection of the tiger is inseparable from the protection of the forests it roams in. But the protection of these forests is itself inseparable from the fortunes of people who, in India, inhabit forested areas. Thus, any regulatory or enforcement regime that wishes to throw a protective ring around the tiger must take into cognisance that, apart from the tiger, the protection equation contains two other variables: the forests and the people that live in and around it. This is the unique situation conservation in India has always faced and tried to grapple with.

But over the last 30 years the style of conservation that developed in India and is now unilaterally predominant is one that has not taken all three variables into account. It has tried to cater to the tiger, exclusively. People inhabiting protected areas have been discounted and displaced. Their livelihoods have been destroyed. So they have become not protectors of the forest, but poachers and smugglers of wood and other forest produce.

The peculiar situation that has emerged is that as people's marginalisation has led to poverty, the tiger's fortunes, too, has got impoverished. The history of conserving the tiger in this country is the manner in which this process has isomorphically unfolded. The carnivore-human conflict has exacerbated: the truth of its exponential growth is visible in and around most tiger reserves. So is the visible degradation of the forest, at once source of people's livelihoods and the home of the tiger.

The question then is: how do we protect the tiger? How do we regenerate these lands? How must we manage the competing, but equally vital, needs of human livelihood? We don't have the option to choose one over the other: the poverty of one will destroy the other. It is quite literally about coexistence.

Resolution, therefore — untested across the world — will lie in our abilities to create an environment so that the tiger, forests and people can coexist.

It is, therefore, important to design policies and actions which are multi-pronged and which

- focus on enhancing the protection of tigers in the short-run and earmark inviolate spaces for its existence;
- safeguard the future of the tiger by involving local communities with reciprocal and collaborative models, to share the benefits of conservation; and
- involve local communities in rebuilding the forest economies of the tiger's habitat so that all can grow.

This is the paradigm of 'inclusive growth' that will safeguard the Indian tiger: the Indian model of conservation. Nothing else.

The tiger's habitat

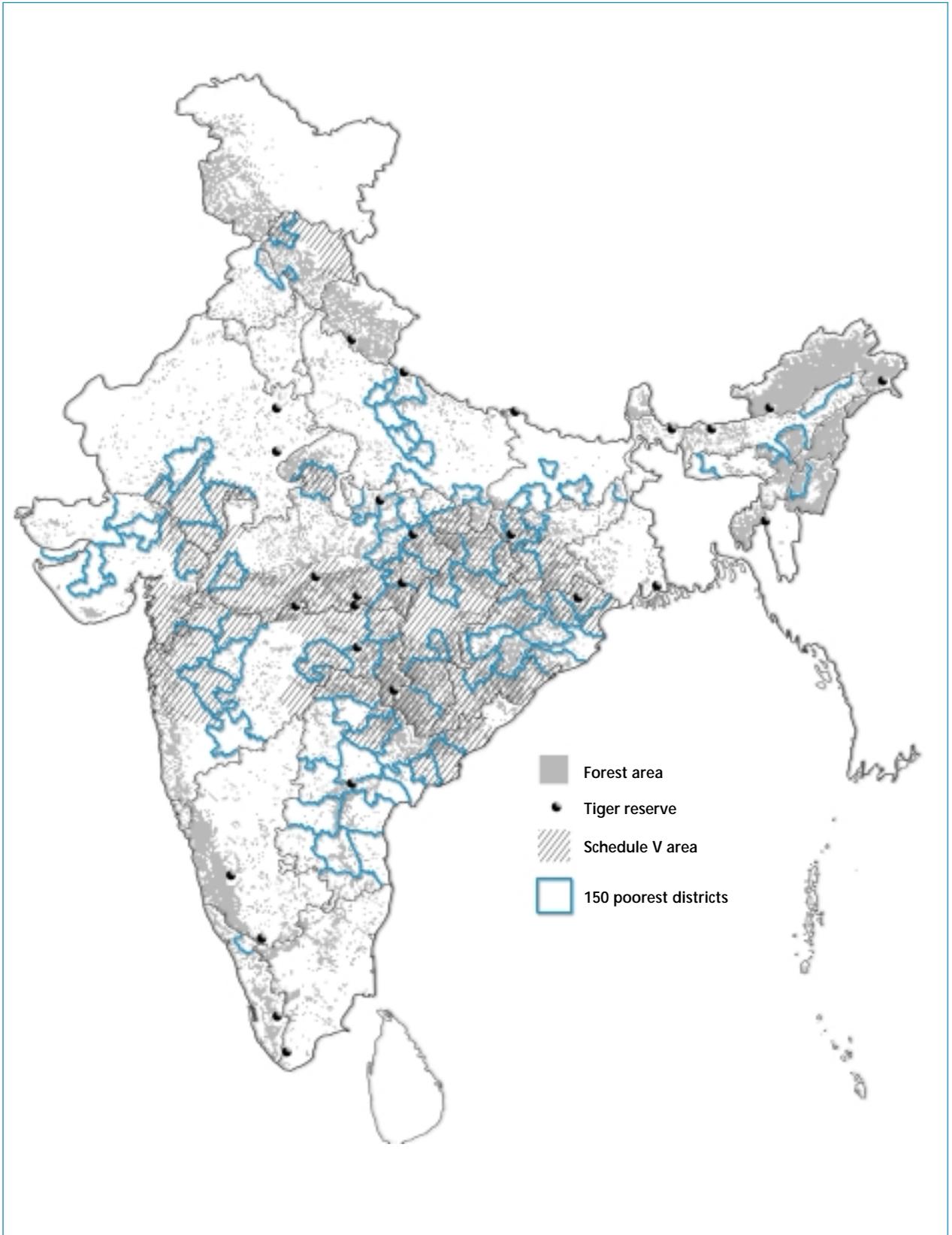
India's primary tiger habitat is spread over vast areas of central India, and the Western and Eastern Ghats. These are also the areas where the majority of our scheduled tribes live. These lands are enormously rich in natural resources — forests, minerals — but the irony is that the people living in them are among the poorest in the country. The other key tiger habitats are in the Himalayan region and its foothills.

These lands — the habitat of tigers as well as people — also provide most of central and peninsular India with its water. They are the source of the water that irrigates farmlands, that villagers drink and that cities guzzle freely, exchanging it cheaply with their excreta.

These forests are essential for our survival. We need them for ecological security — to replenish water systems, provide habitats for wild species and as our biodiversity security — for firewood, fodder, building material for people and raw material for industry. While managing forests for such distinct objectives is complicated enough, what makes the issue more difficult is that there are poor people living on these lands. They need this land for their survival, but their land rights have never been settled. The question is, what is to be done with these people.

Evicting them and fencing the forests in cannot be the answer. If that is done, the people will break the fence down to work the forests. Handing the forests over to the people and letting them cut these down cannot be the answer either.

TIGERS AND PEOPLE: THE COEXISTENCE CONUNDRUM



Source: Project Tiger directorate

Without the forests, people will have no wherewithal to survive.

The tiger crisis is, first and foremost, a forest crisis. The core of the problem is our inability to manage our forest wealth in a way both sustainable and productive. As a result, we have been left with small areas — largely our protected area network — which remain as forests.

These forest ‘islands’ are under heavy stress. The reason is that the land outside them, also forest land, is today highly degraded and unproductive. It cannot meet the basic needs of the people who live on these lands. It cannot provide them with livelihood opportunities. In fact, because the land is forest land, development of irrigation and other facilities is also curtailed. The cycle of poverty grows, and with this, the pressure on the last remaining bastions intensifies.

The people share the tiger’s habitat

It is important to realise India’s conservation programme is located not in the homes of its rich, but in the settlements of its very poorest. It is their land that is set aside for protection. It is they who share their resources with the tiger, without getting any benefits in return.

The tiger districts are, in most cases, classified as the poorest 150 districts in the country. These are also the districts classified as Schedule v areas — primarily inhabited by tribals — and have little or no irrigation facilities (see map: *Tigers and people: the coexistence conundrum*).

To succeed, tiger conservation must take these facts into account. It has to bring benefits to this region and to its poor people. The question is how. It is here we must understand the economy. People, who co-inhabit the tiger’s home, are forest-dependent. They live within a biomass subsistence economy, which is based on subsistence agriculture. This economy can only survive if there is livestock to minimise the risk of crop failure and to provide manure for the lands. The livestock insurance policy needs grazing lands, as agriculture is poor and unirrigated; fodder, therefore, is only available in the open lands. The lack of assured fodder also means that people cannot keep quality livestock as they need to minimise their risks.

The land is not fit for agriculture in most cases, and crop yields are meagre. People can only survive if they have access to forest resources from where they can collect firewood for sale or live off the collection of various forest produce — from honey to *mahua*. For them, life is just not possible without the forests. People, therefore, live within the reserves not because this gives them huge benefits, but because they have no alternative. Their economy — like the

tiger — depends on the forests.

But while relocating villages, agencies only think in terms of ‘land’ and not of ‘access to forests’. Planners do not take into consideration the ‘gross natural product’ of forests, which sustains the lives of millions in this country. However, unless the land given for relocation is irrigated and fertile, people will have no option but to continue to live within a forest-dependent economy — which means, they put stress on the forest resources once again.

The challenge, therefore, is to rebuild forest economies so that the habitats of tigers as well as the livelihoods of the poor can be protected. The issue is not about tigers *per se*, but about recreating economic and livelihood basis for forests to be regenerated.

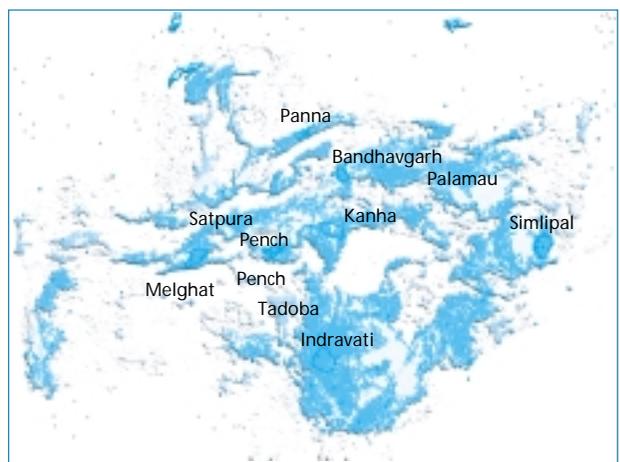
The tiger shares people’s habitat

In Kanha tiger reserve in Madhya Pradesh, field managers keep a count of the number of tiger cubs. They know that they should have an increase of 10 tigers in the reserve every year to maintain a viable population. They account for mortality of the young and old when they estimate the population increase of the big cats.

But the population does not increase. The numbers of tigers in the reserve remain the same. This is because the young tiger, in search of territory, moves beyond the protected enclave to the world outside. Once there were forests outside the reserve, and the tiger had survived. But now the landscape is degraded. Poor people live there. They live on the forests. But no investments have been made to improve their habitat. The tiger, as a result, is in grave danger (see map: *Central India: forests and tiger reserves*).

Coexistence is threatened. It is important to realise that not only do the people use the tiger’s

CENTRAL INDIA: FORESTS AND TIGER RESERVES



Source: Project Tiger directorate

habitat, but the tiger too needs the people's habitat. This is the coexistence challenge.

Wildlife managers say that the tiger cannot be protected within the 'enclaved islands' that our reserves have become. In the last tiger 'census', more than half the big cats were found not inside but outside the tiger reserves. These are lands which the tiger shares with people. But as the forests degrade in the landscape, the habitat shrinks. The source — areas where the tiger breeds or its natal areas — are the reserves. The sinks, where the tiger goes to live, lie in the lands outside.

This is because the tiger needs territory. To understand conservation of tigers, it is important to understand how the tiger lives and mates. The tiger society revolves around the breeding female, who starts breeding at three-four years of age in a relatively fixed home range. She has a tenure of five-seven years before she loses her range to a vigorous competitor. The adult male tiger has a larger range, overlapping several breeding females — three on an average. In favourable conditions, females give birth to litters of three-four cubs once every two-three years. When roughly two years old, the young are abandoned by their mother and these are known as dispersing transients (floaters) by biologists. Tigers move 10-15 km per day. Transient tigers can move over hundreds of kilometres in search of new homes.

This gives rise to a double jeopardy: on one hand, the habitat of the tiger shrinks drastically as it cannot move beyond the park to establish its territory. On the other, the resources of people also shrink and they then exert even more pressure on the tiger reserve.

There is, therefore, no choice but to find ways of coexistence. If people are not allowed into the tiger's habitat, they will be even more resentful of the creatures' entry into their habitat. This is why tiger poisoning cases are on the rise. This is why tigers in the wild will not survive. We must get out of the 'island' mentality. The tiger's home is its landscape, wherever it ranges. It is this we have to learn to protect.

How will that be done?

There are two essential strategies:

1. The habitat must be made inviolate for the tiger where it must. It must be shared between the people and the tigers in a way that peace prevails. The poverty of one, otherwise, will be the destruction of the other.
2. The outside forest habitat must be regenerated so that people can be less dependent on the enclaves of the tiger, and the tiger has more space in the surrounding landscape to live.

All share the forest habitat

We will have to understand why our forests are in trouble: this is the real challenge of the tiger crisis. If we work hard, we can protect a few hundred tigers in the protective islands of our reserves. If we improve our enforcement, we can protect a few more. But if we really want to safeguard the future of tigers, we will have to regenerate our forests.

The problem is that we do not know how. In the past, the State had appropriated forest resources from local communities. Over the years, logging and mining led to rampant degradation. If the British stripped the forests of Ratnagiri in coastal Maharashtra to make ships and railway lines, independent India sold its forests for a pittance to the pulp and paper industry. This was the extractive phase of forest use.

But in the early 1980s, the State turned track from exploiting natural resources to protecting them. Under the Forest Conservation Act, 1980, only the Central government had the right to allow forest land to be converted to non-forest purposes (roads, power stations, dams and the like). This was the conservation phase.

The rampant diversion of land for development stopped, but deforestation continued. So, since the 1990s, the Supreme Court has stepped in, imposing checks on how forests are to be worked. Many different orders aimed at stopping deforestation have been issued over these years. In December 1996, the Court ordered a ban on timber felling, unless the forest department made a working plan for forested regions demarcating areas that could be logged. In 1998, it said that all working plans for all forest divisions had to be prepared by the state governments but approved by the Centre. It has banned the transport of logs from the northeastern states and ordered the closure of all unlicensed sawmills and wood processing plants; states have been asked not to allow new ones either.

But the tragedy is that while deforestation has reduced, forest degradation continues.

The *State of Forest Report 2003* shows that the country has lost 26,245 sq km of dense forests between 2001 and 2003. On the other hand, the open forests — forests with a crown density of only 10 to 40 per cent — have increased by 29,000 sq km. The country now has 11.88 per cent of its geographical area under dense forests, of which only 1.56 per cent could be classified as very dense, with a canopy cover of over 70 per cent (see *table: Net change in forest cover in the country since 2001 assessment*).

The problem is that dense forests are disappearing in the very habitats that we are concerned with in this report — the habitats of tigers and poor people. According to the *State of Forest*

NET CHANGE IN FOREST COVER IN THE COUNTRY SINCE 2001 ASSESSMENT (IN SQ KM)

Assessment year	Dense forest	Open forest	Total forest cover	Scrub
2001	41,809	258,729	675,538	47,318
2003	390,564	287,769	678,333	40,269
Change	-26,245	29,040	2,795	-7,049

Source: Anon 2003, *State of Forest Report 2003*, Indian Council for Forestry Research and Education, Dehradun

Report, as much as 63 per cent of the dense forest in the country is in its tribal districts. This, as we have said earlier, is also the tiger district (see table: *Forest cover and tribal districts*).

The maximum loss of dense forest cover has also occurred in these very tiger-tribal districts. The tiger’s habitat is under threat. The people’s livelihoods are impoverished. There are millions who live in these forest lands. The answer cannot be to throw them out; neither can it be to exclude them from the management of these forests. The forests will continue to degrade as people will continue to use these lands. This is the real challenge we face.

The problem with forest management

The fact is that we have always legislated to protect the forests; we have never managed or regenerated them. What we have learnt is to protect our forests using draconian measures, but we do not know how to increase the productivity of these lands which have competing needs and users. Today, vast areas of forest land in the country lie under-utilised and under-productive. The reason is we cannot increase productivity without involving the people who use these increasingly degraded lands.

Indeed, because we do not know how to involve people in their management, we cannot build futures from these lands. Economic progress, to us, is not

FOREST COVER AND TRIBAL DISTRICTS

Total dense forest in India (2003 estimation)	390,564 sq km
Total dense forest in tribal districts	246,858 sq km
Percentage of dense forest of the country found in tribal districts	63 per cent

Geographical area in tribal district	1,103,463 sq km
Very dense forest in tribal district	36,932 sq km
Moderately dense forest in tribal district	209,926 sq km
Open forests	160,440 sq km
Total forests	407,298 sq km
Percentage of forest cover of the geographical area of the tribal district	37 per cent

Source: Anon 2003, *State of Forest Report 2003*, Indian Council for Forestry Research and Education, Dehradun

about keeping forests. The value lies in destroying them for mining, industries. Similarly for the poor, managing forests as forests does not bring them wealth. They can only survive if they clear forests, to cultivate marginal and degraded lands from which the returns are always meagre. The land degrades further, the people become more destitute: so turns the vicious cycle of poverty.

We have to learn to differentiate between forests which need to be protected at all costs — pristine forests, biological hotspots, tiger habitats — and forests, which need to be managed and used and then regenerated. It is clear that we still have to learn to use our resources sustainably for developmental purposes.

It is no wonder, then, that poor people come to live in rich lands, or that environmental protection comes into conflict with development. The economic security of poor people has to be enjoined to the forests, which in turn are the habitats of wild species and essential for ecological security.

03

The way ahead

3.1 The institutional agenda

3.2 The protection agenda

3.3 The illegal trade agenda

3.3a Domestic enforcement agenda

3.4 Innovative protection agenda

3.5 The science agenda

3.6 The research agenda

3.7 The relocation agenda

3.8 The coexistence agenda

3.9 The fringe agenda

3.10 The tourism agenda

3.11 Ecological services agenda

3.1 The institutional agenda

Project Tiger is a centrally sponsored scheme in which the states provide matching grants to pay for recurring items of expenditure, such as maintenance of habitat, creation of temporary water facilities, etc. The Union ministry of environment and forests has the mandate to provide technical guidance and funding support; it is also responsible for overall coordination, monitoring and evaluation of the project, apart from helping states in estimating numbers of tigers and other wildlife.

Following the 42nd amendment to the Indian Constitution in 1976, the subject of forests and wildlife was transferred from the State List to the Concurrent List. With this, the Central government acquired overriding powers to ensure protection and preservation of forests and wildlife.

By the 1990s, the problems between Project Tiger and the states had begun. It was pointed out time and again that states were lagging behind in disbursing project funds they received, staff vacancies were not being filled, the monitoring of protection work was weak and that wildlife crime enforcement lacked teeth.

In 2000, the Supreme Court, acting on a public interest litigation (Public Interest Litigation writ number 1474/1998), directed the secretary, Union ministry of environment and forests, to convene a meeting of chief secretaries of tiger habitat states to evolve a joint strategy for protection of the tiger. The following results of deliberations that ensued with the states were listed in an affidavit the secretary filed:¹

- a. There is a shortage of resources in states, which leads to delayed disbursement of funds, non-payment of staff salaries for up to six months, and even a lack of funds to pay for fuel for vehicles.
- b. Because of the delay in disbursing Central assistance to tiger reserves by state governments, earmarked activities are not completed and funds remain unutilised. The Centre, therefore, withholds the next instalment. This leads to a situation where on one hand, Central outlays for wildlife conservation increase progressively, but on the other, funds lapse because of non-utilisation.
- c. There are vacancies of staff at the field level — in some states, more than 30 per cent of the posts of forest guards and foresters remain unfilled. Most of the existing field staff is ill-equipped, overage and inadequately trained.
- d. More than 30 per cent of the tiger population and a substantial number of other wildlife are found outside the protected area network, but foresters do not consider conservation of this wildlife

among their top priorities.

- e. There is a need to ensure timely compensation for livestock killed by wildlife, for without this the conflict between humans and animals will intensify.

The affidavit also listed some solutions, which were accepted by the Supreme Court. These were:

1. New mechanisms would be introduced to solve the problem of delay in disbursement. The chief secretaries of the key problem states — Assam, Arunachal Pradesh, Andhra Pradesh, Maharashtra, Rajasthan and Orissa — agreed that Central funds for wildlife conservation should be directly released to entities created for this purpose.
2. Central funds would reach implementing agencies within six weeks of the time of receipt and the state government would prioritise allocations for wildlife under their state plans.
3. The state governments agreed to fill up existing vacancies on a priority basis. Madhya Pradesh, which had decided to abolish vacant posts, agreed to exempt the posts of forest guards and foresters from downsizing. Maharashtra and Orissa agreed to fill all vacancies within six months, while Karnataka said every effort would be made to fill up to 200 vacancies of forest guards within one year. Assam and Arunachal said that in view of financial constraints, they would transfer staff from sectors with a lower priority.
4. The amount of compensation to be paid has been revised by the Centre, and the state governments will now pay the amount expeditiously.
5. State governments will strengthen the existing protection mechanism. The states also suggested that they would look at the feasibility of recruitment and training of forest guards through police agencies. The Union ministry of environment and forests reported that it had already requested the Central Industrial Security Force to train foresters in insurgency-prone reserves. It was also agreed that the staff would be given the authority to confiscate vehicles, arms and other articles used for wildlife offences.
6. It was agreed to provide incentives to forest personnel living in remote areas. The Union ministry of environment and forests would evolve transparent guidelines dealing with the transfers and posting of officials in wildlife areas, as well as a suitable human resource development policy.

Much of the reform agenda was agreed upon. But in the absence of careful follow-up with the states, many of these suggestions were not implemented.

Then, in 2005, the Supreme Court intervened again, this time on an affidavit filed by conservationist Navin Raheja (writ number 47/1998), who pointed out that there existed difficulties in the timely allocation of funds by the state governments to the tiger reserves. The Project Tiger directorate, in its affidavit in the above writ petition, stated that while there was no standard definition for the term 'priority sector'. It had been used to give importance to wildlife and forests as against the financial allocations for other infrastructure and administrative facilities as done in states in the case of 'law and order'. It was also stated that the priority given by the Central government in this regard is reflected in its enhanced allocation to the wildlife sector — from Rs 170 crore in the 8th Plan to Rs 800 crore in the 10th Plan.

While reiterating the actions sought from the state, a time frame was also suggested for fund release and utilisation certificate:

“First instalment: By four weeks after receipt of annual plan of operations from respective state governments, which should not be delayed beyond the month of May of the financial year (since despite repeated requests, the annual plan of operations does not reach the ministry of environment and forests before mid-April by and large).”

“Second instalment: By two weeks after receipt of utilisation certificate pertaining to previous year from the states along with 60 per cent utilisation report of funding support released as first instalment, which should not be delayed beyond the month of December of the financial year.”

As far as monitoring and evaluation was concerned, it stated that the regional monitoring of tiger reserves has been undertaken by a panel of experts.²

The apex court accepted the process suggested in the affidavit filed by the Project Tiger directorate and directed that the states should make available the funds the Government of India released for wildlife conservation to field formations within 15 days. The amount should be available for the purpose for which the Centre provided assistance. It is now crucial to ensure close monitoring to ensure this direction is implemented.³

Options for institutional reform

The Task Force is clear that in spite of these efforts, problems remain in the institutional framework for management. The events in Sariska and other key

conservation sites show there is a need, in states, for much greater commitment and vigilance. It is also clear the institutions to manage conservation are weak and unprepared; professionals do not have the requisite training or capacities. Therefore, there is a need to re-engineer and remodel the institutions of governance. Without this, the agenda for reform will remain *ad hoc* and inadequate.

The Task Force has considered two different approaches for institutional reform.

Option 1: Centralise

The aim here is to further centralise decision-making by creating an authority that can be given the powers to coordinate the work of tiger reserves and oversee implementation. This would emulate the example of countries that declare protected reserves as 'federal' reserves, bringing their development under unified control.

In April 2005, the *amicus curiae* in the T N Godavarman forest case, ongoing in the Supreme Court, filed an application asking for an authority to be created for wildlife management. In this application, it is said, “state governments and their officers, for whatever reason, have been unequal to the task of protecting and preserving our national parks and sanctuaries. It is, therefore, necessary that it is submitted as a matter of law, that the Central government take effective steps including by way of constituting an authority.” This authority would comprise of civil servants and outsiders who would oversee the working and management of at least 25 of the significant protected areas, almost all of which are tiger reserves. The funds collected from compensatory afforestation would be made available in whole or in part to this authority for conservation of protected areas. This authority would be given charge then of overseeing management. State governments would have to ensure that the authority is consulted in the appointment, posting or removal of senior officers in these reserves.⁴

This approach also includes creation of a national park service-type force, which will be under Central control and can be posted to different parts of the country. It has been suggested that there should be an empanelment of officers, which can be considered for posting in any of the premier protected areas within the home state and in other states.

In the current difficult times for conservation, these approaches seem simple and attractive enough. They require the disbanding or marginalisation of current institutions and their replacement with structures which are centrally managed in the hands of a dedicated team.

The Tiger Task Force has carefully considered these proposals. It believes it will create more problems for the tiger, even in the short run. The

reasons are as follows:

- a. The tiger lives in a habitat which is contiguous to other spaces. It, therefore, needs protection not just within its 'island', but also in the landscape beyond. Therefore, it needs the cooperation of the people that protect these outside lands and those that live in these lands. Any further centralisation will only increase the rift between the Centre and states on tiger conservation and hinder local alliances crucial for its survival.
- b. The habitat of the tiger needs development efforts, not just protection. In other words, it needs the engagement of many agencies at the state level for its survival. It must be noted that while centralised control may be good for protection, it is a tremendous limitation for developmental work. Any effort which further bypasses states is sure to be detrimental to the long-term success of the project. For instance, there is a need for relocation of villages from reserves. This cannot be done without the active collaboration of other state agencies and departments, which will be resisted if there is greater central control.
- c. The survival of the tiger will depend on our abilities to rebuild the institutions for its governance. The deliberate disabling of the current institutions is not the answer.
- d. The empanelment of officers amounts to creating a central service, which is unfeasible. The key reason why state services are needed is because of their integration with line agencies in the state. The ecological and social conditions are so varied that sending officials to different reserves will, therefore, not work.

Also, this approach does not lead to any cadre-staff building in the team. The most important challenge that park managements face is to build a team of leaders. Leadership will also demand fostering a certain commitment in their reporting staff, so that continuity can be created. If the officers are transient, this will clearly not be possible.

It is for all these reasons that the Task Force has decided to, instead, recommend a sub-cadre for wildlife and review the training and human resource development needs of the service.

It is the strong belief of this Tiger Task Force that after 30 years of conservation history, the time has come to make serious and long-term changes which will secure the future of the tiger. The project thus needs to broadbase its support so that its agenda can be implemented: this is vital. The agenda includes work that is serious, detailed and requires long-term commitment of groups and institutions in bringing about change. Any effort to centralise the work will

only create further alienation of agencies crucial to work the agenda, and so will not lead to meaningful change. The Task Force urges all to note that effective 'policing' is not the only task that confronts tiger conservation in the country today. For these reasons, the Task Force has decided not to adopt this approach.

Option 2: Strengthen Centre-state collaboration and institutions

The Task Force has decided it will develop an alternative approach that will undertake the following:

- Strengthen institutions at the Centre that oversee and guide the project, reinforce the prime minister's efforts in this direction and also involve the Parliament to ensure political commitment.
- Strengthen institutional capacity at the state level by securing the interests and involvement of its leaders.
- Improve the capacity of professionals engaged in the management of wildlife.
- Strengthen the supervision of the project through innovative mechanisms, that will create information in the public domain and build collaboration links with researchers and NGOs, particularly at the state level.
- Build a participatory base by including the interests of local communities in tiger protection. This will engender sustainability of the project.

The Task Force is aware that this work is onerous and difficult. The reform of institutions of governance and structures will need long-term commitment and political support. The Task Force is also deeply aware of the urgency of the situation and the exigencies involved. But it believes that much of this agenda is within reach. It also believes that after 30 years of management, the tiger deserves seriousness. This opportunity cannot be lost by advocating quick-fix solutions that might ultimately prove regressive for the programme.

Recommendations

A. On strengthening institutions at the Centre

1. Reorganise the Union ministry of environment and forests to create two separate departments: that of environment and that of forests and wildlife.

The key reason why the Task Force is recommending this reorganisation is because it finds that the forestry and wildlife sector requires focussed and detailed work, which is not possible in the current organisational set-up of the ministry.

The Task Force is aware of the concern that a simple departmental reorganisation will not necessarily lead to more efficiency. In fact, it could

well create confusion and lead to turf wars between the two professional service heads — of general administration and of the specialist forestry service.

The problem, however, is that the forestry and wildlife sector needs greatly enhanced capacities to effectively implement its protection and developmental agenda. In the 2005-06 budget outlay of the ministry, forestry and wildlife got 33 per cent and the rest went to the environment sector (about Rs 460 crore and Rs 820 crore respectively). It is important to note here that there has been a steady shift in this regard: till 2002-2003, financial allocations were evenly split between the two.

It is also important to note that the funds spent for forestry and wildlife at the state level are larger. In the 10th Five Year Plan, Rs 11,444 crore has been allocated for this sector by the Centre to states and Union territories.⁵ There is a need to work with states to effectively direct the sector and to improve its performance. This requires a strong central agency as much as enhanced capacities at the state level. There are also a large number of institutions under the forestry-wildlife sector that are autonomous and professional. These institutions need professional management to support their independence and growth. This, too, requires a strong and effective central institution with the capacity to oversee and manage with a high order of professionalism and expertise.

Furthermore, the present functioning of the ministry has become mostly regulatory, involving clearances for projects, pollution control and international treaties. The functions of 'forestry', on the other hand, are partly developmental, requiring a greater thrust on re-greening lands for livelihood and economic purposes, and partly conservationist. But all these functions require a different nature of specialisation and functioning. Therefore, the Task Force is suggesting the reorganisation of these distinct functions, which it hopes will bring about greater attention to both and improve their effectiveness. We must remember that the department of environment and the department of forests are both critical in safeguarding the future of India and need strengthening (see table: *Budget of the Union ministry of environment and forests, 2005-2006*).

2. Revitalise the National Board for Wildlife and/or request the prime minister to chair the steering committee of the Project Tiger for the coming few years. This is in order to build the political constituency needed for the conservation of the tiger, to shape the agenda at the state level and to initiate the long-term reform needed for tiger conservation.

It is clear that tiger conservation is at an important crossroads. On one hand, there is a growing and urgent threat against the species. On the

BUDGET OF THE UNION MINISTRY OF ENVIRONMENT AND FORESTS, 2005-2006

	Budget (2005-06) Rs crore	% of annual budget
FORESTRY AND WILDLIFE		
• Education and training	21.04	
• Forest conservation, development and regeneration	41.00	
• Wildlife preservation	139.70	
• National Afforestation and Ecodevelopment programme	260.85	
Total allocation for forestry and wildlife	462.59	33
Total allocation for environment and ecology (including river action programmes)	829.79	60
TOTAL	1,388.90	

Source: GOI 2005, *Expenditure budget 2005-06, Vol 2, February, Delhi*

other, there is an opportunity to correct the mistakes of the past and to invest in urgent reform.

The key element of the reform is a renewed engagement of all in the protection of the tiger. The commitment of the Indian prime minister is evident in this issue and his engagement in securing the interest of all will be critical. Also, there is a need to put into place mechanisms that can take the reform agenda forward. This will require careful monitoring and supervision.

It is for this reason the Task Force is recommending the option of revitalising the National Board for Wildlife, which is chaired by the prime minister or better still, for the prime minister to take on the chairpersonship of the steering committee of Project Tiger. There is a precedent on this. In the early 1980s, the then prime minister, Indira Gandhi, had chaired the steering committee of Project Tiger.

The Indian prime minister's direct involvement will give the project its necessary direction and impetus. Given the exigencies of the other commitments of the prime minister, we are recommending that he hold this position for a period of two-four years, during which the agenda for reform can be activated and put on a firm footing.

In addition, we would recommend that the membership of the National Board for Wildlife and the steering committee be reviewed to make it more effective. The constitution of these governance institutions must include researchers, activists, tribal leaders and others who can introduce different perspectives to the discourse. Since many years now, the membership of the Board and the steering committee has been restricted to a few experts who

hold very similar positions and experiences. It is for this reason the wildlife sector has become extremely insular and exclusive, losing its ability to envision the bigger challenges that confront it.

Secondly, the deliberations and decisions of the Board and the steering committee should be made available to all. This will help engage a much larger constituency and will also provide supervision. The Board and the committee must also strengthen their supervision and monitoring functions so that they can perform as key institutions of management in this sector.

3. Strengthen the role of the Project Tiger directorate in monitoring and coordination. Convert it into the Project Tiger Authority by giving it administrative autonomy. Project Tiger should report annually to the Indian Parliament so that political commitment to the project deepens. Independent monitoring reports commissioned by the body should be available publicly and used for decision-making with states.

The directorate of Project Tiger must have the internal capacity to both coordinate and guide the effective implementation of the programme. Currently, the office is understaffed and under-equipped to handle the range of work that is necessary (see *Annexure IX: Investing in institutions for change: strengthening the Project Tiger directorate*). The Task Force has reviewed the present work load and is suggesting that the Project Tiger directorate should be converted into a statutory authority — the Project Tiger Authority.

The following must be done to strengthen the role of the directorate:

1. To ensure that states follow the guidelines and prescriptions laid down for the project, a system of having a 'Memorandum of Understanding' (MOU) with the project states should be instituted. Any deviation or default from the MOU should be reported to the steering committee.
2. Considering the multifarious nature of work handled by the director, Project Tiger, it is essential to strengthen the directorate with autonomy. The directorate at present comprises of one director (of the rank of inspector general of forests), a joint director, one section officer, one personal secretary, one accountant, a lower division clerk and a peon. The directorate should have at least two deputy inspector general-level officers (one for general and the other for technical work) to assist the director, apart from other professionals. There should also be scope for contractual arrangements with scientific institutions like the National Remote Sensing Agency, the Forest Survey of India, the Wildlife Institute of India and universities to foster field research.
3. The director, Project Tiger, should be delegated powers to deal with states under Section (3) of the Wildlife (Protection) Act, 1972, especially for the enforcement of Project Tiger guidelines.
4. The role of director, Project Tiger, should not remain confined to tiger reserves, but needs to be extended to other crucial forest areas as well which have viable tiger populations.
5. The Project Tiger directorate should be restructured and made into an administrative authority at the outset. In the meantime, work should be initiated to use the statutory precedent of the Central Zoo Authority to establish a 'Project Tiger Authority'. This statutory role will greatly improve in planning, supervision and monitoring functions.

The directorate must ensure that the following is done:

- a. *Appointment of key personnel in tiger reserves after approval from the Centre:* This was a condition from the very inception of the project, but has gone into disuse. By creating a stronger profile and management role for the directorate, states can be persuaded and directed to ensure that this is done. This is critical because personnel in these reserves must be chosen carefully so that they have the credentials and an interest in wildlife conservation, as well as the management experience to deal with the larger issues at hand.
- b. *Careful annual analysis of the independent assessment done for each reserve by the directorate:* This will enable the directorate to note the performance of each reserve, its personnel and the state government in protecting tigers. While the high performers must be rewarded annually, the low performers must also be given a reputational incentive to improve. This can be done by:
 - Making the report of the independent audit, with its ratings and scores of high and low performers, available as an annual report from the directorate to the Parliament. This will lead to much greater involvement of parliamentarians from different states in this work and build a stronger support base for the project.
 - Using the score to reduce financial allocation to the different reserves. As it clearly will not be advisable to use financial conditionality in a manner that allows reserves to further deteriorate, it can be used to create conditions that improve the working of reserves. However, the Task Force also suggests that any reserve and state government which receives low scores for a consecutive period of three years should be penalised financially as well.

- c. *Make the rating and assessment of the independent monitoring available in the public domain:* This can be done through the Web and in reports to the Parliament. This will force scrutiny from the civil society and lead to an informed public debate. It is also a safeguard to ensure the independence of the monitors, as scrutiny from peers and the public is the best auditor.
- d. *Involvement of the directorate in the habitat and tiger estimation made across the country:* It must work with professional institutions, building their capacity to undertake this work to support state governments in the estimation. This 'census' is critical for deciding policy and strategies in this field.

B. On strengthening institutions at the state level

1. Create a state steering committee for Project Tiger with the chief minister of the tiger range state as its chair.

There is no regular mechanism for chief ministers of tiger range states to take stock, assess and direct work on tiger conservation. Without the involvement of the chief ministers, this agenda cannot go forward.

The chief minister is the chairperson of the state wildlife board. But unfortunately, these boards have become defunct in many states, where their meetings have not been convened for many years. The problem is that state governments — especially the political leadership — do not see any advantage in wildlife conservation. The boards have also lost their purpose and do not play effective roles in guiding wildlife policy. There is no simple or easy answer to this issue.

We have to understand why states and their leaders are disinterested in wildlife. The problem is that wildlife conservation has been reduced to narrow constituencies; the public has lost interest in it. But public support for wildlife is crucial. The Task Force, therefore, suggests that much more must be done to expand the concern, to involve different segments of the society in wildlife conservation and to provide an incentive for states to take this issue seriously.

The cases of Kaziranga national park in Assam or Kanha in Madhya Pradesh are relevant here. Public reputation and pride has led the state governments to recognise and facilitate these protected areas. Similarly, the reputation of each state government and its people must be enjoined to the protection of tigers.

2. The state chief wildlife warden must have a background and interest in wildlife conservation.

The position of the chief wildlife warden is critical in states, for this official is a statutory authority under the Wildlife (Protection) Act, 1972, and is responsible for all wildlife-related work and oversees

the functioning of protected areas. Currently, any officer can become the chief wildlife warden on the basis of seniority — irrespective of experience, aptitude or interest in wildlife issues. In the guidelines for the project issued in the early 1970s, it was clearly indicated that officers who are given this charge must have a background or interest in wildlife conservation. However, this guideline is rarely used. It is important that governments develop a criterion for the appointment of the head of wildlife in the state.

But it is also important to note that this process will only work if the state government has a reputational advantage in maintaining its wildlife and has a vigilant public opinion. These will drive it to ensure that only professionals with a demonstrated high order of skills are appointed to this critical post.

3. Create management committees for each protected area, which will include local community representatives, NGOs and researchers.

The 2003 amendment of the Wildlife (Protection) Act, 1972, included a provision for an advisory committee in each state, chaired by the chief wildlife warden and including members of state legislature, *Panchayati Raj* institutions, NGOs and individuals. The committee was to advise on measures to be taken for better conservation and management, including the participation of people living within and around the protected area. The Tiger Task Force has been unable to find any state that has constituted such a committee; it urges that this be done for every tiger reserve, to begin with. At the same time, the Task Force suggests some modifications, as follows:

- a. The mandate of the committee must not only be advisory, but must have management functions as well. The management plan of each reserve as well as the annual plans and the work completed must be discussed with the committee. This will require an eventual amendment of the Wildlife (Protection) Act, 1972, but states can take the leadership in this. The effective functioning of such committees must become models for others to emulate.
- b. As there are large numbers of people living within and adjacent to reserves, these committees must include their representatives so that discussions can be initiated with them.

C. On strengthening professional expertise in conservation

1. Create a sub-cadre of wildlife specialists and professionals.

The need for this sub-cadre has been discussed for many years, but little of substance has happened in this regard. The issue that remains unresolved is

whether the service should be created as a separate wildlife (parks) service, or whether it should be a sub-cadre within the forestry services.

As early as in 1973, the then prime minister Indira Gandhi wrote to all chief ministers, asking them to introduce a specialised management for parks and sanctuaries. She suggested an approach in which states with important wildlife populations would create wildlife departments under the forest department; there would be a separate wildlife service and forest officers would be given a choice to opt for this service. Specialised training would be provided to this cadre, which would be responsible for managing national parks and sanctuaries exclusively.

In 1976, the Central government issued detailed guidelines for the creation of wildlife wings in the states. The guidelines included a provision that in other forests, the existing territorial officers of the forest department would continue to be responsible for wildlife conservation. But to improve their work in wildlife conservation, the Centre asked the chief wildlife wardens of the states to make end-of-the-year entries in their confidential reviews with regard to the work done and interest evinced in conservation.

The 1980 report of the Committee for Recommending Legislative Measures and Administrative Machinery for Ensuring Environmental Protection — also known as the N D Tiwari committee, which recommended the setting up of a department of environment in the country — also deliberated on this issue. In its view, “For effective and scientific management of such reserves a special sub-cadre of scientific personnel should be created within the forest department of states and Union territories.” In addition, “Personnel should not be interchangeable with those in regular forest services, but should be assured their career advancement within their sub-cadre by extending the concept of flexible complementation.” However, one member of this committee suggested there should be a separate central wildlife service, dedicated to the protection of species and parks.

Currently, the training for the Indian Forest Service officers is conducted primarily at the Indira Gandhi National Forest Academy (IGNFA) in Dehradun. The IGNFA curriculum includes courses in wildlife that provide orientation to officers, but no specialisation. The Wildlife Institute of India also offers ongoing training courses in wildlife management for mid-career professionals. But these professionals do not necessarily qualify for work in wildlife areas after this specialisation.

The Task Force has reviewed the options for a dedicated service versus a sub-cadre service, and also discussed this issue with a wide-ranging group of experts and officers.

It believes that it is important, in this age of

modern management, to be both a specialist and integrationist in professions. This is even more important in the area of forestry and wildlife management. On one hand, wildlife management demands a high order of expertise, specialisation and interest. On the other, a large number of wildlife is found outside protected areas, which requires mainstreaming the knowledge to foresters of all types. In addition, there are people living within the habitats of wild animals — inside and outside protected areas. The forestry and wildlife profession has to be capable of incorporating their concerns and working as developmental agencies in the reserves.

It is for this reason the Task Force suggests the following needs to be done:

- a. Creation of a sub-cadre of wildlife specialists within the Indian Forest Service. The training for this sub-cadre must be carefully reviewed by the Indira Gandhi National Forest Academy, Wildlife Institute of India and other expert institutions so that the course is rigorous and comprehensive.
- b. The wildlife training provided to all others must also be reviewed so that it can mainstream the learning.
- c. The wildlife service should have a provision for lateral entry by wildlife scientists, so that professionals can also be part of the administration. In addition, there should be an opportunity for continuous training and specialisation in this service during their career.
- d. To mainstream concern for wildlife, the confidential reviews of the territorial officers should include an assessment from the state wildlife warden (this was recommended in the 1976 guidelines as well).
- e. To mainstream concern for people’s livelihoods, the confidential reviews of both the wildlife and forest services must include an assessment of their work done in this area. This is particularly important for wildlife service officers, who have to build relationships with local communities and engage them in conservation.

D. On strengthening supervision in the project

1. Conduct independent audits of each reserve annually and put this information in the public domain.

As discussed above, an independent assessment of tiger reserves must be done every year by a wide-ranging team of experts and activists. The purpose of this management audit is to establish the benchmarks for each reserve and to track its development carefully. If this audit is done well, it will obviate Sariska-type events for it will provide forewarning information, which can then be used for

management and policy decisions.

What will be critical here is to (i) ensure transparency in the audits and (ii) make certain that all reports are made available in the public domain.

2. Build collaborative networks with researchers to monitor change.

There are a number of individuals and institutions engaged in monitoring change in habitats and species in and around protected areas. There are also researchers engaged in understanding the human-park relationships. There is currently no coordinated project to bring all this research

together. The Task Force suggests creating a consortium that can network and facilitate research and use its outcomes for policy directions.

The fact is that tigers cannot be saved unless the institutions set up to protect and manage tiger habitats are saved. It is clear that what is needed is not to create new institutions *per se*, but to make the existing mechanisms functional and effective. This Task Force believes that this can only happen with greater public disclosure, support and interest so that institutions are made accountable and are under pressure to perform. There are no quick fixes to institutional reform. But reform is essential and must be undertaken.

Recommendations at a glance

Imperatives for strengthening Project Tiger:

- Political commitment and coordination at the national and state levels
- Coordination with the tiger range states
- Enhancing the capacity of the Project Tiger directorate and coordination within the Union ministry of environment and forests

The recommendations:

1. Reorganise Union ministry of environment and forests to create two separate departments: that of environment and that of forests and wildlife.
2. Revitalise the National Board for Wildlife and/or request the prime minister to chair the steering committee of the Project Tiger for the coming few years.
3. Convert the Project Tiger directorate into the Project Tiger Authority by giving it administrative autonomy. Project Tiger should report annually to the Indian Parliament so that political commitment to the project deepens.
4. Create a state steering committee for Project Tiger with the chief minister of the tiger range state as its chair.
5. Create management committees for each protected area, which will include local community representatives, NGOs and researchers.
6. Create a sub-cadre of wildlife specialists and professionals.
7. Conduct independent audits of each reserve annually and put this information in the public domain.
8. Build collaborative networks with researchers to monitor change.

For Centre-state working:

9. To ensure that states follow the guidelines and prescriptions laid down for the project, a system of a 'Memorandum of Understanding' (MOU) with the 'project states' should be instituted. Any deviation or default from the MOU should be reported to the steering committee.
10. The director, Project Tiger, should be delegated powers to deal with the states under Section (3) of the Wildlife (Protection) Act, 1972, especially for the enforcement of Project Tiger guidelines.
11. The role of the director, Project Tiger, should not remain confined to tiger reserves, but needs to be extended to other crucial forest areas as well that have viable tiger populations.
12. The Project Tiger directorate should be restructured and made into an administrative authority at the outset. In the meantime, work should be initiated to use the statutory precedent of the Central Zoo Authority to establish a 'Project Tiger Authority'. This statutory role will greatly improve planning, supervision and monitoring functions.

3.2 The protection agenda

The purpose behind creating a protected area and a tiger reserve is to provide special and additional protection to the biodiversity, beyond what is provided in other categories of forests.

Under the Wildlife (Protection) Act, 1972, sanctuaries and national parks are provided with a higher level of protection. The Act is designed to constrain human activity and presupposes that there will be no human presence in national parks and minimal human presence in sanctuaries. It has introduced a permit system under which the chief wildlife warden can grant permits for use of forest-based biomass or products, but these are restrictive and limited.

The Act specifies that:

“No person shall destroy, exploit or remove any wild life including forest produce from a sanctuary or destroy or damage or divert the habitat of any wild animal by any act whatsoever or divert, stop or enhance the flow of water into or outside the sanctuary, except under and in accordance with a permit granted by the chief wildlife warden, and no such permit shall be granted unless the state government being satisfied in consultation with the Board that such removal of wildlife from the sanctuary or the change in the flow of water into or outside the sanctuary is necessary for the improvement and better management of wildlife therein, authorises the issue of such permit:

“Provided that where the forest produce is removed from a sanctuary the same may be used for meeting the personal *bona fide* needs of the people living in and around the sanctuary and shall not be used for any commercial purpose.”

While this is the legal formulation for creating

protected areas, the creation of a tiger reserve is an administrative process. In most cases, tiger reserves are created as administrative entities over-arching a national park, adjoining sanctuaries or reserve forests. The idea works to advantage as it fits in very well with the logic behind a tiger reserve. The requirement of a tiger reserve is the demarcation of the area into the core (invariably protected as a national park) and the buffer (both/either a sanctuary or forest area).

The core is accorded the highest level of protection; no human habitation is recommended here. The buffer allows for people to live in. But the basic laws regulating the national park and the sanctuary continue to be in place. The creation of a tiger reserve does demand that the entire area of the buffer (which may have been a sanctuary or a reserve forest earlier) comes under a unified control — in other words, the same senior officer controls the operations of the department related to the buffer as well as the core area. This is meant to generate a cohesive and comprehensive management plan for the entire tiger reserve.

The focus in the tiger reserves is to increase infrastructure for protection. Till date, increasing protection has been considered the equivalent of increasing the infrastructure for protection. The Tiger Task Force, in collaboration with the Project Tiger directorate, has assembled data on some vital elements of current infrastructure to understand where the lacunae lie. The Project Tiger directorate also provided the Task Force with detailed allocation and expenditure statements for each tiger reserve. Analysis of these is vital to understand the source of weakness in the field and to see if these have been misinterpreted, resulting in non-workable strategies.

Funds and protection

An analysis of funds allocated for each tiger reserve reveals some important trends:

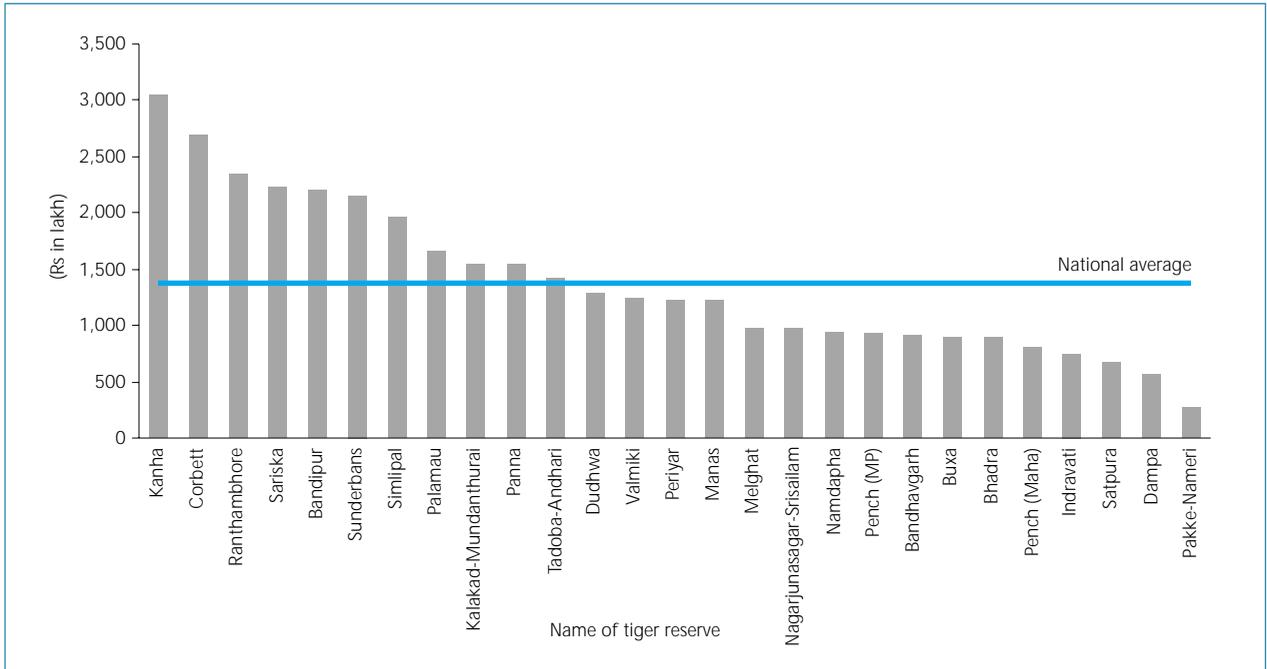
1. The oldest reserves such as Kanha in Madhya Pradesh, Corbett in Uttaranchal or Ranthambhore in Rajasthan may have received the highest amount of total funds since the inception of the programme. But when this is analysed against the number of years since the reserve has been set up, the picture changes.
2. Instead of Kanha or Corbett, the reserves that have received the highest average yearly allocation

are Bhadra in Karnataka, Panna in Madhya Pradesh and Tadoba-Andhari in Maharashtra. These reserves received over Rs 1 crore annually. Older reserves like Kanha or Corbett slip to 5th and 7th positions respectively in this respect.

3. The annual average allocation across the country is Rs 72.12 lakh per reserve per year since the inception of the programme.

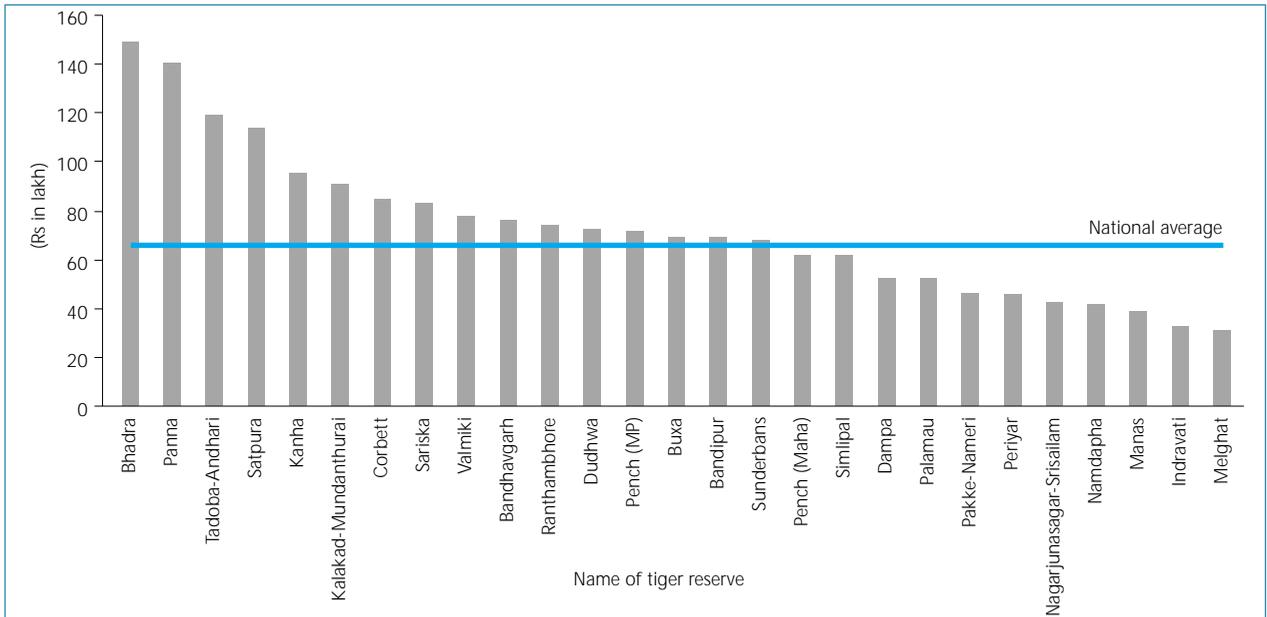
4. But if what is allocated to a reserve is seen as proportional to the area the reserve covers, interesting findings appear. This is assuming that the larger the area, the higher the money needed for its management and protection. This estimation does not take into

ALLOCATION OF FUNDS TO TIGER RESERVES FROM INCEPTION TO 2004-2005



Source: Project Tiger directorate

AVERAGE YEARLY ALLOCATION OF FUNDS TO TIGER RESERVES FROM INCEPTION TO 2004-2005



Source: Project Tiger directorate

account the ecological significance of the reserve.

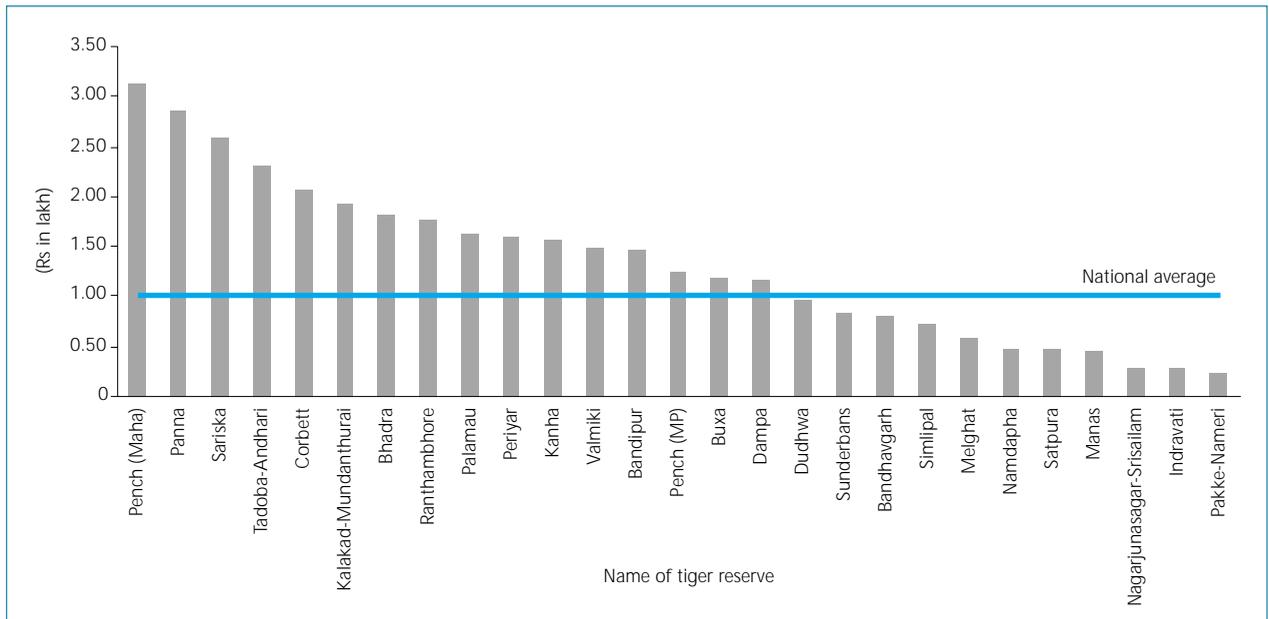
But in this case, the highest recipients are, still, Panna and Pench in Maharashtra. Sariska in Rajasthan comes a close third. These are the smallest reserves in the country, with Pench covering just 257 sq km.

Pench has invested over Rs 3 lakh per sq km since its inception in 1992. Sariska has invested Rs

2.58 lakh per sq km since it was created in 1978.

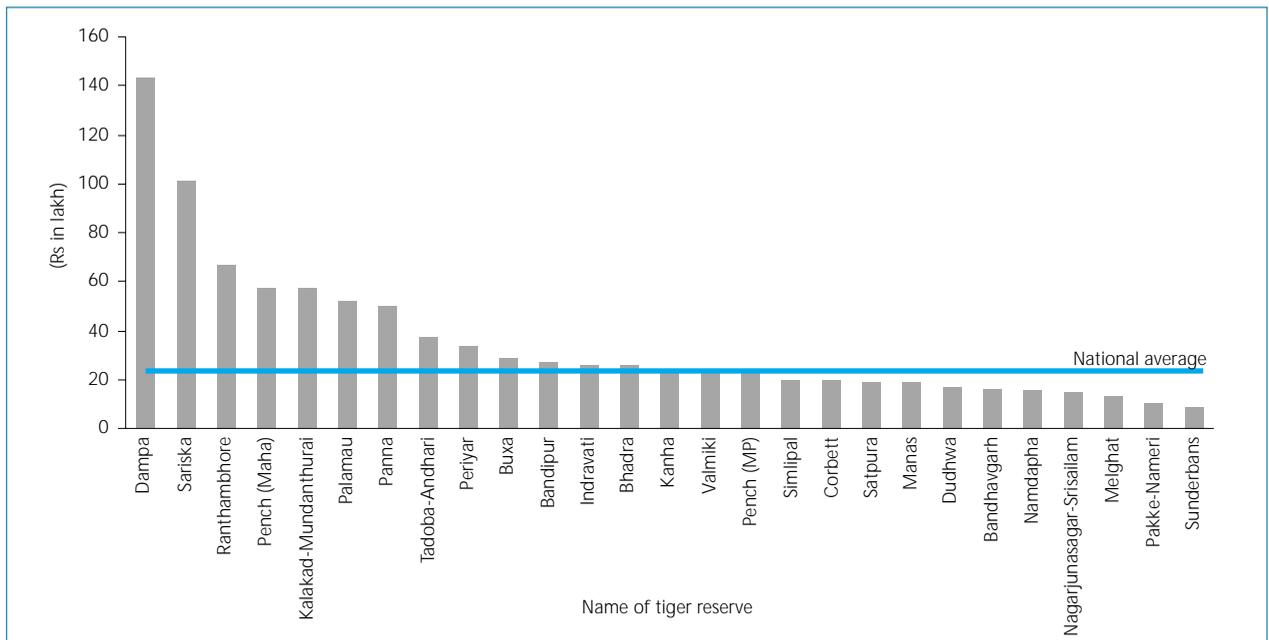
5. But if an estimate is made on the basis of per square kilometre per year since the reserve has been in operation, Bhadra still scores the highest with Rs 30,000 per sq km per year, while Sariska stands at number seven with Rs 10,000 per sq km per year, still

ALLOCATION OF FUNDS TO TIGER RESERVES PER SQUARE KILOMETRE FROM INCEPTION TO 2004-2005



Source: Project Tiger directorate

ALLOCATION OF FUNDS TO TIGER RESERVES PER TIGER FROM INCEPTION TO 2004-2005



Source: Project Tiger directorate

higher than Corbett (Rs 6,000 per sq km per year) and Kanha (Rs 5,000 per sq km per year).

6. The Task Force has used the number of tigers in the reserve (2001 census) as a rough indicator of the allocation of funds vis-a-vis the importance of the habitat. The estimate changes again. This time, the reserves of Dampa in Mizoram, Sariska and

Ranthambhore climb to the top. Reserves like Kanha and Corbett, with higher numbers of tigers, drop to 14th and 18th positions respectively — closer to the national average of Rs 23 lakh per tiger from the inception of the programme. But it is reserves like Sunderbans in West Bengal that deserve attention, because they get less than Rs 8.76 lakh per tiger, as compared to the over Rs 1 crore per tiger that was

spent in Sariska since its inception.

7. Sundarbans has the highest number of tigers — 245 according to the 2001 census — and the least investment in terms of both area and tigers. Corbett has a total investment of Rs 27 crore spread over 32 years, for an area of 1,316 sq km, and an estimated population of 137 tigers.

On the other hand, there is Ranthambhore, which shows an investment of Rs 23.5 crore spread over the same years and area as Corbett, with an estimated population of 35 tigers. Till date, therefore, Ranthambhore has invested Rs 67 lakh per tiger,

compared to the Rs 19.66 lakh spent by Corbett and Rs 8.76 lakh by Sundarbans.

This indicator is not to count the money per tiger. But it is useful as a management tool to understand that it is not necessary that money alone will make the difference for tiger preservation (see *graphs: Allocation of funds to tiger reserves from inception to 2004-2005; Average yearly allocation of funds to tiger reserves from inception to 2004-2005; Allocation of funds to tiger reserves per square kilometre from inception to 2004-2005; Allocation of funds to tiger reserves per tiger from inception to 2004-2005*).

Personnel and protection

It is clear that protection or management is not possible without trained and capable staff.

At one level, the forestry sector suffers from poor cadre management and training. The revival of direct recruitments to the state forest services have significantly upset the promotion prospects lower down, leading to frustration in the subordinate forestry cadres — the rangers and the frontline staff. At another, the decay in the forestry services have led to deteriorated capacity-building (see *Annexure x: A critique of cadre-building in the forestry sector and suggestions for human resource improvement*).

This is an issue that came up in most discussions the Tiger Task Force was involved in. So the Task Force worked with the Project Tiger directorate to

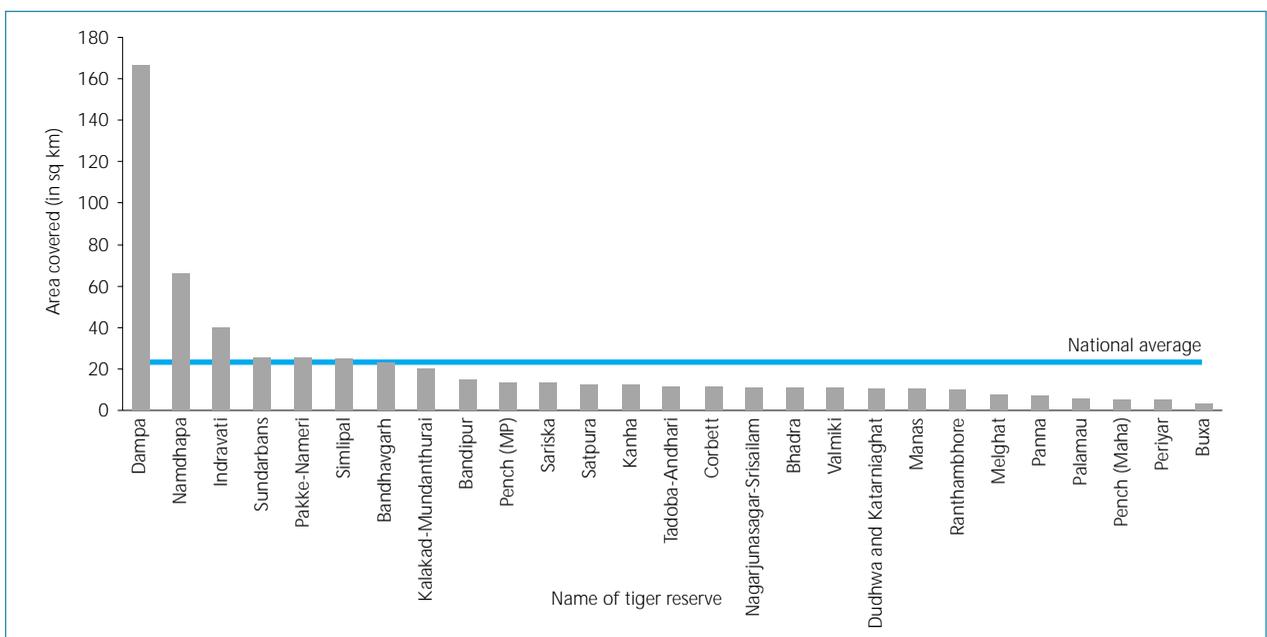
collect information from each reserve about the number, age and training of personnel to better assess the problems in the country.

The issues reviewed in this survey were:

- The personnel in place and their ability to become an effective force for protection
- The infrastructure provided to the force to effectively monitor and protect tiger reserves
- The issues of human resource management and strategies to make the best use of the available infrastructure

Consultations with experts suggested that the staff strength, as well as the staff’s capacity and ability to protect and guard, had deteriorated over the decades. The problem was two-fold: one, the field staff sanctioned for particular tiger reserves had not been

AVERAGE AREA COVERED BY GUARDS IN TIGER RESERVES



Source: Compiled from data received from Project Tiger directorate

AREA COVERED BY STAFF OF TIGER RESERVES

Tiger reserve	Total area covered by a staff (in sq km)		
	Ranger	Forester	Guard
Bandhavgarh	89.38	72.63	23.24
Bandipur	150.80	62.83	14.93
Bhadra	123.00	28.94	10.70
Buxa	27.11	10.26	3.06
Corbett	101.23	73.11	11.34
Dampa	166.67	250.00	166.67
Dudhwa and Katarniaghat	80.12	25.70	10.48
Indravati	2,799.00	215.31	39.99
Kanha	162.08	27.39	12.23
Kalakad-Mundanthurai	66.67	61.54	20.00
Manas	258.18	48.14	10.18
Melghat	98.65	23.29	7.55
Nagarjunasagar-Srisaïlam	67.32	51.71	10.59
Namdapha	248.13	116.76	66.17
Pakke-Nameri	301.50	86.14	25.66
Palamau	114.00	36.64	5.86
Panna	31.88	28.53	7.32
Pench (Maharashtra)	85.67	32.13	5.14
Pench (Madhya Pradesh)	54.14	22.97	13.30
Periyar	70.64	21.00	5.36
Ranthambhore	74.11	23.00	9.88
Sariska	108.25	34.64	13.53
Satpura	61.92	30.96	12.28
Simlipal	196.43	74.32	25.00
Sundarbans	215.42	112.39	25.34
Tadoba-Andhari	124.00	56.36	11.07
Valmiki	120.00	42.00	10.91
National average	228.85	81.20	15.35

Source: Compiled from data received from the Project Tiger directorate

deployed. Two, the existing field staff was old and unfit for physically strenuous activity like patrolling in the forests.

Much of the physical labour of securing the protected area is the responsibility of either the forest

guard or the forester. Their duties include patrolling their beats and walking the beats assigned to them during night, camping at *chowkis* built to facilitate patrolling deeper into the forests, carrying out anti-poaching raids and maintaining fire lines and patrol

roads. For the skilled poacher, the forest-dependent villager as well as for the tourist, the guard is the face of the forest department. Therefore, these two ranks almost hold the fort together for the forest department.

Coverage and efficiency

There is no quantitative standard for measuring the efficiency of field staff in terms of the area they cover, particularly as ecosystems and habitats differ across the country. But a comparative analysis across the 28 reserves shows up trends on one very significant parameter: the basic area that a forest guard is supposed to cover. The Task Force analysed data for three field-level staff positions — rangers, foresters and guards and watchers (see table: *Area covered by staff of tiger reserves*).

1. There is a large variation in the area that a guard or any field officer needs to cover in different parks that fall under a tiger reserve. In the case of guards, the most well-covered is Buxa tiger reserve in West Bengal, with a guard for almost every three sq km. The worst in terms of area covered is Dampa tiger reserve in Mizoram, with a dismal 166.67 sq km to be covered, on an average, by each guard posted there.

2. On an average, a guard in the country's tiger reserves covers 15.35 sq km. But if the reserves in the extremes are removed from the data spectrum, then the average for most in the country is 13.54 sq km per guard. It is also difficult to estimate if the number of guards available in the area makes an overwhelming difference in the protection strategy.

Given the diversity of ecosystems, there obviously cannot be one country-average of the area that a forest guard or any other forest field officer should cover. The task depends on regional, topological and ecological variations. Under ideal situations there should be adequate guards for each beat of a tiger reserve, given the beat is of a rationalised size (see graph: *Average area covered by guards in tiger reserves*).

The Task Force does not have complete data to analyse the position of guards as compared to the beats. But for the few cases it has information on, the sanctioned number of guards at present does not correspond to the number of beats in the tiger reserves. Take the case of Bandhavgarh, where against 62 beats there are 50 sanctioned posts of forest guards; even though the reserve has hired more guards than it had been sanctioned, six beats remain vacant.

3. However, analysis shows that if only the core areas of a reserve are taken as its key patrolling area, then in reserves like Sariska, Periyar (Kerala) or

Ranthambhore there is one staff to manage every sq km of the area.

4. The tiger reserves in northeast India show definitive low coverage by the forest department staff. In the case of Nameri in Assam, a forest guard covers an area of 25.66 sq km on an average. In Namdapha in Arunachal Pradesh, it deteriorates to 66.17 sq km and in Dampa, a dismal 166.67 sq km. This must be understood in the context of the land use patterns in the region coupled with the type of terrain these reserves cover. Traditionally, these areas have not had high intensity coverage by any government or administrative staff. Much of these areas also remain inaccessible to people or communities which have not inhabited the regions traditionally, and who, therefore, are inept at navigating in and using the region, especially during the so-called 'tough periods', such as the monsoons. A stereotypical approach is to ask for an increase in protection staff in these regions, despite the fact that during monsoons, the period when the threat of poaching peaks, the staff will find it almost impossible to move around in the reserves.

A more logical way to progress in these regions with a view to increase protection would, therefore, be to look for ways to involve people who have traditionally inhabited and used these areas for various livelihood needs. A case in point is the Namdhapa tiger reserve. The area of the reserve is used by, besides other communities, the Lisu, who are legendary for their hunting abilities and are known to utilise and move around the forests with ease during all seasons. It would be innovative to examine the possibility of converting the expertise of this tribe, at present perceived as a threat, to the advantage of the reserve. A proposal to utilise the resources, human power and expertise of the Lisu community in the protection of Namdhapa has been discussed in another section of this report (see chapter 3.4: *Innovative protection agenda*). The opportunity of employing similar strategies in other parks in northeast India should be explored as against the approach to increase armed personnel which could, at the least, turn out to be dangerously explosive.

5. A peculiar situation arises in the case of reserves falling in naxalism-affected areas, such as Nagarjunasagar-Srisailem in Andhra Pradesh, Valmiki in Bihar, Palamau in Jharkhand and Indravati in Chhattisgarh. Each one of these reserves has a high number of guards but, as experts point out, real patrolling in these regions is made impossible by the prevailing security situation.

Even here, the clamour has been for an increase in patrolling and staff in these vulnerable and troubled reserves. But the fact is that the patrolling

staff available with the forest department is already very high here. In Valmiki, the forest guard on an average has to cover an area of 10.91 sq km; in Nagarjunasagar-Srisailam, 10.59 sq km. Palamau is as low as one forest guard for 5.86 sq km.

It is also a fact that the vacancies in the position of the guard in these insurgency-ridden reserves are 48.57 per cent, again symptomatic of a state under pressure.

Therefore, what is clearly needed is to devise

strategies to:

- fill those vacancies of guards, the recruitment for which has already been sanctioned; and
- find alternative ways of patrolling those reserves which are under the control of insurgents.

Again, the government must look at other options and explore alternative strategies to manage these parks. The old belief that more guards mean better protection has been tested and has failed.

The vacant staff position

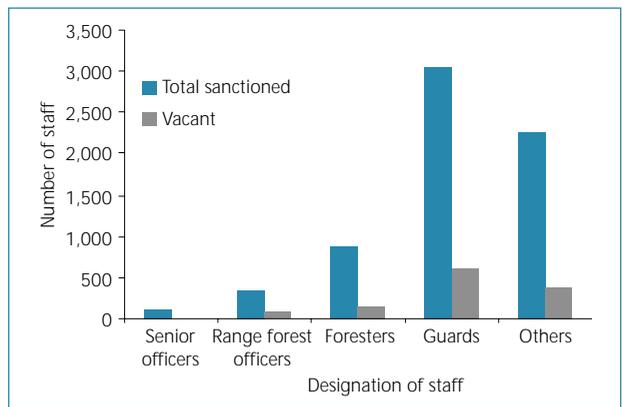
The issue is not what the total staff strength is, but how many staff positions have been filled. The Task Force has found that:

1. Almost one-fifth or 18.2 per cent of the posts for field staff (forest guards, foresters and rangers) remain vacant across 28 tiger reserves.

The sanctioned total staff strength for all reserves is 4,353 personnel. Of these, 792 posts are lying vacant. Vacancies were marginally higher, at 19.24 per cent, in the case of the forest guard who forms the frontline of protection as compared to the forester (14.24 per cent) (see graph: *Forest guard vacancy (percentage)*).

2. But it is important to review the vacancies in terms of the level of the staff. It is clear that

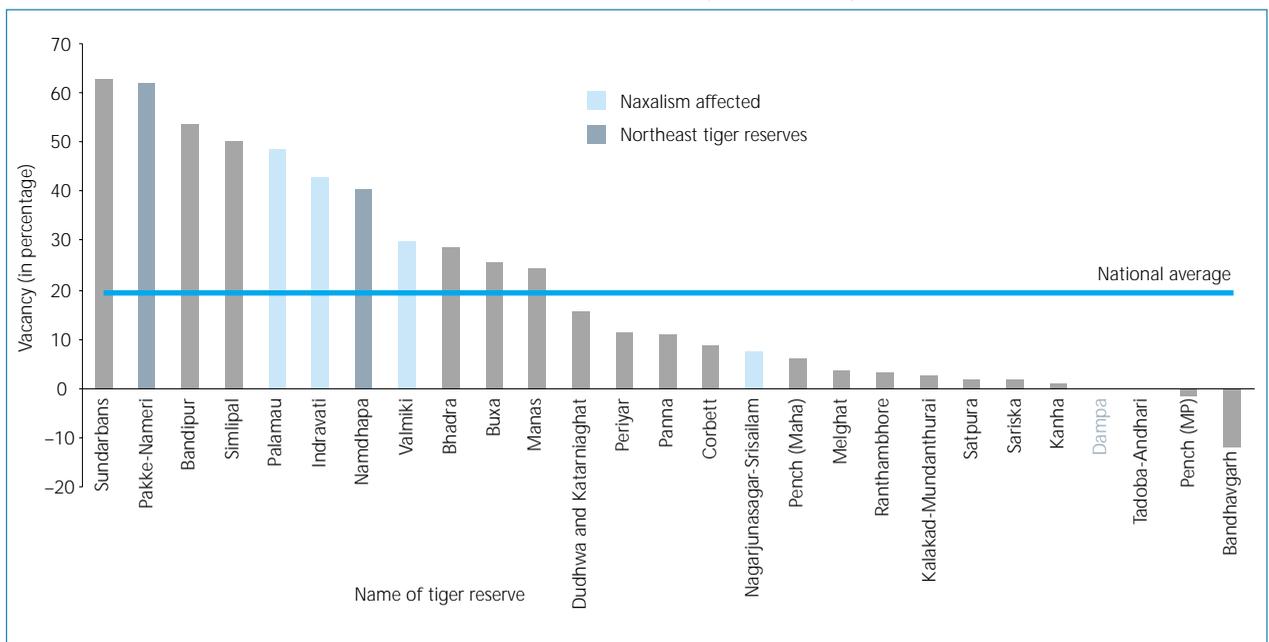
NUMBER OF VACANCIES ACROSS POSTS IN TIGER RESERVES



Source: Project Tiger directorate

the bottom-rung (the crucial foot soldiers) have higher vacancies. In fact, there are 108

FOREST GUARD VACANCY (PERCENTAGE)



Source: Project Tiger directorate

sanctioned positions for senior officers (chief conservator-assistant chief conservator). Of these, 96 are filled — which means 11 per cent vacancy in this category.

3. The forest guard vacancy in Sundarbans, Bandipur in Karnataka and Simlipal in Orissa are of particular concern (these are non-insurgency and non-northeast reserves discussed earlier).

4. It is important to review vacancies in tiger

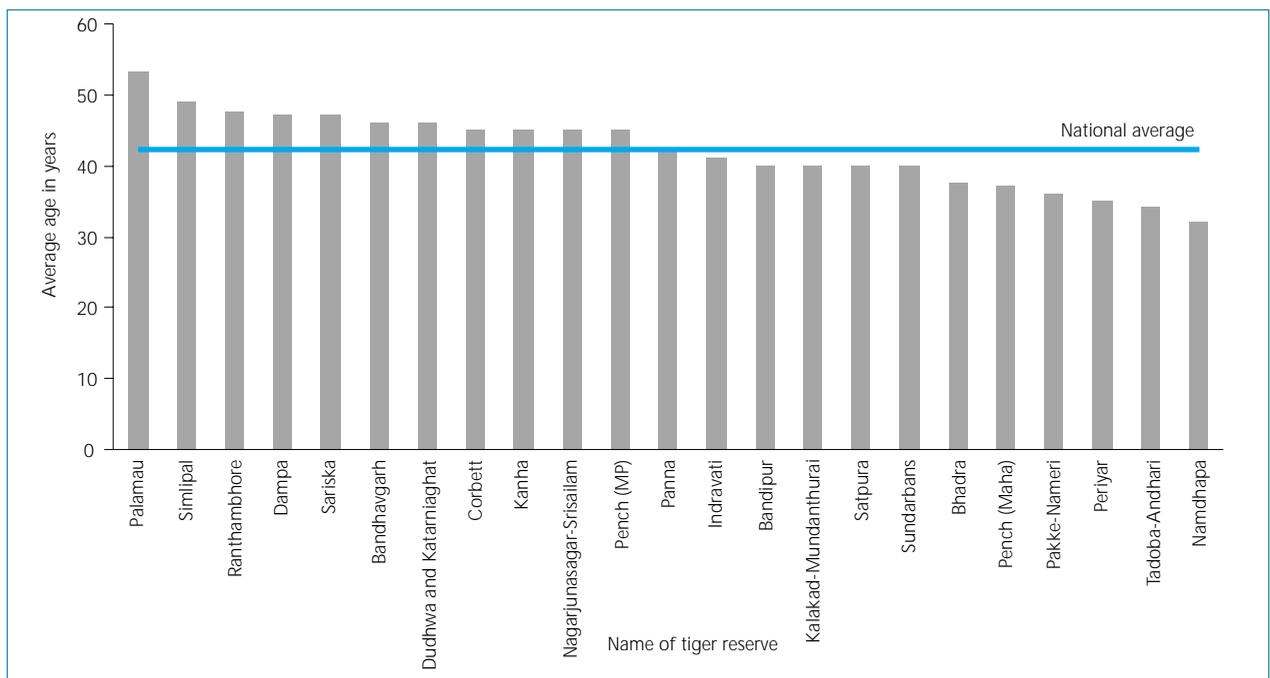
reserves with respect to overall vacancies in the forest department. Today, across the country, there are 76,174 guards in position for a sanctioned strength of 87,592. Vacancies are as low as 13.04 per cent. This indicates vacancies are lower in non-wildlife areas than in protected areas. Thus there must be redeployment from the other forest sectors and divisions to the wildlife divisions and protected areas. There is no reason why the state of frontline staff should be any worse in the protected areas than in non-protected areas.

Age of the staff

A related issue is the need to tackle the problem of the ageing force that exists at the field level. The average age of guards posted in the reserves is 42 years, whereas that of the forester and ranger is 46. The standard procedure of recruiting existing non-permanent staff to merely fill vacancies, as has

been done in Sariska recently, is certainly not the answer. The forest guard is the equivalent of the infantry for the forest department and must be tested — before recruitment — for physical fitness and other abilities that would hold him in good stead in the field. There is a strong case for re-evaluating the criteria by which recruitments of forest guards are made.

AVERAGE AGE OF GUARDS IN TIGER RESERVES



Source: Project Tiger directorate

Capacity of the staff

It is vital that staff is fully trained to ensure effective protection and management.

1. It is important to understand that the state of affairs in wildlife reserves is symptomatic of the situation in the forestry sector in general. Lesser

people are being trained in the profession of forestry in the country. For instance, most colleges that train rangers — the first rung of field officials — have virtually closed down. This is extremely worrying: it implies forest services will have lesser numbers of trained personnel to manage an extremely specialised field (see graph: Number of trained rangers passing out of state forest service courses).

2. According to data provided by field directors, a mere 10 per cent of the guards (field staff) in tiger reserves have been imparted any kind of training in wildlife. Out of 28 tiger reserves, 16 have no trained forest guards at all. While the primary role of the forest guards is that of patrolling, there is no doubt that in-job training on wildlife issues enhances their self-esteem as well as that of the work they do, thus increasing efficiency (see graph: *Trained guards (percentage) in tiger reserves*).

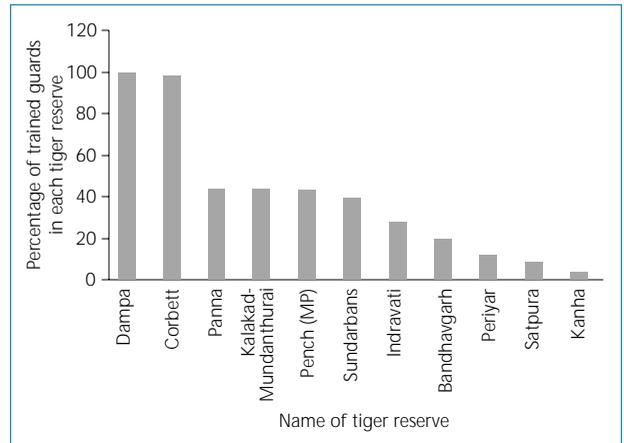
Deployment strategy: forest camps

There is no doubt that at the centre of this issue is the idea of using strategic force instead of a large force. This demands two things from the tiger reserve management: one, an effective deployment of personnel and two, a more efficient use of existing machinery and infrastructure. That this has not happened in a concerted manner is evident from the way permanent camps are utilised as bases to monitor the habitat.

1. On an average, a patrolling camp for the total tiger reserve — buffer and core — covers 36.34 sq km. The fact is that patrolling is concentrated in the core area. Therefore, a better estimation would be to calculate the number of camps vis-a-vis the core area of a reserve.

- In Kanha, there is a camp for every 11.31 sq km for the total area. Assuming concentration of camps is highest in the core, this reserve has a camp for every 3.12 sq km.
- Interestingly, in Ranthambhore, there is a camp for every 3.23 sq km of the core. Melghat is equally

TRAINED GUARDS IN TIGER RESERVES (PERCENTAGE)



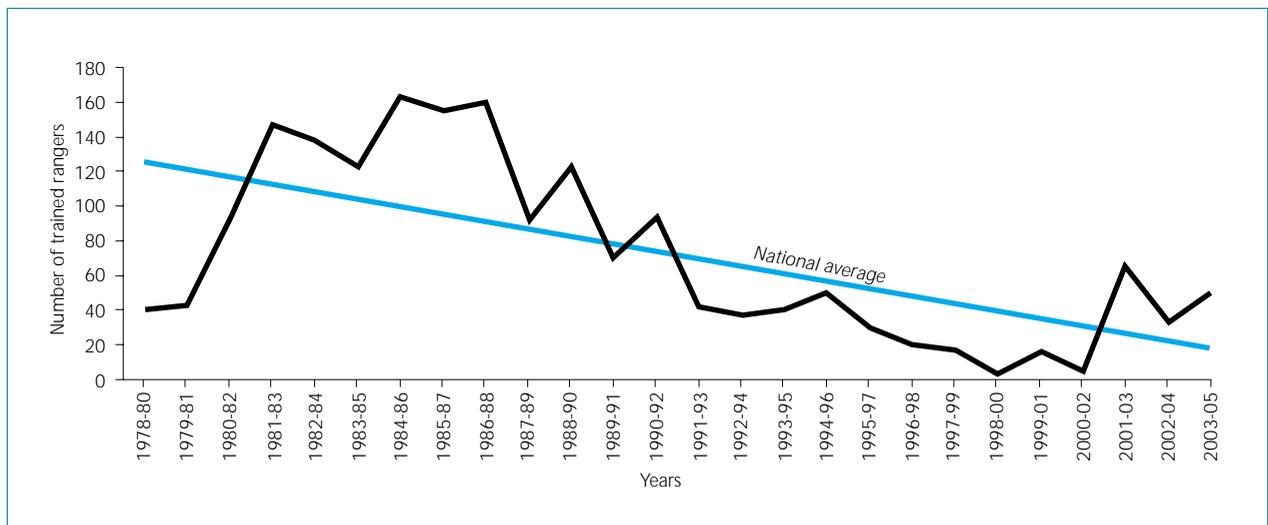
Note: Tiger reserves from where no information was received have not been included above.

Source: Project Tiger directorate

well protected, with a camp for every 3.78 sq km.

- In Panna the camps, on an average, cover 10.04 sq km. But as the entire area comprises the core, the coverage per camp is much higher.
 - The Kalakad-Mundanthurai tiger reserve in Tamil Nadu has the lowest number of patrolling camps — only one patrolling camp for the entire 800 sq km reserve area.
2. The problem is that the camps present in most reserves are poorly equipped and guards have to work in deplorable conditions, with no water, food or other facilities. This makes it even more difficult to use the camps effectively for protection.

NUMBER OF TRAINED RANGERS PASSING OUT OF STATE FOREST SERVICE COURSES



Source: Project Tiger directorate

Infrastructure

But a camp is not an automatic requisite for protection. It also needs to be worked by managers, who must ensure that personnel are available for the camp and are prepared and vigilant. This demands a strong internal management system, so that park authorities can ensure this is done.

Even if one were to remove the outliers or exceptional cases of reserves in northeast India, where the staff strength is low to begin with, the relation between the number of forest guards in place and the number of patrolling camps varies immensely.

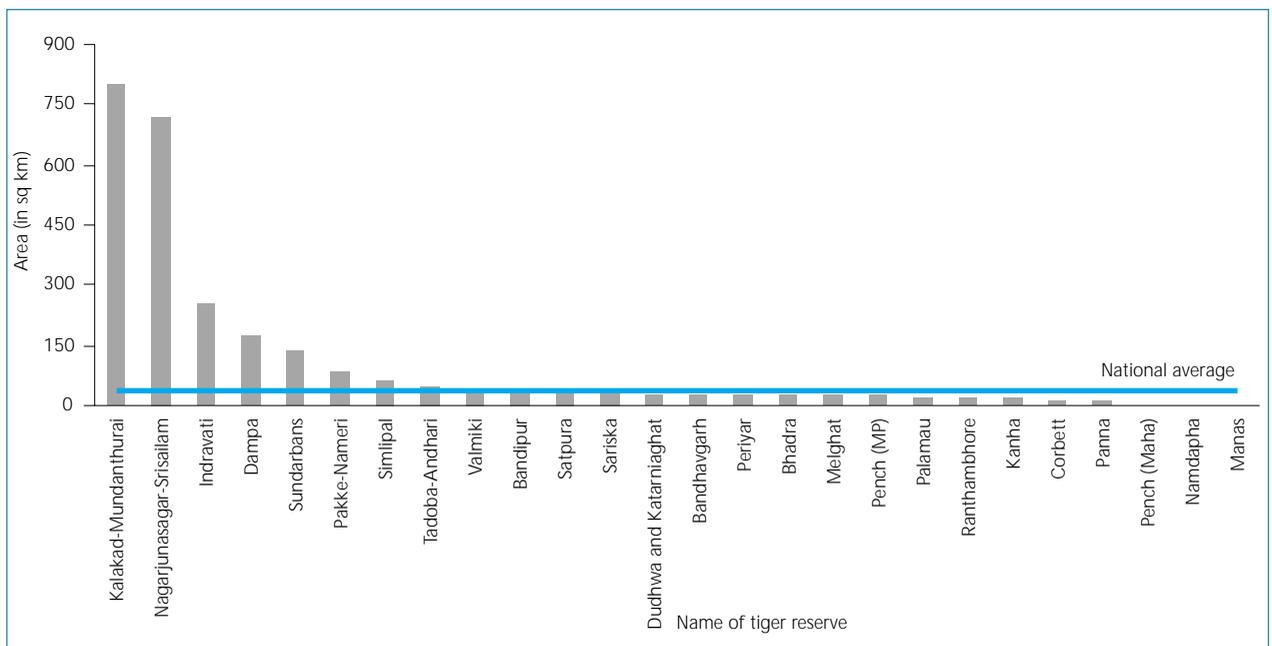
The number of forest guards in the tiger reserves vis-a-vis the number of camps shows a very small positive correlation of 0.152 (on a range of +1 to -1 where +1 represents a perfect correlation between them). This indicates the number of camps created in a tiger reserve has almost no relation with the number of guards available for patrolling. The guards are worth the money spent on them only if they have been deployed in the field at strategic locations and are not sitting idle.

Some tiger reserves have followed a more strategic policy of deploying larger numbers of field staff in the core of the reserve than in the buffer, for the logic of an existing biodiversity-rich core demands the area be better patrolled. This is the case in Kanha. There are some advantages to this strategy. The main purpose of the staff working in the core has to be of protection whereas in the buffer, interaction with the villages inside and at the periphery is of

greater moment; therefore, the skills of working with communities need to be honed. A greater degree of efficiency can be achieved if the staff is accordingly trained (see graph: Area covered by each camp (total area)).

1. There is a constant demand on the part of the reserves to increase the number of vehicles available to forest officials. Depending upon the habitat, effective patrolling requires boats, bicycles as well as motorcycles. But as of now, no audit exists of how efficiently these vehicles in the parks are used. Anecdotal information gathered during interactions with officials has revealed that diversion of vehicles meant for patrolling to other purposes — including tourism — has been a practice in some parks. This must be curtailed. At the same time, the old fleet of vehicles should be phased out after inventorisation.
2. The Task Force has been unable to collect complete information on the number of guns and other weapons available in each reserve. But it must be noted here that:
 - a. Most of the illegal hunting in the country is still done by poachers using traditional arms and ordinary 12-bore guns. In comparison, most of the armed forest staff now carry double-barrel guns, rifles and revolvers.
 - b. The Central government has been generous in terms of funds to state forest departments for the procurement of arms and ammunition. Therefore funds, again, are not the problem.

AREA COVERED BY EACH CAMP (TOTAL AREA)



Source: Project Tiger directorate

What we can learn from Sariska

Sariska is a perfect case in point to highlight all that the Task Force is discussing here. Unlike what has been reported widely, Sariska seems to be well staffed and well protected. There are almost no vacancies in the park; only two posts of foresters and two of guards are vacant. Whereas, on an average across all the 28 tiger reserves, more than 20 posts at forester and guard levels remain vacant in each reserve.

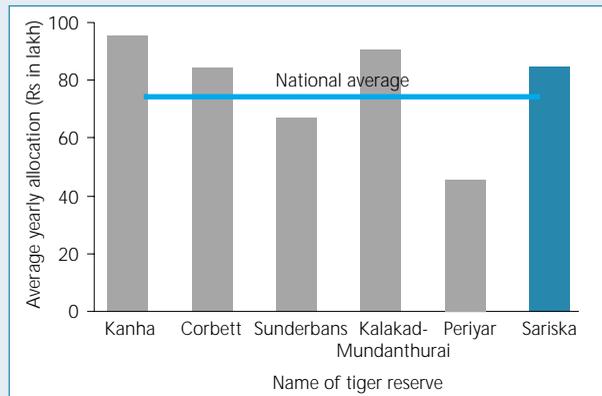
If one compares the area that the field staff is required to cover as part of protection work, then on an average, a forester in Sariska looks after the protection of 34.64 sq km and a guard 13.53 sq km. This makes Sariska an above average case; the national average for the area a forester covers is 51.37 sq km and what a guard covers is 15.34 sq km.

SARISKA TIGER RESERVE: PERSONNEL IN PLACE, SECURITY MISSING

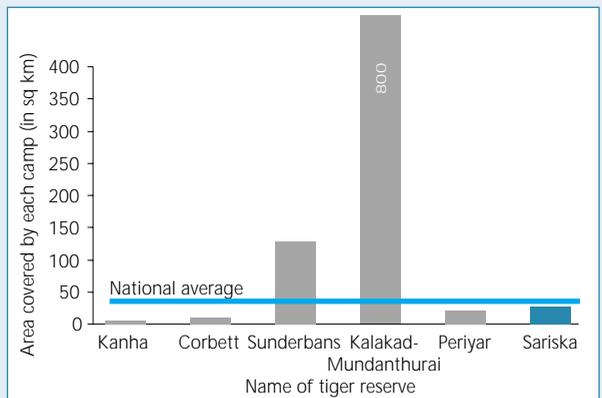
Particulars		At Sariska
Senior officers	Sanctioned	4
	Filled	4
Rangers	Sanctioned	8
	Filled	8
Foresters	Sanctioned	25
	Filled	23
Forest guards	Sanctioned	64
	Filled	63
Rest	Sanctioned	204
	Filled	203
Area covered per guard (sq km)	Forester	34.64
	Guard	13.53
India on average (sq km)	Forester	63.13
	Guard	21.75

Source: Compiled on the basis of data from Project Tiger directorate

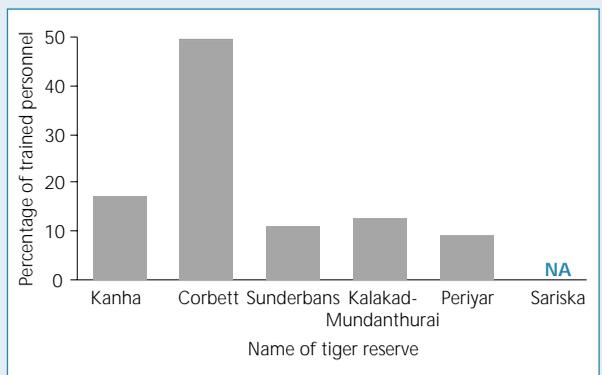
AVERAGE YEARLY FUND ALLOCATION: THE BEST AND THE WORST



AREA COVERED BY EACH CAMP



PERCENTAGE OF TRAINED PERSONNEL



Source: Project Tiger directorate

- c. However, forest staff are reluctant to use firearms, as existing rules do not provide them enough immunity when someone is killed or injured during firing.
- d. The Central government also provides assistance for deployment of armed guards in reserves. The

experience of these guards has, however, not been very encouraging. For instance, Ranthambhore is one reserve which has battalions of the Rajasthan Armed Constabulary (RAC). But still, grazing continues. The numbers of tigers are also down, as per the census done by the state task force.

Recommendations

It is clear that much more needs to be done to invest in the capacity and facilities provided for protection and management of tiger reserves. But it is equally clear that there are no single answers to the problems of the reserves. The Task Force believes that a single or simple contention that the answer to tiger protection is to invest more resources, infrastructure or personnel for protection and management, is clearly not borne out by the facts.

1. The reserves that have received the most financial investment have not necessarily fared as the best managed or protected reserves in the country. Funds or infrastructure is not the only determinant for success.

In fact, these resources can be counter-productive if the strategy for management is not well considered and operationalised. For instance, Sariska and Ranthambhore, both in Rajasthan, where the tiger has been reported to be under severe threat of extinction, have received the heaviest investments for developing protection infrastructure. It is important to address this issue. India, being a poor country with many competing priorities, funds will always be scarce here for any given activity. The fact that the heavy investments made in these reserves have not yielded fruits needs to be highlighted, so that strategies that are indeed effective can be adopted.

Recommendation: Each reserve must have a specific and detailed strategy for protection. The independent monitoring of the reserve must include an assessment of the enforcement mechanisms in place and the patrolling efforts of field staff, so that policy interventions can be designed.

The Task Force does not recommend the need for armed forces as the most appropriate for protection. In fact, it finds that intervention of armed personnel in protection of reserves is not necessarily the most appropriate response. Project Tiger has provisions for providing central funding support to deploy armed personnel from central reserve police and state police. But this experience, in many cases, has not been useful because of the unfamiliar terrain and circumstances.

2. However, there are areas that have unique problems that need urgent and careful review. These are:

- i. The reserves in the northeastern part of the country, which are inaccessible and occupy vast areas: Manas, 2,840 sq km; Nameri, 1,206 sq km; and Namdapha, 1,985 sq km. Except for Manas, which is flat and largely accessible, the terrain in the other reserves is extremely inhospitable for outsiders. The question is: what kind of protection strategy should be applied in these areas? The convention — more guards per sq km — will simply not work here.
- ii. The reserves in the naxalite-hit areas, which are simply out of bounds for the forest protection forces. These are also large — Nagarjunasagar-Srisaïlam is the largest reserve in the country with an area of 3,568 sq km. Indravati sprawls over 2,799 sq km, and Palamau and Valmiki over 800 sq km each. Again, sanctioning more staff will not work here, because they simply cannot be deployed. At present, these are reserves with the highest vacancies in the field staff. In these reserves, what is needed is a strategy that involves the armed protection forces and makes allies of the local people. The alienation of the people because of the forest policy breeds support for naxalism; wildlife is part of this problem.

Recommendation: There should be a clear strategy for protection in the northeastern reserves, where local people will be the only ones capable of traversing and protecting the

area. There should also be a strategy for the reserves controlled by naxalites, where armed intervention by the police might be the only option. In other cases, armed protection is not necessarily the solution. The answer will be in the deployment and internal management to make the most effective use of existing resources and infrastructure for protection.

3. There is no indicator by which it can be determined that the number of staff in any reserve is adequate for its protection and management. In a country as vast as India, the area that is patrolled by each staff, even in the best of circumstances — as in Buxa tiger reserve — is 3 sq km, or 300 hectares. The average in the country is as high as 15.35 sq km, particularly because of the vastness of the northeast region and its inaccessibility. Even after removing these ‘extremes’, each guard is required to patrol 13.54 sq km (1,300 hectares).

Again, answers to this cannot lie in simply increasing numbers of the protection and patrolling force. What is really needed is a careful assessment of the demand and the adequacy of the staff as compared to the area, the ecological region and the nature of the threat. For instance, in Kanha, one of the best managed tiger reserves, guards patrol 12.16 sq km on an average. In Ranthambhore, which is now known to have lost a large number of its tigers, guards patrol 9.88 sq km on an average.

The issue that needs to be considered carefully is why does patrolling work in Kanha, which has as per the last count protected its tigers, and not in Ranthambhore? Clearly, the threat of poaching remains in both the reserves. In both, the number of people who live inside and outside the boundaries are proportionally equal. But there could be other contributing factors, such as the hostility of local people to the reserves, the pressure of grazing because of lack of investment in neighbouring areas and mismanagement.

Recommendation: Further recruitment of staff — foresters as well as guards — must be reserved, as far as possible, for local villagers. The villagers located within the reserve (who are not being relocated) or the villagers who have been relocated outside the reserve must get preferential jobs in the reserves. This will provide local people with a positive stake in the protection of reserves. There should be direct recruitment and training provided for the recruits.

The criterion for recruitment should be amended so that it relaxes the formal educational qualifications needed for this position and instead values skills in jungle craft. In addition, there should be provision for in-service training for locally recruited staff.

4. The ability and capacity of the staff is an important consideration. As far as this is concerned, most reserves are in the same boat. The average age in the country for guards is 42 years, for foresters, 46 years and for rangers, 47 years. But there are cases of concern — in Palamau the average age of guards is 53 and in Simlipal it is 49 years. The problem here is that states are cash-strapped and are downsizing staff. In the most recent cases of recruitment, the effort has been to re-deploy persons from other services, which leads to even more problems, or to hire temporary staff. It is not possible to look at this issue in isolation and must be considered carefully in the light of the situation prevailing across the country and solutions found accordingly.

As far as training for foresters and guards is concerned, the situation is far from satisfactory in most reserves. The situation is unusual only in Corbett, and merits a mention: all the guards and foresters have undergone formal training there. Kanha is next, where 53 of the 71 posted foresters are trained. But the capacity of guards has not been built in Kanha, with only six trained guards out of a total 159.

These are two of the top reserves in the country. In other words, the training of staff is clearly critical for management.

Recommendation: Training must be institutionalised so that each reserve has skilled and committed personnel.

5. The other key determinant seems to be the presence and deployment of camps within the reserves. It is clear that the reserves that seem to have made the best use of their camps — by increasing their numbers and locating them in vulnerable areas — are the most successful. But having a camp is not enough; it is also important that the camp is used and this requires the internal management systems of the reserve to be tight and effective.

The other problem is that camps in many reserves lack basic facilities — of water or buildings. Without this, it is difficult for the guards to be posted for longer durations, weakening protection. Therefore, this is clearly an area that needs investment. In Kanha, for instance, the Task Force found that an attempt had been made to provide solar energy for charging the batteries of the wireless sets.

Another issue that has been raised in meetings with the guards is the need for free rations, so that they can avoid a trip to the market, which is often too far. This small expense would save them time and boost their morale. The situation of the field staff, particularly guards, in tiger reserves and other protected areas needs to be considered in terms of facilities for their families. Currently, this category of staff lives within the reserves in protection camps whereas their families live in the staff quarters of the reserve and lack basic facilities such as schools for their children.

In other words, for effective management of the reserves, we need an able, capable and well-equipped protection force. But getting this will require serious and substantive changes in the way we invest in our natural and human capital.

Recommendation: There is a need to invest in basic facilities for the frontline staff. The two key facilities this Task Force strongly recommends are:

- a. Housing camps in neighbouring district towns, usually where the project headquarter is based, for families so that the education of their children can be secured;
- b. Free rations for guards living in the camps. This practice is followed by many protection forces and helps in their work.
- c. Each reserve must create a staff welfare fund out of the income from tourism, which can be used to supplement medical and other benefits for the staff.

6. These incentives must come with responsibility. Currently, the special allowance which is paid to staff within tiger reserves is taken for granted, as it becomes part of the pay package. It does not lead necessarily to better performances.

Recommendation: Even as there is investment in basic facilities and incentives, there must be disincentives and rewards built into the system, based on independent monitoring. For instance, the provision for free ration and special allowance must be withdrawn in reserves that score low on the rating chart. This should be done with complete transparency so that it is not seen as political or discriminatory. In fact, this move will be a test for the independence and rigour of the independent assessment as well.

7. The issue of personnel in reserves needs a broader assessment as it concerns the state of forest-related services across the country. The assessment of this Task Force is that this service is facing key challenges that need urgent redressal. Our concern is:

- a. The number of rangers being trained in the country is virtually down to zero. In other words, over the coming years, there will be fewer trained personnel available in this sector. There are 16,000 positions for rangers in the entire country. In 2003-2005, only 30 rangers passed out of the only functional training school in Kurseong, West Bengal.

- b. The salary payments for state-level staff are in complete disarray in many areas — people do not get paid often for months on end. This situation cannot lead to high morale and effective working in the field.
- c. Then, even more seriously, reviews for staff have been waiting for years in many cases. The situation is so bad that a person entering a service at a particular level is likely to retire at the same rank. This is a clear failure of the administrators and has to be dealt with immediately.

Recommendation: All the above recommendations will provide temporary relief unless there is a review of the crisis in forestry services and steps are taken to address issues of training, personnel development, staff reviews and salaries. This is necessary and urgent.

3.3 The illegal trade agenda

Nearly every part of the tiger has a commercial value. Live tigers are sold as exotic pets. Traditional Asian medicine uses tiger bone as an ingredient in a number of different concoctions. The skin is used to make ‘magical’ amulets and novelties, and worn as part of traditional attire. The teeth and claws too become amulets, while the tiger penis is an ingredient in reportedly powerful aphrodisiacs and tonics.

The tiger trade is primarily an export-oriented trade for India. Tiger parts are not in demand in India, but have a large market abroad. The nature of international trade in tiger parts is essential to understand the business of tiger trade in India.

There have been a few country-based or product-based studies conducted on tiger trade over the past two decades. But as these studies have been conducted by individual non-governmental (domestic and international) organisations, the research has been incremental in nature and presents only the parts of a complete picture.

The Chinese connection

In the 1970s, tiger poaching was driven by demand for the skin (used as fur in the US and European markets) as well as for the bones (used in traditional Chinese medicine). But anti-fur campaigns were effective in reducing the demand for skins to some extent¹.

Yet the 1980s and early 1990s saw a new rush — this time, increased demand for Chinese medicines and, therefore, tiger bones and claws. The trade was driven by economic growth in southeast and east Asia, including Japan, which at one time was the biggest importer of Chinese ‘tiger’ medicines². Between 1990 and 1992, over 71 tonnes of tiger derivatives/products were imported into Japan³.

The other large post for trade has been Hong Kong, which works as a hub for movement of tiger goods to other parts of the world, including Chinese migrant communities in the US, Canada, the UK and Europe. Between 1990-92, Hong Kong was known to import almost 48 per cent of the business in tiger products (excluding grains, capsules and pills) from China. Chinese authorities disclosed that in 1991, they exported 5,250 kg of liquid medicine, 15,079 cartons of tablets and 31,500 bottles of tiger wine.⁴

This was at a time when the Chinese tiger population was known to be almost decimated. It was well known that during the 1950s, the tiger was seen as a threat to agricultural development in China and had officially been declared a pest; it was hunted down by state-appointed teams. China accumulated

a substantial amount of bones, which it was using for its medicines. By the mid-1980s, not only was the stock of bones gone, but there were hardly any tigers left in its wilderness. But tiger parts were still coming from other countries, including India. The customs data from South Korea showed that the country had imported six tonnes of tiger bones between 1975 and 1992, which experts calculated would mean between 500 to 1,000 dead tigers. The imports were from Indonesia and China which, it was assumed, meant that the country was being used for re-exports, as its own tigers were gone.

In 1996, the UK-based NGO, the Environmental Investigation Agency (EIA) reported that there were well established routes for the movement of tiger parts out of India. The parts were being exported to Tibet either directly or through Nepal and Myanmar. The business of tiger parts from India was seen to be increasing in this period as tiger populations in southeast Asia decreased.⁵

The early 1990s: flexed muscles

By the early 1990s, international concern had peaked on this issue. China, Taiwan and Japan were indicted for their role in trade in tiger parts. In November 1993, US groups pressurised their government to invoke the Pelly Amendment — which allows the government to impose bilateral trade sanctions on any country endangering wildlife. The US government cracked down to impose trade sanctions on Taiwan but left out China, saying the White House felt that “it had shown considerable progress in eliminating tiger trade”. But critics believed that this was more because of its own trade interests with China, growing at that time. In March 1994, when the newly created Global Tiger Forum met with 11 tiger range countries and international NGOs as members, China, though invited, stayed away.⁶

But international pressure prevailed and by 1994 China, Taiwan and South Korea announced bans on trade in tiger bones and their use in traditional medicines. The sanctions on Taiwan were lifted in 1995, saying that “substantial steps” had been taken to halt tiger product trade. In 1999, the US passed legislation banning any product even “claiming” to contain tiger parts, purportedly done to check the use of medicines which did not contain tiger bones, but were labelled to do so.

But the international pro-tiger community was looking for a victory. It asserted that China was not the problem. In the late 1990s, WWF-TRAFFIC — the same group that had blown the whistle on China —

now published its report, *Far from a cure; the tiger trade revisited*, in which it said that even though illegal trade continued, investment by China in enforcement was paying off.⁷ According to this report, its surveys in the late 1990s found that in China and other non-range countries, the availability of tiger bone medicine had declined. Also, wholesale prices reported for raw tiger bone in the black market in China and South Korea were lower in the late 1990s, suggesting a drop in demand.

Yet it was unclear whether such restrictions only forced the market to go underground, making detection of the trade more difficult. It was also unclear whether they may have raised the stakes and, therefore, prices of tiger parts and the costs of poaching. The earlier reports that had shown a marked rise in tiger trade had been done with the help of official statistics, ‘open’ surveys and telephonic interviews, but the reports in 2000 largely depended upon market reviews and attempts to penetrate the illegal markets. Therefore, how comparative these figures were remains questionable. The shovelling of the trade underground may have had other impacts on the nature of the trade, making it undetectable or skewing statistics. It was also found that some manufacturers labelled their products as tiger products, though they contained other animal parts like those of the leopard’s.

Just as conservationists cannot be certain how much of the old processed medicines really contained tiger parts, so too is it uncertain whether the new processed medicines really do not. The question — do manufacturers continue to use tiger bone and just change the label — was apparently the most sensitive one asked during interview surveys carried out for this report: most informants in Canada, Singapore and Taiwan claimed to be unsure.

Therefore, though there is a consensus that the traffic in bones and other parts has gone down relative to the mid-1980s, there is no conclusive proof or evidence to suggest that the demand is low enough, or substituted well enough by other ingredients, to not affect tiger populations in India and other Asian range states.

Part of this vagueness in understanding trade in tiger parts also arises from the availability of fake tiger products or derivatives in the market. While a part of the trade in fakes has always existed, how it was altered, with the tiger trade being banned in many parts of the world, remains unclear. Consequently, how it impacts the demand for tiger parts is also not clear.

The underground trade

By early 2000, trade in tiger products and their derivatives was clearly and most definitely illegal. But it continued.

In fact, there is evidence that illegal trade in tiger skins has surged since 2000. Four separate reports from international NGOs seem to suggest that the international action, geared to ban trade and tighten enforcement, is not bringing in the benefits that were foreseen.

By 1999, the EIA’s report *State of the Tiger* had already warned that enforcement was not working in China. Chinese researchers found tiger medicines were freely available in pharmacies. In Japan as well, medicines were available over the counter as well as online, advertising tiger products as their ingredients: this, when researchers found that detection was more and more difficult in this underground market.⁸

In October 2003, customs officers at a temporary checkpoint in the Tibet Autonomous Region found, to their horror, a truck carrying a consignment of 31 tiger skins, 581 leopard skins and 778 otter skins. These were being transported into the region. The haul, on the route to the Tibetan capital Lhasa, believed to be a major hub for this trade, was clearly coming from India. Investigators found the Delhi edition of the daily newspaper, *The Times of India*, stuck to the backs of the skins. All three of the arrested traders had spent some time in a town just across the border from Ladakh.

When the EIA sent its researchers to track down the link, it found shops selling garments made of tiger skins. “Traders in Lhasa have told the EIA that whole tiger skins are sold to wealthy Chinese visitors from Beijing and Hong Kong for decorative use in their homes. Whole leopard skins are also sold out of backrooms in Lhasa to wealthy Chinese and European clients.”⁹ The report concluded that though the skin trade is poorly understood and the end markets are diffuse, it is clear that China is the primary destination for tiger and leopard skins from India.

Then in 2004, another report from WWF-TRAFFIC on the Sumatran Tiger — a critically endangered species — found that tiger part smuggling persisted, even though there was an apparent curtailing in the markets for tiger bones used in traditional Asian medicines. This report found that tiger parts were sold to Korea, Taiwan, Singapore, Japan, Malaysia and China. The report acknowledged that this was happening “despite Sumatran Tigers being fully protected by law, with tough provisions for jail time, steep fines, as well as increased effort in tiger conservation and building law enforcement and anti-poaching capacity”. However, its authors could only suggest that there should be increased enforcement in Indonesia to check this illegal trade.¹⁰

Also, it is clear that the advanced and highly policed industrial countries have not been able to control this illegal trade. The 2004 TRAFFIC-North America report on medicine markets in San

Francisco found that shops continued to sell products made from wild animals. However, instead of tiger bones the products contained leopard parts. The leopard is also an endangered animal and has been covered under the same restrictions. In the New York area, 41 per cent of the shops surveyed sold tiger bones and seven per cent sold rhino horn products (also banned). The report concluded that the Rhino and Tiger Product Labeling Act, passed in 1998 in the US to ban the trade in these products (and even their labelling), was having a nominal effect. The report then asked for more education and public awareness.¹¹

Therefore, what is clear is that illegal trade continues. It is the key reason for tiger poaching in range countries like India and Indonesia. It is also apparent that the strategy to label the trade illegal has only made it more difficult to detect and contain. In other words, as yet, international action on this critical issue has failed.

But strangely, instead of focusing on the need for increased global action to stop illegal trade, the focus of the international NGOs, governments and agencies has been on putting the blame on range countries like India. They want India to invest more in guns, guards and enforcement, which will deal with the problem.¹² While it is clear that India needs to do much more to improve its enforcement at home, it is equally clear that whatever it does will be inadequate if the international community cannot find answers to the tiger part riddle.

CITES on tiger trade

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is the international agreement that regulates this trade. Since the early 1990s, CITES has been seeking to control persistent illegal trade in tiger parts and derivatives. In 1994, at its 9th Conference of Parties (CoP), a resolution was adopted to control this trade. When almost all countries complied and tiger trade was made illegal, in 1997, at CoP 10, the parties strengthened this resolution to include specific steps to address the decline in tiger populations and mandated its standing committee to undertake political and technical missions to tiger range and consumer countries to improve enforcement.

In early 2000, the CITES political and technical mission visited India, China and Japan. In the case of India, the mission was scathing in its denouncement of the government's programme for tiger conservation. The team recommended that not only must all parties to the convention "refrain from providing financial support for tiger conservation in India", it also directed the secretariat to report to the 45th meeting of the standing committee on the

progress India had made on its recommendations.

In the case of Japan, the team was more circumspect. It asked the secretariat to assess the effectiveness of the measures introduced by Japan to control tiger trade.

But in the case of China, the team was ingratiatingly polite. It praised China for its commitment to tiger conservation and said "it was satisfied that there is genuine commitment by Chinese officials to tiger conservation". It also recognised the economic and cultural sacrifice that China had made in not using its stockpiled or captive-bred tiger products in traditional medicine. While this is undoubtedly the case, what is interesting is that the same mission did not find India's conservation programme, done at enormous personal sacrifice by the poorest, worthy of mention.

As far as the issue of illegal trade was concerned, the team noted that Chinese officials were clearly bemused that their country should still be viewed as a consuming nation, and felt that it was "perfectly understandable that China should feel some frustration at the lack of appreciation of its efforts". However, while it went out of its way to appease these sentiments, "it noted the continuing intelligence and evidence that China remains a primary destination for tiger parts and derivatives". What should then be done was not clear.¹³

In 2001, the first meeting of the CITES Tiger Enforcement Task Force was held in Delhi. Later in 2002, the task force organised a training programme on illicit wildlife trade issues at the National Police Academy.

At the CoP 12, held in Santiago, Chile in 2002, it was agreed that the standing committee would continue to review progress on these issues. The review prepared by the CITES secretariat reported that the National Board for Wildlife, chaired by the prime minister, was taking measures to improve tiger conservation. It also continued to applaud China's commitment to combating illegal trade.¹⁴

In 2004, at CoP 13 in Bangkok, the secretariat's report identified India and Nepal as particularly good examples of countries where local communities were being encouraged to play a part in, and benefit from, the conservation of Asian big cats and their habitats. At the same time, it noted that conflicts between cats, and humans and livestock, were a common problem range states reported. But illegal trade, it noted, was still rampant in the region.¹⁵

The decision taken at CoP 13 was to direct the secretariat to convene a special meeting of the enforcement task force "to examine the issue of illicit trade in Asian big cat skins with a view to facilitating and improving the exchange of enforcement information and coordination of investigation".

But things turned nasty around this time. At the

Captive tigers

China has an active tiger breeding programme. In 2000, the CITES technical mission reported that there were 50 South China, 100 Bengal and Indo-China and 400 Siberian tigers in captivity. It was not clear what the country intended to do with this population, given the ban on tiger products trade.

Thailand has a similar programme. The Sriacha tiger zoo has over 400 tigers, which the government says has microchips implanted on them to improve detection. But little is known about the exact numbers of tigers being bred in captivity in the country and this is providing opportunities for illicit trade. An Environmental Investigation Agency (EIA) report in early 2000 said that there were probably 1,000 tigers in captivity in Thailand; its investigations found that these tigers were

making their way into the market for illicit products.

However, international NGOs are strongly against any move to promote the captive breeding of tigers for commercial purposes; they say that legalisation of the trade will only serve to perpetuate a market demand. They also say that the worldwide demand for tiger parts in traditional Chinese medicine and a booming demand for skins is simply too vast to be catered to by farming; it will be more economical to kill tigers in the wild. The average cost of raising one tiger to maturity in non-professional husbandry conditions is over US \$2,000, they point out.²⁰

But the fact remains that these tigers remain in cages. They are worthless because legal trade is not allowed. What, then, is their future? And what is their contribution to the illegal trade?

51st meeting of the standing committee, held in Bangkok in October 2004, the secretariat reported that it had not received any written evidence of the progress to enact adequate legislation to protect wild species from Gambia or India. The committee instructed the secretariat to issue a notification recommending a suspension of commercial trade in specimens of CITES-listed species with these two parties; the notification was issued in December 2004.¹⁶ In March 2005, this notification was withdrawn, based on the revised CITES legislation plan received from India, which consisted of India's proposal to set up its own wildlife crime bureau, among other things. The CITES secretariat said it has "determined that India has shown good progress in the adoption of legislation for implementing the convention".¹⁷

However, things did not end here. On April 12, 2005 the secretary general of CITES wrote to the Indian prime minister seeking an urgent appointment to discuss issues of concern and "how CITES and the international community can come to India's aid". He said he was concerned that a specialised wildlife crime unit had not yet been established and that Jammu and Kashmir continued to engage in processing *shahtoosh* wool. He went on to say that the fall in tiger population would be a striking indictment upon all conservation efforts: "CITES is not willing for such a charge to be laid against it".¹⁸

Armed with this letter, the US government

submitted a proposal to the 53rd meeting of the standing committee, held in June 2005, which asked for strengthened efforts to halt the illegal trade. The US government wanted the secretary general to give a report on his request to the Indian prime minister and if the meeting had not occurred, "a request to convene the meeting at the earliest convenience".¹⁹ In the meeting, the Indian delegation managed to stall the move.

But what is clear is that the global community, working through CITES, has been ineffective in checking international trade in tiger parts. The agreement, which has been established as a legal framework for the regulation and restriction of trade in species of wild animals and plants, has unfortunately become extremely malleable to petty country politics.

CITES has often been criticised because of its dependence on trade measures. In this case, it is clear that the ban on tiger parts, however essential, has pushed the trade underground and made it even more difficult to detect. It is clear that trade is happening. It is also clear that the markets exist outside India — in China, Tibet and even in the US.

It is important at this stage, when the Indian tiger is being hunted mercilessly, that we review the effectiveness and role of global institutions like CITES. Global governance, which needs the cooperation of all, desperately needs institutional reform to make it more effective and meaningful in this interdependent world.

Recommendations

It is clear that unless international trade in tiger parts is checked, there will be growing pressure on the tigers of India. The tigers of India are one of the last remaining populations of the big cats in south and southeast Asia. Therefore, there is bound to be demand which leads to illegal poaching. Over the last several years, the efforts of the international community to ban trade in tiger products, however important, has only meant that the trade has gone more underground and has become more difficult to detect.

It is the assessment of this Task Force that the international community has failed to investigate and break this trade. It is, therefore, very important for India to take proactive and strong measures on the matter of international trade in wildlife. It must do the following:

- a. It must take up this issue with the international community through CITES. In this, the Task Force strongly believes that the ministry must be very proactive to shape the agenda at CITES to ensure that the international market for tiger products are investigated. It is not enough for the international community to ask India to strengthen its own domestic wildlife enforcement. This is very important and it must be done. But this strengthened domestic policing will not be enough to check the trade in tiger parts. The international community must be under pressure to combat and destroy this trade.
- b. India must work to build its bilateral relationships with China in this regard. The Global Tiger Forum, which was set up to network and dialogue with tiger range countries, has clearly proved to be inadequate. In fact, it has become irrelevant, especially as China has still not joined the forum. India must disengage itself from institutions that are not working and find strategies of engaging with China.
- c. This Task Force believes it must be done bilaterally. It knows that both governments are extremely concerned about issues related to tiger part trade. The Task Force, therefore, suggests the Union environment minister take the lead in this regard by discussing and developing a bilateral relationship with his counterpart in China, and that this dialogue must be kept alive and ongoing.

It is critical that India takes the leadership on this issue and does not leave it to global institutions which are proving inadequate in this regard.

3.3a Domestic enforcement agenda

The trade of the tiger in India is banned under the Wildlife (Protection) Act, 1972. The tiger is a Schedule I species, which means that it is endangered and strictly protected. But trade in tiger parts continues and experts believe that the trade is highly organised and run by a well-known select group of people.¹

In January 2000, police seized four tiger skins, 70 leopard skins, 221 blackbuck skins, 18,000 leopard claws, 150 kg leopard and tiger bones, 132 tiger claws, two leopard teeth and one dried leopard penis from private properties in Khaga in Uttar Pradesh. This seizure was one the largest hauls of illegal wildlife products ever recorded in India, indicating a consistent and large-scale level of organisation.

Earlier, on December 18, 1999, three tiger skins and 50 leopard skins had been seized by sales tax officials from a truck in Ghaziabad, on the outskirts of Delhi. The skins were concealed in large jute bags, and wrapped in polythene and layers of denim cloth. The skins were fresh and each had a signature on the back. The truck was bound for Siliguri in north Bengal, near India's borders with Nepal and Bhutan. Both the names of the sender and receiver on the packages turned out to be fake.² But all the seizures pointed to Tibetan connections.

While the notorious Sansar Chand, the mastermind smuggler, is now behind bars, there are other big names that feature in the annals of wildlife crime. The Central Bureau of Investigation believes that all these gangs, even though they operate in different areas or domains, are well connected (even related at times) to each other and there is no rivalry between them; they have been operating over long periods of time. The main suspect in the Khaga case was Shabbir Hasan Qureshi, whose house when raided in July 2004 produced 456 tiger and leopard claws and approximately US \$13,000 in cash.³

There is no doubt that India has to strengthen its domestic efforts to check tiger poaching and other wildlife crimes, and that these actions need to be taken urgently and effectively. It is also evident that the Union ministry of environment and forests has been slow in putting together the framework required to effectively deal with wildlife crime.

It was in 1994 that a committee under S Subramaniam, a former senior police official, submitted its report on preventing illegal trade in wildlife and wildlife products. The committee, in an extremely comprehensive report, suggested a number of actions needed to tighten enforcement of wildlife crime. Its recommendations included the

setting up of a central task force that would oversee and coordinate the work of the central wildlife crime data bank (also proposed) and the intelligence unit. It named this as the directorate of prevention of crime against wildlife. This directorate proposed a legal cell to pursue important cases in courts across the country; an investigation wing for cases with national and inter-state reach and an operations cell to carry out undercover raids on organised crime. The report also set out other urgently required actions needed to strengthen enforcement.⁴

Since then, the Union ministry of environment and forests has played around with the idea of setting up this directorate. Every few years, the idea is revived, but it dies a natural death. More recently, perhaps because of the internal pressure generated by the Sariska episode as well as the action initiated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the idea has once again gained momentum. At the March 2005 meeting of the National Board for Wildlife, the ministry submitted a proposal for a national wildlife crime bureau.⁵

But it is clear that the proposal is too ambitious and personnel-heavy. The proposal provides for 260 new posts at various levels. The bureau will be headed by the additional director general of forests (wildlife) and have positions created both at the Centre and regions for monitoring and enforcement. It is important at this stage to review this proposal in the light of the current situation so that the enforcement mechanism, once created, can be effective as well.

The current enforcement machine

In March 2002, the ministry set up the wildlife crime cell in the office of the director, Project Tiger. In April 2004, the cell was moved to the office of the director, Project Elephant. When it was set up, it was proposed the cell would have two joint directors to undertake its work. But till date, these positions have not been filled. As a result, work on the cell is greatly compromised, making it virtually ineffective.

In addition, the ministry has a separate directorate of wildlife preservation, headed by the additional director general of forests (wildlife). It consists of four regional offices headed by officers holding the positions of deputy directors and three sub-regional offices (headed by assistant directors) located in Amritsar (Punjab), Cochin (Kerala) and Guwahati (Assam). The mandate of these offices is to

regulate import and export of wildlife items; to coordinate wildlife crime prevention with state agencies; and to monitor crime trends and provide reports to the central office.

The directorate, in fact, plays precisely the role the proposed wildlife crime bureau is supposed to. But while the ministry has proposed the creation of many new posts, many positions are still lying vacant in the current directorate. For instance, the post of the regional director in Kolkata (a key port city) has been vacant for many months, while the deputy director in charge of Chennai (again, an important port) has been holding additional charge.

In 2003, the ministry transferred the post of the assistant director, based in Guwahati, to Delhi. The justification was that the illegal trade has shifted from the northeast to other parts of India — this is clearly untenable, given all the evidence that suggests the routes to China and Myanmar via this sensitive region. Since then, the sub-regional office in the northeast has been lying defunct. This deliberate disabling of institutions must be checked, for it does not leave the Task Force with confidence that any new mechanism, however important, will be taken seriously.

In the states, the chief wildlife wardens are expected to coordinate the cases related to poaching of wild animals and other wildlife crimes and maintain databases. However, in practice, few states maintain central databases of all these crimes. The rate of successful prosecution in wildlife cases is extremely low. Most blame this state of affairs on a combination of reasons — poor investigations, defective prosecution reports (charge sheets), mishandling of cases by public prosecutors and lack of supervision by senior forest officers.

In other words, unless something is done to change the functioning of the current departments, setting up a new bureau will only be cosmetic. It may help the country improve its track record with CITES, but will do little to stem the scourge of wildlife trade. It is essential that the agenda for domestic enforcement includes the critical and structural reforms needed in the institutions for investigation, forensic facilities and criminal provisions to ensure that the big and powerful traders do not go untried.

A crime database

There is no central database on wildlife crime. There is no compulsion on the part of regulations or laws to maintain one. But regulations do demand that the field directors of protected areas maintain, at local levels, registers of animals that die and are found by the field staff. These are recorded along with possible causes of death. In the case of the tiger, too, similar work is done. The forest department too maintains a

record of any seizures of wildlife animals or their parts.

Project Tiger has, for the first time, asked an external consultant to collate this data to analyse the consolidated figures (*see table: Tiger seizure cases*).⁶

- There are 411 records for five years (1999-2003).
- Out of these, 173 records relate to mortality and 238 are of seizures.
- Within the mortality records, 114 cases relate to poaching.
- In the seizures, 238 items of tigers were confiscated (it is difficult to correlate the seizures with mortality).
- A total of 333 people were arrested in connection with seizure cases and 72 persons arrested in connection with poaching.

The Wildlife Protection Society of India, an NGO, maintains an independent database of tiger seizures. During this same period (1999-2003), its database shows that India lost 284 tigers due to poaching. In the case of tiger bone seizures, in the absence of skulls, the NGO computed the number of dead tigers

TIGER SEIZURE CASES

State	1999	2000	2001	2002	2003	Total
Andhra Pradesh	1	6	2	-	2	11
Assam	-	1	-	1	-	2
Chhattisgarh	-	-	-	2	-	2
Delhi	1	3	1	1	1	7
Gujarat	-	-	-	-	1	1
Jammu and Kashmir	-	-	-	-	1	1
Karnataka	-	-	2	-	-	2
Kerala	-	-	-	-	1	1
Maharashtra	2	5	6	1	5	19
Manipur	1	-	-	-	-	1
Mizoram	-	-	1	0	0	1
Madhya Pradesh	30	7	6	6	8	57
Orissa	-	-	-	1	-	1
Punjab	-	-	1	-	-	1
Rajasthan	-	-	1	1	-	2
Tamil Nadu	1	1	1	-	1	2
Uttaranchal	-	-	4	9	2	15
Uttar Pradesh	9	13	20	2	-	44
West Bengal	9	17	1	4	8	39
Total	54	53	46	28	30	211

Source: Project Tiger 2005, *Tiger poaching: analysis of country-level data, 1999-2003*, Delhi, mimeo

by using an average of 12 kg of bones per tiger.⁷

Interestingly, both the databases show that poaching and seizures have fallen during the period. But it is also clear that there needs to be a much better coordinated effort to maintain the database and, more importantly, to follow through on the actions taken in each case.

The database on wildlife crime must be a functional bank of information that is used for taking action — to track offenders, to track conviction rate and, most importantly, to use this intelligence to prevent crime.

The field directors and chief wildlife wardens should be required to file their data on a real-time basis to this database, which can then be used by the coordinating agency to follow through on important cases and to compile and analyse trends as well as to inform other law enforcement agencies about the offenders.

The issue to discuss is: why has this database not been operationalised so far and how should it be done in the future?

Improving conviction rates

The fact also is that we have abysmally low conviction rates in wildlife crime. With no centralised collection of data on wildlife crime, statistics are not available. But experts interviewed during this Task Force's consultations suggest the conviction rate in wildlife crime around the country could be a dismal 1 to 2 per cent at present. In Kaziranga national park, it is said that more poachers were killed in encounters with the field staff than restrained through successful prosecution in the court of law.

Prosecution for wildlife crimes is done as per the provisions of the Wildlife (Protection) Act, 1972. The Act was amended as recently as in 2003 to bring in tighter penalties for offences — including a minimum sentence of three years, extendable to seven years; bail provisions have been made more stringent. According to B K Sharma of Central Bureau of Investigation (CBI), who has been working on wildlife crime, the provisions of forfeiture of property derived from illegal hunting puts the Act at par with the Narcotics and Psychotropics Act, 1985 and the Prevention of Money Laundering Act, 2003. According to him, with the 2003 amendments in place, the Act is comparable to international standards and contains stringent penal provisions.⁸

The problem, experts explain, lies in the details that govern the implementation of the law. They, therefore, suggest that urgent steps be taken to further amend the Wildlife (Protection) Act to make it expeditious and increase deterrence against crime. The Central Bureau of Investigation, while making its

presentation to the Task Force, also suggested that key weaknesses need to be removed to expedite prosecution.

The main problems, as pointed out by experts, are as follows:

- i. *The length of the pre-charge evidence makes the process repetitive. In these cases, the witnesses have to come before the judge in the “pre-charge evidence” stage, and then once it gets to trial, they all have to depose once again.* The famous 1993 Delhi seizure case is still in the pre-charge evidence stage after 12 years. This is unlike the powers of the police laid down under the CrPC (Sections 154-173), where the court takes on record the charge sheet filed by the investigators to decide if there is *prima facie* evidence to proceed in the case; thus, it has been suggested that the powers of wildlife investigators should be the same as those of the police.
- ii. *The trial takes place at the level of the chief judicial magistrate/metropolitan magistrate, and is lengthy and unfruitful.* The Tiger Trust, an NGO working on the reform of the Wildlife (Protection) Act, 1972, suggests that the jurisdiction of the trial has to be raised from the level of chief judicial magistrate (CJM) to additional district judge, because it takes four-five years to conduct pre-charge evidence. On the other hand, due to the lower number of appeals in the court of the additional district judge, there is less rush; moreover s/he has higher summoning powers and better assistance from the police in pursuing procedural matters. For this, an amendment has to be made in the Wildlife (Protection) Act, 1972 (Section 51), which raises the quantum of punishment from three to seven-10 years. When this is done, the trial will come under the jurisdiction of the sessions court. In addition to this, the fine has also to be increased to Rs 50,000. This is for deterrence, and to expedite the trial, since at present it takes eight-10 years for conviction or acquittal at the level of the chief judicial magistrate.
- iii. The Tiger Trust also recommends re-categorisation of animals in the schedules of the Wildlife (Protection) Act, 1972. At present, Schedule I has a long list of animals that needs to be re-categorised as critically endangered — this would include the cat group and some other animals near extinction. The punishment of seven-10 years should be increased for this category.
- iv. Under the Wildlife (Protection) Act, 1972 the severity of offenses is related to the categorisation of the animals in the different schedules provided. The forensic laboratory has

to check and certify for a case to proceed. There is a lack of these facilities, and investigators complain of delays in getting reports. It is also said the investigative techniques the forest department uses are outdated and the forensic support is inadequate. At present, there is a heavy dependence on the Wildlife Institute of India's forensic laboratory, whereas the regional forensic labs used to detect and investigate other crimes have not been put to use.

- v. The Act does not allow for the level of the crime. The CBI suggests that there should be a difference between large volume traffickers and small time poachers, which at present the Act does not provide for.
- vi. The CBI also suggests that no sentence passed by the courts should be suspended, remitted or commuted to avoid recurrence or disappearance of criminals, as has happened in the case of Sansar Chand's appeal against conviction.
- vii. At another level, there has been little review on how relevant departments and agencies are trained on wildlife crimes. In addition, there is a need for regular training of prosecuting lawyers, and the judiciary, on aspects of wildlife crime. Although some NGOs in India do carry out training for departmental officials as well as the judiciary, there is no extensive or consistent programme for in-job training for the judiciary or the forest officials posted at locations where such crimes are high.
- viii. The wildlife officials also complain of lack of legal support during the prosecution process, with government prosecutors being overworked and unavailable for their cases. There is clearly a need for special attention to ensure that the cases get good legal representation.

Amending criminal provisions

Based on the above submissions, the Task Force has consulted legal experts to detail out what is needed to ensure that law is both a deterrent to poachers and is effective in bringing the guilty to book. Without this legal reform, combating trade will be difficult.

The Wildlife (Protection) Act, 1972 contains detailed provisions for the prevention and detection of offences (see *Annexure xi: Amending the criminal provisions of the Wildlife (Protection) Act, 1972*). Some of these provisions have been amended in 1991 (by Act 6 of 1991) and 2003 (Act 16 of 2003). The purpose of these sections is both preventive and deterrent. It is generally agreed that these provisions, contained in Chapter VI of the Act, have not been used and generally prove to be ineffective. The lack of prosecution and the inability to secure convictions are writ large over the

skeletal data available — and perforce, unavailable. Occasionally, these provisions achieve public notoriety when famous people are prosecuted. But the laws must apply to all and the protective regime must be enforced without fear or favour.

The Act must be understood in terms of

- a. The offences it discourages
- b. The special procedure in investigation
- c. The method and forum of trial
- d. Special provisions in relation to the cognisance of offences, the compounding of offences, presumptions as a matter of evidence and offences by companies

In these terms, the Act seeks to be comprehensive. But there exist lacunae in implementation that undercuts the legal reach of the Act. Thus, in order to strengthen the Act's criminal provisions, cases need to be treated as serious criminal cases. The *first step* must be to differentiate between serious and non-serious cases and ensure that serious cases are tried as police cases by the Sessions Courts.

This has an impact on the manner in which the cases are prosecuted. Currently, since they are complaint cases, the police do not prosecute them. It is left to the overworked forest officials to come to court and build the case before it can be taken further. The cases linger on because they are prescribed as 'lesser' cases and are not treated as priority. The prosecutors, mainly forest officials, are inept and lose interest. The *second step*, therefore, must be to have special prosecutors.

Since these cases randomly languish in courts throughout the country, they are not monitored by a wildlife crime bureau either at the state or the Union level. So, the *third step* must be to create a wildlife crime bureau for all cases — especially the serious ones.

Ineffective protection

The numerous reasons for the ineffective provisions of the Act are as follows:

1. The Act makes no distinction between serious and special offences, thereby depriving the prevention, detection and deterrent strategy of any strategic capability. The offences relating to endangered species should be placed at a higher level than those that relate to other animals. Thus offences relating to tigers, blackbucks, elephants, rhinoceros, etc need to be treated as special by not only giving them priority for the purposes of investigation, but also by increasing the penalty for attempting an offence against these animals. Similarly, there is an absence of a special investigation team whose brief would be to tackle offences relating to serious or special cases. A similar classification as is made for the

offences in the Code needs to be imported into the Wildlife (Protection) Act, 1972 to clarify the procedure to be followed for different offences.

2. The investigation is left to a number of officers, trained and untrained — those trained in forestry are not trained in investigation and *vice versa*. This leads to an unfortunate situation where even though the investigation is carried out properly, no evidence is available; or, when the evidence available through the process of investigation is found to be flawed, and hence prosecution becomes pointless.
3. The trial in all cases proceeds as a complaint case to be tried as a warrant case, except when complaints are on the basis of a police report. This results in prosecutions primarily being in the hands of forest and environment officials through a long drawn process. Similarly, there is a lack of trained special prosecutors for offences dealing with wildlife. Clearly, in serious and special cases, the offences should be tried as if on the basis of a police report by the Sessions Court, and where available, the case should be prosecuted by special prosecutors.
4. Special provisions are needed so that forensic and expert evidence is readily available to the court. Provisions are required for more experts and laboratories. More often than not, prosecution is delayed because the prosecution is unable to determine whether the part of the animal recovered is one of an endangered species. Identification becomes difficult with respect to hides and skins and thus experts are necessary to testify to whether the animal in question is a tiger or a leopard.

Proposals to strengthen criminal provisions

One of the key ingredients of the enforcement policy is a speedy trial process with effective investigation which will lead to appropriate punishment of the convicted. Presently, the ingredients are lacking. The following are the proposals that can ensure a strengthening of the criminal process:

1. A schedule needs to be created to distinguish between special and serious offences.
2. Serious offences should be tried directly by the Sessions Court and should be punishable for a mandatory term of at least seven years. The report filed by the investigating officer, whether he be a forest official or a police officer, should be treated as the police report. A table in the nature of the Schedule in the Code of Criminal Procedure should be added, to which additions and modifications may be made.
3. The serious offences are
 - Non-bailable
 - Cognisable

- Not compoundable
 - Should be tried by special prosecutors
4. It would be necessary to continue the range of officers who can investigate offences under the Act with powers of entry, seizure, arrest and detention. But to ensure a streamlining of the investigation capabilities of both the forest and the police wings, proper training ought to be given.
 5. Similarly, provisions should be made for special investigation teams to look into serious or special offences.
 6. Special courts should be designated by the state governments in consultation with the Union government among the existing hierarchy of courts to ensure that the offences under the Wildlife (Protection) Act, 1972 are prosecuted, and penalties imposed as expeditiously as possible.
 7. With respect to the prevailing provisions, the bail provisions [Section 51A] should be continued and an offence of conspiracy specifically added. Similarly, the cognisance provisions need to be re-examined and reposed in the state or the Union government.
 8. The wildlife crime bureau must be made into a statutory body to monitor, oversee and prepare periodic reports. It must have the power to make recommendations and proposals for the purpose of strengthening the wildlife protection system. The bureau shall be in addition to the Central Zoo Authority. A similar amendment, whereby provisions are added as Chapter VI-B, is necessary to create such a body.

Setting up a wildlife crime bureau

The bureau is urgently needed. But the issue is to structure it so that it is effective in combating crime. In its deliberations to review the proposal for the national crime bureau submitted by the Union ministry of environment and forests, the Task Force has consulted a number of experts — from people experienced in dealing with parallel crime busting institutions like the narcotics bureau, to those experienced in wildlife crime at the state level.

The bureau proposed by the ministry will be:

- Headed by additional director general of forests (wildlife), who will be assisted by the inspector general of forests
- Headquartered in Delhi and have regional offices at Jabalpur, Mumbai, Chennai, Cochin, Kolkata, Delhi, Guwahati, Imphal and Amritsar.
- Have officers posted in the bureau on deputation from different agencies like forests, customs and others.

The proposed national wildlife crime control bureau, with its headquarters at New Delhi and nine regional offices, will require creating 260 new posts at various levels to ensure its operational efficacy and to meet the objectives set. Funds for the bureau will be made available from the allocation for the 10th Five Year Plan. The proposal is being sent to the concerned ministries for inter-ministerial consultations.

Proposed modifications

At the central level

1. Create a small and effective crime bureau at the central level. The bureau at the Centre should be headed by a senior officer (in the super-time scale). The appointment of this person should be done using a selection criterion, which seeks to recruit a suitable person. The person will report to the additional director general of forests.
2. At the central level, the bureau should have three officials, besides the needed support staff:
 - For police investigation and coordination with crime control agencies (preferably a police officer or intelligence bureau officer on deputation)
 - For coordination with states and maintaining the crime database (preferably a person with expertise in data analysis and tools for networking)
 - For coordination with agencies working on the international border and follow-up with cases
3. The bureau should be able to get on deputation field operatives for intelligence gathering on wildlife crimes from the police force, Indo-Tibetan Border Police, territorial army and others.
4. There should be a coordination committee under the chairpersonship of the secretary, Union ministry of environment and forests, with members from the Union ministry of home affairs, the Central Board of Excise and Customs, the Central Bureau of Investigation, Border Security Force, Indo-Tibetan Border Police and revenue intelligence. This committee, with the director (wildlife preservation) as member secretary, should review every six months the following:
 - Inter-departmental coordination
 - Monitoring progress of important cases
 - New initiatives
 - Monitoring implementation of court directives relating to wildlife crime
5. The Central Bureau of Investigation (CBI) must be given specified tasks in investigating wildlife crime. Its role will be to work closely with the wildlife crime bureau so that it can find synergies in combating crime. However, the key responsibility of the CBI would be to investigate the organised crime networks as a special

investigation team. It should take over charge of certain key special and serious cases, for instance the Sansar Chand case.

At the state level

6. There should be a wildlife crime cell in each tiger range state of the country. Each node should be staffed with personnel for legal support, intelligence gathering and criminal investigation, and database monitoring.

Central assistance should be provided towards the salary of officers on deputation to the state-level wildlife crime control cells.

One officer of the level of deputy conservator of forests should be on deputation to the police headquarters to facilitate close coordination.

A state-level coordination committee under the chairpersonship of the chief secretary, with the director general of police, home secretary, army commander of the region as members, and the chief wildlife warden as member secretary, should meet every three months to monitor the following:

1. Inter-departmental coordination
2. Progress of important cases
3. Extremist engineered disturbances
4. Low intensity conflicts affecting wildlife
5. Need for deployment of forces in and around protected areas
6. Implementation of court directives/government of India directives

The Task Force envisages the wildlife crime bureau, in this modified structure, will require 80-100 positions, many of which would already be in the field.

It urges that this structure must be operationalised urgently.

Forensic laboratory facilities

The Wildlife Institute of India has a functional forensic laboratory, which at present is the only specialised laboratory to analyse seized wildlife material for prosecution support in wildlife crimes. It has developed reference materials and protocols for testing to identify the species to which the seized material pertains. Recently, it has acquired much-needed high-end equipment to carry out such tests at the molecular biology level to rapidly identify the species and, eventually, the regional origin and individual animals of a particular species. However, work on protocol development for this is presently being done.

This laboratory is meant more to develop reference material and protocols on individual species in a research framework. The actual work of

bulk of the tests of wildlife crime material will have to be sent out to regional, central and state forensic labs like the ones at Kolkata and Jaipur. Only the more sophisticated work and difficult cases should come to this laboratory.

This laboratory is experiencing difficulty as its scientists, who test the material, are summoned to

courts, upsetting their main task of much needed research in wildlife forensics. Accordingly, the Wildlife Institute of India has proposed to the Union ministry of environment and forests to support setting up of forensic cells in central, regional and state forensic labs. The Tiger Task Force, too, feels the existence of such cells is necessary.

Recommendations

1. The wildlife crime bureau must be set up immediately. The Task Force has reviewed the current proposal for a wildlife crime bureau and has worked to modify it to ensure that it is lean, mean and effective. We strongly believe that unless the crime bureau can work effectively on different levels — one, to strengthen the enforcement at the state level; two, to investigate international trade links; and three, to break the crime of large poachers — it will not be possible to effectively deal with the crime.

For this reason, the Task Force suggests a two-tiered approach: set up a wildlife crime bureau at the central level, with nodes in each tiger range state in which there will be a capacity to both investigate and follow up on the crime. In the course of its visits through the different states, the Tiger Task Force was constantly told by officials that the key weakness was their inability to investigate the crime at the state and inter-state levels, and to be able to pursue the conviction in courts because of lack of legal support.

The detailed structure of the wildlife crime bureau as proposed by the Task Force is given above. In summary, the Task Force proposes the following:

- a. At the central level, a stronger bureau with the capacity to develop a country-wide database of wildlife crime to enable coordination, to be able to pursue important cases at the state level and follow up with investigative agencies like the Central Bureau of Investigation (CBI), on the investigation as well as the conviction of large organised crime networks.
- b. The CBI must be given certain tasks in investigating wildlife crime. The role of the CBI will be to work closely with the wildlife crime bureau so that it can find synergies in combating crime. However, the key responsibility of CBI would be to investigate the organised crime networks and to take over charge of certain key cases, such as the Sansar Chand case.
- c. There is a need to involve and to train other police agencies, such as the Indo-Tibetan Border Police, as well as the other security forces, to ensure greater vigilance on our borders as well. The Task Force suggests that this should be an explicit task of the wildlife crime bureau: it should take the lead in organising these training programmes with the Wildlife Institute of India and other specialised institutions.
- d. Forensic cells should be set up in central, regional and state forensic laboratories to investigate wildlife specimens and produce evidence in wildlife crime.
- e. The wildlife crime bureau must be made into a statutory body under the Wildlife (Protection) Act, 1972 to make it effective and give it autonomy.

2. It will not be enough to only investigate the crimes: criminals must be convicted. In this regard, the Task Force has deliberated very carefully with legal experts to understand the weaknesses in the Wildlife (Protection) Act, 1972 so far as its criminal provisions are concerned. It is very clear that there is a need to strengthen the Act, particularly for what are designated critically endangered species, so that there is a greater deterrence for criminal actions against these species resulting in speedier trials. The current Act is weak in this regard and, therefore, in the majority of cases it leads to delayed hearings and a dismal state of the rate of convictions. The Task Force has detailed out the changes that are required in the Indian Wildlife Act to strengthen these provisions (*see Annexure xi: Amending the provisions of the Wildlife (Protection) Act, 1972*). This amendment must be done urgently.

3.4 Innovative protection agenda

There are several nomadic and other communities, skilled in hunting, whose services are being used by poachers across the country to kill animals for a price. The traditional livelihoods of these communities used to revolve around hunting and gathering; they always subsisted in close relations with forests. But over the years, they have been victimised and marginalised and, today, are forced to live in absolute poverty at the fringes of forests. The question, therefore is how, if at all, the services of these traditional hunters and trackers can be used — not against, but for the tigers.

Unfortunately, we have done little to understand the peculiar needs of these communities. Besides hunting, they are skilled in extracting minor forest produce. Their practices are sustainable. As the interest in protection has grown, it is these livelihoods that have faced a clampdown. Their poverty today pushes them towards unlawful activities, which are unsustainable and destructive. Field officers across the country have told the Tiger Task Force that without the rehabilitation of these communities, protecting wildlife will be difficult.

The Task Force has studied some of the cases where the government, researchers or other agencies have experimented with programmes to create forest-based livelihoods for these groups. These are merely representative of the possibilities or potential that exist in this sphere. These efforts do show that wherever people have put in an effort and thought through the process — in India or elsewhere — it has been possible to devise a working plan for these destitute tribes.

The Bawaria

The Bawaria are a traditional nomadic hunting tribe that have been accused of being party to the poaching in Sariska tiger reserve in Rajasthan. Five members of the tribe were arrested during investigations after the recent crisis.

According to the 1981 census, this community is spread across four states in 32 districts. Rajasthan, according to the same census, had 31,903 Bawaria.

This community is famed for its ability to hunt and track animals. The Bawaria were earlier used by royal hunting parties to track animals during *shikars* (hunts). A socio-economic study by researcher Bahar Dutt for Muktidhara, a Rajasthan-based NGO, lists 22 species the Bawaria are known to hunt.¹ These include large predators like the tiger, leopard, hyena and the jackal. They are also regular hunters of

ungulate species like the spotted deer and the *sambar* as well as smaller animals like the mongoose, Indian hare, jungle cats and numerous bird species. Hunts for smaller animals are more regular.

The most common species the Bawaria hunt is the *sambar*, followed by the peacock and the parakeet. Dutt suggests hunting of ungulates can be either for personal consumption, or for sale as meat, antlers or hide to local markets.

The community uses various tools like snares and traps for the animals and has devised traps ingeniously for the purpose. Its recent use of small explosive devices and guns has also been recorded.

Changing occupational profile

But the occupational profile of the people has changed with time. According to the 2003 survey done by Dutt earlier, more than 70 per cent of the tribe members had hunting as their main profession. In the current generation, 80 per cent of the Bawaria in Alwar district have taken to protecting agricultural fields against crop depredation by animals like the *nilgai* (blue bull). Their skills at hunting animals are being brought to use informally by other communities living in the vicinity of forests. But as this utilisation continues at an informal level and there is no official recognition of their role as a protector, the Bawaria merely get — in return for their efforts — some foodgrains and a piece of land to build a temporary shelter on the farmers' fields.

Unlike in earlier times when hunting may have been their major occupation, today they resort to hunting in times of distress. The study shows that on an average, more than 70 per cent of the Bawaria families interviewed faced food shortage crises and 21 per cent of the families had taken to hunting to tide over this crisis.

Their insecurity also arises from the fact that though they are entitled to land, very few have actually been able to get it from the government. Coupled with the fact that the traditional camping land — the commons — has slowly disappeared from Rajasthan, the Bawaria are left with little option but to depend upon landholders to provide them space for temporary shelters, which are made out of plastic sheets and hay. In a public hearing held in Delhi in 2003, some Bawaria families recorded their pending applications for land rights with the government. With no tenure over land and their main skill being termed 'illegal' under the wildlife laws of the country, the Bawaria have tried to evolve a livelihood strategy to provide a degree of sustenance for themselves.

Nomadism, which in earlier times could have been an economic strategy to sustain themselves in a semi-arid zone, has now become a social necessity forced upon them. At the same time, Dutt emphasises, their skills are used by the forest department in its usual course of work to gather information within the forest areas, especially during the animal census conducted by the department.

The level of harassment the Bawaria face from the administration, besides the landholding communities, is very high. The police as well as forest officials often target them for interrogation for any local crime (whether related or unrelated to wildlife). The study shows that 65 per cent of the Bawaria have reported harassment by the administration and 46 per cent have at one time or the other been in jail.

After the episode in Sariska, several members from this community were reportedly picked up by forest officials and the police for interrogation. One extended family was finally indicted and has confessed to killing the majority of the tigers in Sariska. Evidently, this community, with its skills and knowledge of the tiger, is today finding new and lucrative occupations in commercial poaching.

The options today

It is acknowledged by the forest department as well as experts that the Bawaria still maintain a high level of skills when it comes to understanding the forest habitats, which comes from their skills and practices of hunting. There has been a constant outcry that under the present circumstances it is important to wean them away from hunting. Yet no plan to ensure this has been put to the test or implemented. Without an alternative strategy for livelihood being available to the Bawaria, it is easy to see how their situation has deteriorated. Under circumstances of destitution and lack of economic incentives, the Bawaria are undoubtedly used as frontline hunters by organised poachers, and are ready to work at any price.

A workable solution to help some Bawaria families could be based on a simple strategy that keeps them engaged with forests, unless they voluntarily wish to look at alternative options of livelihood. Bahar Dutt, who has worked with this tribe, suggests that Project Tiger needs to find ways of using the skills of these local Bawaria to turn them into the frontline defenders of the forests and protected areas, rather than see them as antagonists.

This should be possible. The average age of guards and work-charge employees in Sariska tiger reserve is high and there is a need for new recruitment. Currently, the State overcomes this by recruiting some temporary workers, which include nursery labour. It is ironic that though skilled Bawaria have been available all along, the forest

department has not innovated to include them in protection and instead, used unskilled labour to do a job they have evidently failed in.

Cambodia: hunters become protectors

Cambodia is a range state of the tiger. But since the early 1990s, the conservation community has feared that poaching for tiger parts and products represents the most serious threat to the tiger's continued survival in the wild. Cambodia continues to have a large and visible market for tiger parts though the supply, as in India, has gone underground. While Cambodian forests continue to harbour a rich prey base, targeted market hunting has seriously depleted tiger populations in many parts of Cambodia.

In an attempt to regulate tiger hunting, the Tiger Conservation Programme Office in the ministry of agriculture, forests and fisheries of the Royal Government of Cambodia took bold action to start working with hunters.² Phnom Penh-based wildlife officials realised that their knowledge of and ability to work in the wilder parts of Cambodia had been compromised by years of war. They needed the assistance and skills of local people. So in 2000, a funded programme was begun in Cambodia where selected hunters were hired as community wildlife rangers. The goal was to gain an immediate reduction in the level of tiger poaching in the country, and to use the ex-poachers' considerable tiger-finding skills to develop community-based conservation capacity in the main tiger habitats.

Three field offices have been established in Cambodia's three largest tiger habitats. Each office is managed by a combination of provincial and national-level forest staff, and each office currently oversees a network of nine to 12 community wildlife rangers. The University of Minnesota, USA, which has collaborated in the effort along with the Cambodian government and Cat Action Treasury (CAT), an international funding group for cats-related conservation programmes, conducted extensive technical training exercises. The staff at all levels was trained in Global Positioning System data collection and Geographical Information Systems data analysis techniques, the latest in mapping information that even India is trying to build into its conservation programmes.³ In other words, sophisticated and modern technology tools were combined with local skills for optimal results.

What was done

Among the first tasks of the field offices was the recruitment of teams of community wildlife rangers. The best of the hunters who participated in previous interview surveys were contacted, and informal meetings were held with a variety of local people to

identify other candidates. The first rangers began patrolling and submitting monthly survey and intelligence reports in July 2000.

Recruitment focused on men known to hunt tigers, some more actively than others. In several cases, men who had recently been caught hunting tigers were recruited into the programme, instead of being prosecuted under the relatively weak forestry regulations.

The programme staff carries out regular monitoring patrols in key unprotected tiger habitats, and collects valuable data on tiger (and other wildlife) poaching and trade. The staff meets frequently with provincial, district and village level officials, as well as military personnel.

The rangers, it is reported, normally operate in teams and carry a Global Positioning System device. Regional coordinators download the device's monthly readings to verify ranger patrols. Data is reported to Phnom Penh in monthly narrative summaries and Global Positioning System data points are entered into a Geographical Information Systems-based system. The survey results are summarised according to the three regions, and illustrated with maps prepared from the Global Positioning System data the ranger teams gathered and that the field office staff compiled.

The project has identified several groups of professional hunters and wildlife traders, brought their activities to the attention of the relevant authorities and negotiated contracts with them to stop hunting and trading.

Has it worked?

The promoters of this approach say that it has turned a number of professional tiger poachers into assets.⁴ The hunter-rangers have provided valuable intelligence about tiger poaching and other wildlife hunting and trade. In December 2001, a major tiger and elephant poaching gang was uncovered with the help of these rangers.

The approach, if illegal hunting is discovered, is to have the rangers and staff negotiate no-hunting contracts with the poachers. These negotiations are conducted in the presence of district and police officials and carry a good deal of weight. This procedure is equivalent to a stern warning, and, so far, none of the people who have signed such contracts with the project have been caught poaching again, says the report.

The project proponents and their reports record that poaching has reduced in Cambodia since the 1990s⁵, but whether this merely correlates with the programme or is actually a consequence of the programme is something the Task Force has been unable to gauge from a distance. But the fact is that the programme has used innovative methods and

brought new skills to people who used to be poachers. It has worked at a low-cost option of local hiring, and intelligently deployed them for surveys and patrolling.

Namdapha: can hunter-tribes be protectors?

The reserves in the northeastern states of India are vast and inaccessible, low on staff and high on local control. One conservation option here, as elsewhere, is to spread a security blanket around a reserve and protect it with hard action. This model has been successfully tried in Kaziranga national park, Assam, where a low intensity war has been fought between insurgents and poachers versus the government for a period. But even here, the park authorities and the government have worked on reconciling local interests in protection. But there are other reserves where this protection model is not feasible. What, then, are the options?

The 2,000 sq km Namdapha tiger reserve is located in Changlang district, the eastern-most part of Arunachal Pradesh. It was declared a reserve forest in 1970 under the Assam Forest Regulation Act, 1891 (first proposed in 1947), and subsequently a wildlife sanctuary in 1972. It was finally declared a national park in May 1983; two months before, it was declared a tiger reserve. In 1986, a 177 sq km area of reserve forest was added to the tiger reserve and is designated as the buffer zone, while the rest (1,808 sq km) is considered the core zone.

The area has a wide altitudinal range, from 200 m to over 4,500 m. The terrain is steep and inaccessible. The old 157 km Miao-Vijaynagar road runs through the park, though it is motorable only for 26 km up to a settlement called Deban. The park headquarter is at Miao township, with a single functioning range in Deban. Civil supplies to villages located outside the

WWF: NGO monitoring network

In the mid-1990s, the WWF-India had developed a programme for mobilising grassroot support in the tiger range areas. This was done through the creation of a NGO monitoring network with the following objectives;

- a. To develop an advance warning, threat alert mechanism for safeguarding the protected areas;
- b. To mobilise grassroot NGOs and other committed field based groups who are focal points of this network, for eliciting participation of the local people in activities such as ecodevelopment as well as for protected areas management.⁶

eastern boundary of the park are carried on foot or on elephant back through the park, mostly along the river and parts of the road. Access for tourists, and even park authorities and biologists, is mostly restricted to areas up to 900 m. The interior and higher areas of the park remain unexplored, except by hunters from local communities.⁷

Local communities: the ones who know

The only ones who really know the forest, therefore, are the local communities that walk the forest for hunting and survival. Aparajita Dutta, a wildlife biologist with Nature Conservation Foundation (NCF), a Mysore-based NGO, has been studying the region for a while, and believes that hunting pressures on the region are extreme and it is only these hunting communities in the region that really know the forest.

The region is home to several indigenous tribes. Beyond the southeastern boundary of the park (at 80 mile) are 13 villages with 673 households and a population of 5,147. There are four Lisu villages in Vijaynagar circle — these adjoin the park and have 403 households (population 2,600) — and nine other villages of Nepali ex-servicemen with a population of about 2,018; these ex-servicemen had been settled here by the government after 1962. Apart from this, there are other tribal and non-tribal government department staff and personnel of the Assam Rifles and the Indian Air Force.⁸

The Lisu, also referred to as Yobin by some communities, are agriculturalists and also have a reputation of being skilled hunter-gatherers. There is strong resentment, anger, and mistrust against the forest department among most Lisu. Their biggest grievance is that the creation of the park and demarcation of the boundary in 1983 was carried out without any consultation with them, and there was no settlement of rights. Many insist that the area between Deban and Gandhigram is their area and that they had no idea when the national park was created. For instance, most Lisu believe that the biggest hurdle to building the arterial road (which they see as crucial to their development) has been the forest department — it was responsible for stopping road repair and maintenance in 2000. There is also resentment as they believe the forest department has portrayed the Lisu as “illegal settlers who have encroached the area of the reserve from across the international border of the country”.

The field staff strength in Namdapha is very low and they are not trained or motivated; given the poor accessibility, patrolling by the department is restricted to the fringe areas. There are merely 22 sanctioned posts of forest guards to manage and protect 1,985 sq km. Of these 22 posts, only 11 are filled. This effectively means one person per 180 sq

km. In contrast, Kaziranga national park in Assam, a model of successful protection through enforcement, has 500 forest guards for 800 sq km (one guard per 1.6 sq km) on flat lowland terrain with numerous ranges, beats and forest camps. In Namdapha, there is a complete lack of basic facilities and of support from local police and administration. Most staff are outsiders; not a single Lisu is currently employed in the department.⁹ The headquarters in Miao is 10 km from the park boundary with a single range at Deban. Currently, no staff is posted at some of the accessible temporary camps. Even to patrol this relatively accessible area, the staff depends on boats to cross the river and rations have to be carried there. Often during the monsoon when the river is in spate, it is dangerous to use the boats and staff has been stranded on the other side for days with no food. In the absence of regular staff presence and patrolling, hunters often use these forest camps.

The crisis...

Consequently, the park is in a state of crisis. Researchers believe tigers have all but disappeared from the reserve, though information remains unverified. Hunting continues unabated and a resilient and enterprising community turned destitute and desperate by the creation of the park looks upon the ‘park’ (not the forest) with animosity. At present, there is a stalemate. The state is unable to increase the strength of the staff.

Even if the forest department does get additional resources, it will be handicapped without knowledge of the park. The immediate need to ensure wildlife conservation in Namdapha is protection from hunting, fishing and other kinds of disturbance.

...and its solution

Most Lisu today view the park as the biggest barrier to their aspirations and the root of all their problems. They are bearing all the costs of conservation. They have poor relations with the department, which sometimes result in retaliatory hunting, and this needs to be remedied through dialogue and better communication. However, if they can get tangible benefits, there could be a positive attitudinal change.

A solution to the agricultural land problem of the Lisu is also urgently required to stop the influx of Lisu families settling inside the park. A realistic relocation/resettlement plan has to be made in consultation with and the agreement of the Lisu. There is a need to find alternate employment options and opportunities for the Lisu, some of which (such as eco-tourism) could be tied to the national park. The Lisu community’s support for the park would go a long way in ensuring wildlife conservation as they can themselves work either directly as guards and informers (about hunting activity) in the forest

department, or through support from other organisations. Once they have a stake in the area, there will be a much better understanding of the need for conservation there.

The Nature Conservation Foundation, which has been working in the area for several years, has already launched a plan on these lines. The plan, in principle, is simple and based on the logic the existing social and ecological set-up demands. It proposes a creation of a protection force for the reserve that is based upon the talent and knowledge of the community. This requires creation of a trained force of Lisu hired by the forest department and working in collaboration with the department to monitor the biodiversity as well as accord protection to the area. The Nature Conservation Foundation suggests a way to reduce the burden of hiring and maintaining such a force: investments can be made to bolster the tourism infrastructure, and the revenue from tourism can be shared with the community.

Eco-tourism is the most tangible benefit the Lisu can get out of the park; through eco-tourism, they can create a direct and positive affiliation with the park as well as a case for protection of wildlife. Tourist inflow into the park is right now relatively low. But the area is known to bird watchers around the world and needs to be marketed and projected as a unique destination. Most Indian tourists are from Assam and only visit Deban, which is seen more as a picnic spot. Infrastructure and other tourist facilities are, as yet, limited to Deban. Building the tourism system is a challenge, but not an insurmountable one; it is easily more viable than positioning more guards and infrastructure in that region. Moreover, the investments made in tourism will be of the nature of capital investments, leading to revenue generation for the cash-strapped department as well as sustainable livelihoods for the people. Such investments, in a climate of political volatility and rising unemployment, are the need of the hour: to invest in creating livelihoods rather than than in bringing in more administration, guards, arms, ammunition which encourage attendant alienation of the people.

The Task Force has received representations from the Nature Conservation Foundation. Its researchers have been engaging with Project Tiger officials as well, to see how the initiative, at present a private one, can be up-scaled into an official mascot for Project Tiger to experiment as an alternative.

This will require the following at the minimum:

- A formal pact of reciprocity between the Lisu and the forest department with consensus being the binding element;
- A clear delineation of rights, privileges and benefits for the people even before such a pact is prepared;

- A clear benchmarking of indicators to monitor the health of the habitat as well as the effectiveness of the Lisu protection force;
- A collaborative effort between the state, the communities and interested research groups to spearhead the effort; clear demarcation of roles, and responsibilities between the stakeholders;
- A definitive time frame to set forth this process and, thereafter, to review the effectiveness and look for mid-course corrections if necessary.

While all this is easily done on paper, at the field level it demands the best of staff and the most motivated of personnel. Therefore, both the people as well as the forest department need to be given adequate training in setting up an experiment that demands skills to manage the protection force as well as run it as a profit-making exercise.

But it clearly needs to be encouraged, because unless we experiment and innovate, how will we succeed?

Periyar: where poachers turned protectors

In Periyar tiger reserve in Kerala, there has been an interesting effort to provide people — erstwhile elephant poachers and smugglers of cinnamon bark — with an alternative source of livelihood from tourism in the park. These *ex-vayana* bark smugglers, as they were once called, now engage with the forest differently.¹⁰

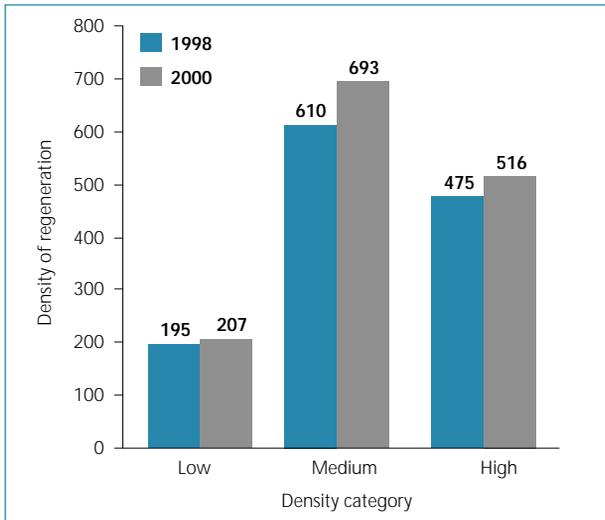
Today, former poachers are companions to the forest guards who patrol the Periyar tiger reserve. Information about tree-felling and smuggling is quickly relayed to the ranger by these former poachers over a walkie-talkie, the patrol team is reinforced and the forest thief is overpowered.

Every day at dusk, one of the former poachers surveys the crowds at the local bus stop in the town of Kumily for suspicious elements from his old days. The old network now works for the forest department, not against it: powerful allies in this war against wildlife crime.

In the past, these villagers depended upon the forest for firewood and thatching grass for their own use and for sale. Illicit smuggling of cinnamon was common as was poaching of bison, buffalo and small game. In 1997, when a few illicit collectors of the *vayana* bark were caught by the forest department, they were offered a deal: the cases against them would be dropped in return for their services in protecting the park. Twenty-two poachers agreed.

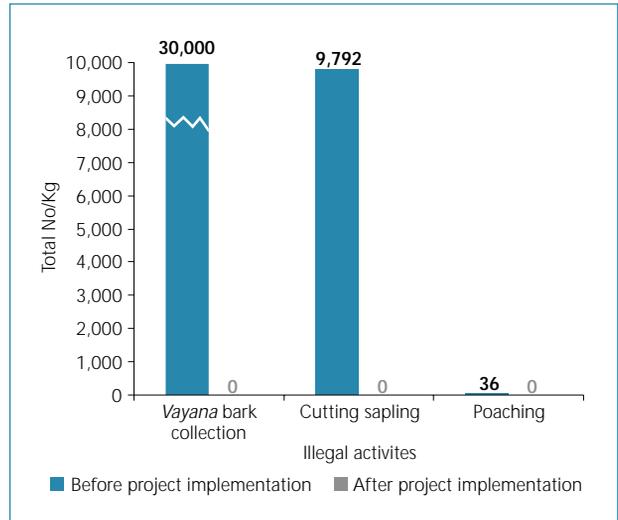
They said they needed a regular income; the park managers, therefore, worked with them to start operations in offering a tourist service to 'trail tigers'. The aim was to explore the wilderness of Periyar, and to become guides inside the park. As the revenues from this 'business' grew, forest offences

COMPARISON OF INCREASE IN REGENERATION OF CINNAMON TREES, 1998-2000



Source: Anon 2005, data on Periyar tiger reserve, Periyar Foundation, mimeo

COMPARISON OF REDUCTION IN ILLEGAL ACTIVITIES BEFORE AND AFTER PROJECT IMPLEMENTATION BY EX-VAYANA BARK COLLECTORS



Source: Anon 2005, data on Periyar tiger reserve, Periyar Foundation, mimeo

also came down.

The real advantage lies in the intelligence network this group now brings to the assistance of the park authorities. On the visit to Periyar, the Task Force was told by M M Naushad, a former *vayana* bark collector, how their intelligence network had foiled poaching attempts. At least 500 sandalwood smugglers have been caught and smuggling of cinnamon tree bark has also been checked. No case of elephant poaching has been reported since this group started its work. What they valued most of all, as they explained to the Task Force, was that they were now treated with respect in their villages.

The park authorities have collected data to monitor the impact of this programme. They have found that:

- The intelligence provided by this group of ex-bark collectors has resulted in detecting 28 cases

and the arrest of 49 offenders in five years.

- There is clear evidence that there has been a reduction in illegal activities after the involvement of this group (see *graph: Comparison of reduction in illegal activities before and after project implementation by ex-vayana bark collectors*).
- Cinnamon trees are regenerating, showing that there is less pressure on them through smuggling (see *graph: Comparison of increase in regeneration of cinnamon trees, 1998-2000*).

The challenge now for the park authorities is to sustain this effort and to expand it so that more poachers and smugglers can become protectors. But what their initiative shows is that it is possible to find ways of working and making a difference with even the most difficult communities.

Recommendations

1. Solutions for protection often require innovation. The poaching networks are well organised and they can and will reach out to the poorest in the country to use their cheap labour and skills for doing their 'dirty' work. Each park authority must identify the major hunting tribes and communities in proximity to, or operating in, a reserve. This information should be used to develop plans to figure out how the expertise of the hunters can be used for protection as well as for gathering basic ecological information. India's tiger reserves, too, need trained foot soldiers and wherever possible, communities of the forest-dependent or the hunters should become the first option to look to for recruitment and creation of intelligent protection forces.

2. The independent monitoring of each park must evaluate the work done by the park management on working with its forest-dependent traditional hunting communities. The park management and Project Tiger must work on locale-specific approaches with these communities. These efforts must be supported and carefully monitored so that the learning can be disseminated and become practice.

3.5 The science agenda

As wildlife populations of India started declining steeply in the 1950s, people began to speculate on their numbers. The famous hunter-naturalist, Jim Corbett, was responsible for one of the earliest of such estimates of tigers, and he placed their numbers in the country at 2,000. E P Gee, one of the first naturalists to document India's wildlife followed, suggesting that India had 40,000 tigers at the turn of the century, which he said were down to 4,000 in 1965.

In the late 1960s, K S Sankhala, who went on to become the first director of Project Tiger, estimated that there were 2,500 tigers in India.¹ J C Daniel of the Bombay Natural History Society conducted a questionnaire-based survey of forest officials to arrive at the same estimation. These were all educated guesses, albeit coming from experts with credibility².

It was Saroj Raj Choudhary, a respected wildlife expert from the Indian Forest Service, who attempted to put these estimates on a sounder empirical footing by devising the pugmark count method. This method is grounded in the assumption that every individual tiger's pugmarks have some distinctive features that permit discrimination, despite variation introduced by a number of environmental variables. By attempting to locate pugmarks of all individual tigers in a locality, this method proposed to census the entire tiger population.

The first such 'tiger census' was conducted across India between April and May 1972, which put the number at 1,800. This was likely to be an underestimate, as it did not include the large tiger habitats of the Sundarbans and Assam because of the early onset of monsoons.³

India has, over the years, elaborated on the 'pugmark census' — counting the pugmarks of tigers in the wild — to estimate tiger numbers. In this technique, forest department personnel fan out across tiger reserves and all other tiger habitats looking for pugmarks and other signs of sighting the tiger. The pugmarks are cast in plaster to trace the imprints of the left hind paw. These casts are then collected and compared to identify individual tigers.

The method has evolved over the years. Choudhary devised the tiger tracer, transferring the pug impression from the ground to a piece of tracing paper. O P Jayaraman introduced a glass tracer, on which were etched the axes of x and y in order to correctly determine the quadrates, pattern and layout

of the four toes and the pad. H S Panwar, a member of the Tiger Task Force and the then field director of Kanha tiger reserve, identified parameters relating to every pugmark and suggested that they be statistically analysed.

Using this methodology, the Indian wildlife establishment has been conducting an All India Tiger Census, initially once in five years and now once in four years. The 'cooperation consensus', as was originally devised by Choudhary, is not restricted to the tiger reserves but is done across the habitat of the tiger: forest department personnel fan out across tiger reserves and all other tiger habitats looking for pugmarks and other signs of the tiger's presence — faecal matter, scratch signs, kill evidence, actual sightings and other reliable information from local communities.⁴

Conducted over one week, the census is elaborately structured. It is organised by the different states in cooperation with the Centre. The country is divided into zones, which then enables training as well as collation of the data. The territory mapping is done at a national level. The information is collected by each beat guard, who oversees the smallest unit in the forest administration — roughly 30-40 sq km. The state government appoints a chief coordinator, who oversees the process and analyses the data.

Errors in pugmark counting

Over time, it has been understood that several possible sources of errors exist in the pugmark census methodology:

- Pugmarks of some tigers may never be encountered
- Different pugmarks of the same tiger may vary so much that they may be assigned to different individuals.
- Pugmarks of two distinct tigers may be so indistinguishable as to be assigned to the same individual.
- Levels of these errors may differ from locality to locality and from season to season, depending on the terrain, tiger densities and other factors.

These errors imply that it would inevitably be difficult to arrive at exact numbers of tigers based on total pugmark counts. It is, therefore, imperative that one estimates the extent of all these sources of errors. Based on these estimates, one should then come up with not just one specific number, but a range with some statement of the likelihood that the actual numbers will fall within that range.

Dangers of pretending to be exact

Wildlife managers and biologists were, of course, aware of these possibilities. Several questions have been raised and studies undertaken to estimate such errors, reduce them to the extent possible, and propose alternatives⁵. In practice, however, the total pugmark count with the objective of coming up with one specific exact number continues to be the method followed in all the official tiger number estimates to this day.

Given the complexity of the real world, an accurate total count of tigers is simply not feasible. If this is not accepted, and only a single number is provided as if that is a precise estimate, there is a danger that any lower number arrived at in a subsequent year would be taken to imply that there has been a definite decline in the number of tigers. For example, there may be an error margin of ± 7 tigers with 99 per cent probability in some tiger reserve. The estimate arrived at through total pugmark count in the first year may be 32, which declined to 29 in the second year. In reality, the actual total number may in fact have increased.

Moreover, if there were a tendency to judge the performance of park managers on the basis of the supposedly exact number of tigers in the area under their charge, then the managers would naturally be inclined to manipulate the data and project a picture of continually increasing numbers. Such a tendency could be checked if there was in place a system of public scrutiny of the veracity of the numbers being declared. However, no such system has been in operation — the tendency to manipulate data, therefore, has gone on unchecked.

This might have happened in several places. We now have concrete evidence that it did happen in Sariska, where the publicly declared numbers have been decidedly inflated at least over 2001, 2002 and 2004. A most unfortunate consequence of the dissemination of such manipulated data has been a failure to recognise the signs of decline in tiger numbers, resulting in their total elimination during 2004.

It is important to note here that around mid-2002, the Project Tiger directorate had already begun working on a revised methodology for the assessment of tiger habitats and numbers. The directorate, in its note, assessed the situation: “Over 20 years of serious efforts and millions of rupees of investment towards promoting conservation of tigers and their ecosystems, it is rather ironical that we still do not have a system of evaluating the effectiveness of these conservation efforts.”⁶

The directorate then laid out its objectives as follows:

- To assess the habitat and status of tigers in the sub-continent

- To develop appropriate (site-specific) census and monitoring protocols
- To develop spatial and aspatial models and database for risk assessment and persistence of existing tiger populations
- To collate, analyse, store, update and disseminate this information to decision makers and field managers
- To disseminate the census, habitat evaluation and monitoring techniques to field personnel by conducting regional training workshops and producing manuals
- The directorate noted that its ‘Tiger Habitat and Population Evaluation System’ would not only serve as a monitoring tool for the tiger and its habitat, but would also serve to monitor the forests, their extent, the threats — in effect, the entire wilderness biodiversity resource for which the tiger serves as a flagship.

Science: an enterprise of scepticism

We evidently need to put in place a new system of estimation of the numbers of tigers and the health of the ecosystems that harbour them. This new system should acknowledge that given the many sources of variability in complex natural systems, exact numbers, such as total pugmark counts, are not feasible, and that instead we must substitute these by estimates accompanied by appropriate confidence limits. But there are more fundamental issues at stake. We need to acknowledge that science is not a matter just of systematic procedures. Rather, it is a system of continual open scrutiny of the procedures being employed towards any given objectives, such as estimation of tiger numbers, and of the level of reliability of the results these procedures produce. This system has traditionally worked through peer review of publication of scientific results specifying details of the methodology and of primary data as well as analysis and interpretation. Therefore, many wildlife biologists have rightly pointed out that the total pugmark count method has never been exposed to this test and is consequently unacceptable to them. At the same time, they point to a number of alternatives that have been so tested, including the use of camera traps, and hence are preferable.

Peer review in refereed journals is a time-tested system that will continue to function. However, it is just one of the ways of ensuring that science progresses through transparency, by sharing all results, the methodology employed to arrive at them and the logic followed in the deductions. Science also attempts to eliminate biases that may arise through conflicts of interest by devising procedures such as double blind trials. It is these democratic,

inclusive traditions of science that we need to build upon in devising a system to foster a healthy growth of wildlife biology in the country.

In this context, it is important to note that peer review in refereed journals is a system that was evolved in pre-ICT revolution times. It is a system that confers considerable power on a small number of individuals involved in making editorial decisions and serving as referees. There are examples, too, of misuse of this power. There is, therefore, much merit in going beyond peer reviews. Today, public scrutiny can be made much more extensive and effective by posting on the Web all the data, the methodology followed and the logic employed. Ideally, we should make all this information available in all the Indian languages also. Indeed, such a Web-based scrutiny, exposing scientific activities to a wider public, would serve the vital function of demystifying science, and of checking vested interests that scientists too may try to encourage. Such a Web-based system could also help bring on board information on ecological parameters available with laypeople.

Certainly, there is an abundance of evidence pointing to the fact that given the nature of complex ecological systems, scientists too have a limited understanding of their functioning, at the same time that laypeople may have observations of value. The experience of a group of Bangalore-based ecologists investigating the fate of wild amla populations on the nearby BRT Hills provides an interesting example. Their hypothesis was that the regeneration of the amla is governed by the amount of fruit collected for commercial use, and that the low levels of regeneration in recent years were related to excessive harvests of the fruit. So they laid out statistically well-designed experiments to test the influence of different levels of harvests of fruit. The local Solliga tribals told them that these experiments would yield no results of interest, because, according to their understanding of the ecosystem based on many years of first-hand observations, the levels of regeneration were primarily influenced by forest fires. Amla seeds require fire to germinate well, and the Solligas felt that the low levels of regeneration were related to the suppression of forest fires in recent years. The scientists did not initially give credence to this view and continued with their experiments. Only later did they come to the conclusion that the Solligas had indeed been right. So it is highly appropriate for us to put in place a more inclusive system of obtaining inputs from all people, especially in the context of wildlife biology. In fact, even India's famous ornithologist Salim Ali drew upon the knowledge of Mirshikars, a tribe traditionally engaged in bird trapping, in his own work.

Hierarchy of scales

The estimation of number of tigers over a total range spanning many thousands of kilometres of parks, reserve forests and even non-forest areas calls for a massive effort. Such an effort cannot, obviously, be equally intensive throughout the tiger range. It is, therefore, best to go in for different levels and kinds of efforts at a hierarchy of spatial scales, focusing the more intensive effort in relatively limited selected areas. The effort should not be confined to estimation of tiger numbers, but has to be broader covering at all scales:

- State of tiger habitat
- Abundance of tiger prey species
- Abundance of tigers
- Human impacts on tiger habitat
- People-wildlife conflicts

Low intensity, extensive effort

The most wide-ranging effort will have to span the entire tiger range. It will not be feasible to rigorously arrive at quantitative estimates at this scale. Instead, the most extensive effort will have to aim at a qualitative understanding of the points listed above.

We simply do not have the adequate scientific human resources to undertake even qualitative investigations on this scale. At the same time, it is highly worthwhile to draw upon the practical ecological knowledge of local communities as well as government employees working in the field. This wide-ranging effort must, therefore, engage the extensive network of forest guards and watchers, as well as knowledgeable local residents. It would of course be necessary for the scientists to participate in the process, building the capacity of forest staff and local people, and at the same time, learning from their field experiences.

This grassroots-level involvement could come from two streams. Firstly, the wildlife managers organising the surveys could engage forest guards and watchers, as well as knowledgeable local residents and amateur naturalists. Secondly, it would be appropriate to take advantage of panchayat-level documentation of biodiversity in the form of 'people's biodiversity registers' that is now being initiated as a follow-up of the Biological Diversity Act. These registers will be periodically updated as well. All the panchayats falling within and on the periphery of the tiger range, whether in protected areas, reserve forests, or non-forest areas could be asked to so focus their documentation as to provide a continual monitoring of tiger populations as well as of the health of the tiger habitat.

Landscape level understanding

Spatial information derived from satellite imagery

and organised with the help of Geographical Information Systems (GIS) is a most valuable source of information pertaining to the status of the tiger habitat spanning the entire distribution range of the tiger. Given the fact that a substantial proportion of the tiger population occurs outside tiger reserves, we are increasingly beginning to appreciate the significance of conservation efforts focusing on the whole landscape. GIS using satellite-derived and other spatial information would be a key tool in this context.

The various kinds of information thus generated through such an extensive effort would provide a broad picture of the status of the tiger habitat. This would help partition the overall tiger habitat into a series of strata representing different states of parameters of interest, such as habitat fragmentation and prey densities.

Intensive studies

This broad understanding of the entire tiger range would be the starting point of designing more thorough investigations. A set of sample localities may then be chosen from the overall tiger range for more intensive, rigorous investigations.

These focused, intensive investigations may also cover all the aspects considered at the earlier stage (state of tiger habitat, abundance of tiger prey species, etc).

These intensive investigations may draw on the whole arsenal of scientific hardware such as camera traps and DNA sequencing, as well as software such as statistical techniques and computer simulations (see *box: Checking DNA*). Their focus should not be confined to trees, ungulates and larger carnivores, but also include many other significant elements of biodiversity. They should not view humans only as a nuisance, but also as the only species to have evolved practices of deliberate conservation of biodiversity.

An inclusive, cooperative effort

Recognising that a main difficulty so far has been the opaqueness and exclusivity of the efforts at assessing tiger populations, both the extensive as well as the intensive investigations should be conducted in the spirit of science. The main ingredients of the scientific enterprise are:

- Open access to all facts and inferences
- Rejection of all authority other than that of empirical facts, and
- Welcoming all interested parties to question all assertions as to facts as well as logic

This would not only involve following the established scientific scheme of peer review in professional journals, but would entail welcoming

involvement of all interested parties in the endeavor of assessing tiger populations and their habitats. Such involvement, at the level of the extensive effort, should bring on board, alongside wildlife managers, scientists as well as local community members and amateur naturalists. The more intensive effort would call for involvement of scientists and wildlife managers to a much greater extent, though there will still be scope for involving local community members and amateur naturalists.

In fact, a point of view debated during the Tiger Task Force hearings is that such ecological assessment is like an audit of a business concern. An audit is best conducted by an independent external agency. If this is accepted, the wildlife managers should not participate in the ecological assessment at all, leaving it in the hands of an independent group of scientists. However, so long as the whole assessment process is inclusive and transparent, ensuring that there is no undue manipulation of data as happened in the case of Sariska, it may be appropriate to involve the wildlife managers in the process. Such involvement would contribute to further building up of their capacities at all levels from forest guards and watchers upwards.

Multidisciplinary effort

Tiger conservation is not simply a matter of ensuring a healthy prey population base for the carnivores. It is a far more complex process that will have to include attempts at positively involving thousands of human beings that share the tiger habitat. The effort at assessment of tiger populations and their habitats would, therefore, have to look at whole landscapes, as also at a range of ecological, social, economic, political as well as ethical issues. Such an effort would have to engage natural and social scientists as well as resource managers, and be open to participation of all interested public as well. As a first step in this direction, an expert group of people with expertise in relevant technical disciplines such as wildlife management, population and community ecology, statistics, remote sensing, resource economics, common property resource management and anthropology may be constituted to devise a proper methodology and protocol for analysis of the data and basing management decisions on the resultant understanding.

We do have substantial Indian capabilities in this context, but it is important to bring it together to work as a team and to focus their efforts. There is a great deal of expertise abroad as well and we must always keep ourselves open to their inputs. However, modern communication technologies make it very easy to obtain these inputs even in the absence of face-to-face contacts. We, therefore, suggest that we concentrate on building up an indigenous team

Checking DNA

Because the tiger is an elusive animal, biologists search for different ways to find and identify it. One emerging approach is to use non-invasive DNA-based techniques, which identifies individual species and animals with the molecular analysis of collected hair and scat samples. The problem is that while molecular scatology — analysis of scat samples — has been increasingly used in the world, there is little work on the tiger outside India. The use of genetic tags or DNA-based mark-recapture population estimations have been widely demonstrated in the census of the black bear, brown bear and the Atlantic humpback whale, but not in that of the tiger. Indian scientists have to develop and standardise protocols which would be capable of using the body parts and faecal matter to determine the species, the sex and then the individual animal.

Two institutes are currently working on this: the Wildlife Institute of India and the Centre for Cellular and Molecular Biology in Hyderabad. The Wildlife Institute of India has a current project titled 'Comparison of tiger (*Panthera tigris tigris*) population estimated using non-invasive techniques of pugmark, camera trap and DNA analysis of hair and scat in Ranthambhore tiger reserve'. It is also working on characterisation of species from bone, tusk, rhino horn and antler to deal with wildlife offences.

The Ranthambhore project is a pilot study being done to standardise protocols for identification of free ranging individual tigers, says S P Goyal, the principal investigator in the project. The project uses all three techniques — pugmarks, camera traps and molecular genetics — to compare and validate the three options. In the study area, scientists have collected fresh scat (faeces) samples while walking on different trails. Each vial of the prepared scat for analysis has been marked with its

location using a Global Positioning System finder. In addition, the scientists have collected hair follicles by using mechanical devices and glue hair snares. Before processing the sample for DNA analysis, the scientists will examine the hair samples microscopically to check their cuticular patterns, which determine the species.⁷

In his presentation to the Task Force, held in May 2005, Goyal explained the progress in this project. He said that they had collected 25 scat samples, which were being analysed. The analysis was complete for checking the species and sex identification of the tiger. However, what they were working on was genotyping or individual identification. According to him, researchers have incorporated individual identification along with sex markers to understand variation in these aspects due to sexes. These markers are called 'short tandem repeats' or 'micro-satellites'. The important aspect is to screen the marker for that particular species to find the markers that are highly polymorphic. Then, five to 10 of such highly polymorphic markers can address all sorts of questions related to individuals without any false identification. This stage is progressing fast at the Institute's laboratory.

Recently, a group of Chinese scientists have developed micro-satellites for tigers, which can be used for identifying individuals. This work can now proceed using this tool.⁸

The problems, according to Goyal, involve genotyping the individuals from micro-satellites, particularly as the scat sample is often degraded and DNA that can be extracted is small and often, poor.

In addition, the Task Force has received a proposal from the Centre for Cellular and Molecular Biology on estimating the number of wild tigers in tiger reserves in India by DNA profiling of faecal samples. The Centre has a high order of capacity to undertake this work.

effort, rather than bring in foreign consultants. In any case, we advocate a very open system, in which not only Indians, but also all interested foreign scientists would have access to most of the relevant information. There should be an open invitation to all foreign scientists too to study, reflect, criticise and make suggestions.

Proposed habitat monitoring

The Project Tiger directorate has been working for the past three years with the Dehradun-based Wildlife Institute of India to devise a system to

implement a better monitoring system (*see Annexure VIII: Methodology for estimating and monitoring tiger status and habitat*). The Tiger Task Force has reviewed the proposed methodology with the Project Tiger director and scientists at the Institute. It has also invited comments from experts on the proposal so that the views of all concerned can be considered (*see box: Consultations to review methodology*).

The Tiger Task Force believes the proposed national tiger estimation methodology to be a move in the right direction and endorses it. It hopes that the national tiger estimation, which is to be

conducted from November 2005, will be done using this evolved methodology (see chart: *The various stages of the monitoring protocol*).

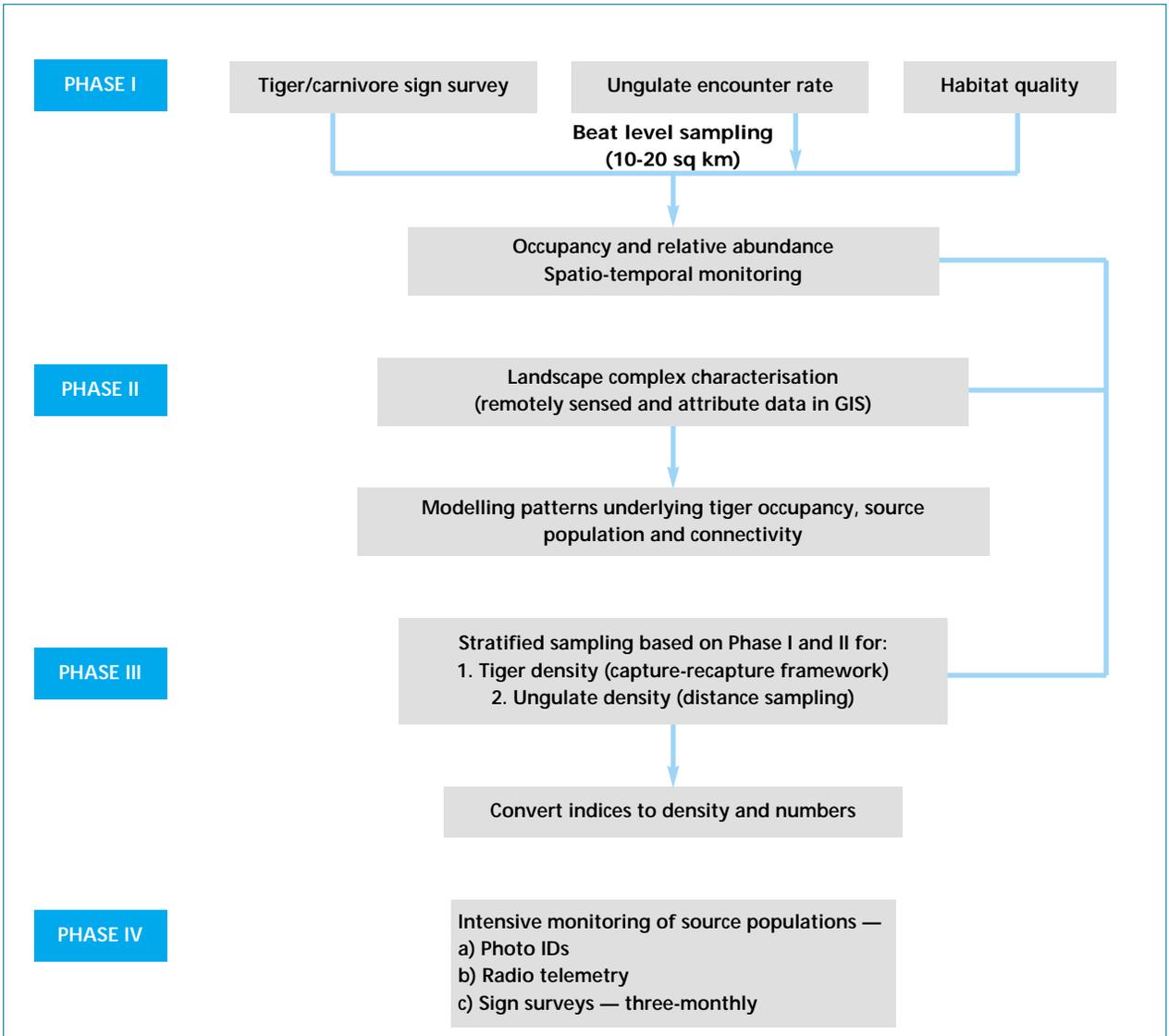
However, as many details will have to be refined, for instance, in terms of analysis of the data collected, the Tiger Task Force recommends that even as the work on estimation proceeds using this new methodology, the Project Tiger directorate should set up a scientific expert group immediately with expertise in relevant technical disciplines such as wildlife management, population and community ecology, statistics and remote sensing for overseeing the process. This group should work from the very inception of the process and assist in suggesting appropriate ways of analysing and interpreting the data. This expert group should in fact be funded to enable its members to engage in data analysis as well

as do other research relevant to further development of the methodology.

Overseeing tiger and tiger habitat assessment

While the Project Tiger directorate and Wildlife Institute of India programme would be a major component of the needed effort at assessing tiger populations and tiger habitat, a great deal more needs to be done. For instance, we need to know much more about the various parasites and diseases afflicting tigers and in part, shared with other carnivores. We should understand the implications of provision of water sources in the dry season that modify the natural patterns of dispersal of tiger prey. We also need to quantify the extent of impact of villages inside, in contrast to those on the periphery of tiger reserves. We need to figure out how much

THE VARIOUS STAGES OF THE MONITORING PROTOCOL



Consultations to review methodology

The fourth term of reference of the Tiger Task Force is to suggest measures to improve the methodology of tiger counting and forecasting.

The Task Force assessed and evaluated the national tiger estimation methodology developed by the Project Tiger directorate and the Wildlife Institute of India (WII) in this regard.

In order to ensure that all views, comments and criticisms were taken note of, the Task Force did the following:

1. It held a consultation in Delhi, in May 2005, inviting all the prominent experts and scientists working on population estimations in the country. The deliberations included a presentation from Y V Jhala of the WII on the proposed methodology that the Institute was developing with the Project Tiger directorate, as well as a presentation by Ullas Karanth on the methodology used by him. Rajesh Gopal, director, Project Tiger, explained the rationale and science behind the proposed methodology and the progress made so far.
2. The Task Force then sent the technical note prepared on the methodology to all concerned scientists, inviting written comments and suggestions (see Annexure VI: *Experts requested to comment on methodology for tiger estimation*).
3. A second consultation was held in Bangalore in June 2005 to discuss the methodology with a further group of scientists and field managers.
4. The written comments received were then discussed with scientists at the WII and with the director, Project Tiger.
5. A member of the Task Force, Madhav Gadgil, was entrusted with the responsibility to assess the methodology and to resolve all the comments received from experts. It must be noted that Gadgil is a renowned field statistician, with a PhD in mathematical ecology from Harvard University, USA. He has worked for many years on population estimation of animals, beginning with the first elephant census in 1978. Since then, his

interests have continued in this area and his papers have been published in almost all peer-reviewed scientific journals, including five in the very prestigious *Proceedings of the National Academy of Sciences* (PNAS). H S Panwar, former director, Project Tiger and WII, with years of experience in practising conservation and with a background in population estimation, also vetted the methodology.

6. Madhav Gadgil spent time further discussing the methods of statistical analysis with the scientists concerned. After these rounds of deliberation and being satisfied with the proposed methodology, the Task Force has decided to endorse the approach and to recommend the director Project Tiger to proceed with the use of the methodology in the coming census.

7. The Tiger Task Force is also recommending that even as the work on estimation proceeds using this new approach, the Project Tiger directorate should set up a scientific expert group immediately with expertise in relevant technical disciplines such as wildlife management, population and community ecology, statistics, and remote sensing to oversee the process from its inception. This will help the process to be dynamic and science-based and the learning can be incorporated into the analysis on an ongoing basis.

In the discussions with Project Tiger directorate and WII the different comments received were broadly categorised and carefully reviewed. The comments and the responses of Project Tiger and WII are as follows:

1. **Relating to misunderstanding arising out of text: Critique:** Tenacity to follow only pugmark-based population estimation.

Response: Tiger signs (including pugmark) is used for determining spatial occupancy and relative sign density. We are not promoting the pugmark method but using a range of methods for absolute density estimation in stratified representative units. Instead, we are using mark-recapture framework through

 - a. Camera trap-based identification
 - b. Refined, digitised pugmark-based identification
 - c. DNA-based identification

revenue flows from wildlife tourism and how feasible it is to direct some of it towards ecodevelopment efforts. Evidently, a great deal of research needs to be undertaken on a diversity of themes by a variety of individuals and agencies.

This extensive effort cannot be undertaken solely by the in-house agencies of forest departments. In fact, the positions of research officers have lain vacant in a majority of tiger reserves and little relevant scientific work has been accomplished. Nor

2. Relating to scientific and technical issues:

Critique: Related to design of surveys — relationship between sign index and population density may not be linear or there may be no relationship between sign index and absolute density.

Response: Sign index is primarily used for determining spatial occupancy by tigers and other carnivores. Currently, research is ongoing to establish the form of this relationship between sign index and population abundance of tigers in the Satpura-Maikal landscape. Similar relationships will be estimated for all landscape complexes.

Critique: Precision in detecting population change.

Response: The method proposed is conservative, that is, reporting lower population estimates than reality. The method suffers from non-detection of tiger signs when there is tiger presence and not *vice versa*. Therefore, it is unlikely to over-estimate population size. Thus errors, if any, will not be detrimental to the conservation decision process. There may be noise in the sign index due to territoriality and breeding seasonality of tigers; however, such variability will be accounted for by analysing data at a range or protected area level. The precision for detecting change at the sampling unit (beat) may be poor, but at a higher scale (range, division, protected area) the precision to detect change in an abundance class is likely to be good.

Critique: The Satpura-Maikal pilot has not implemented the occupancy estimation approach

Response: The information made available in the technical note was largely indicative of the field data collected in the pilot project. The intended analysis was also outlined. The data would be analysed in a probabilistic framework. The sign-detection analysis will be done following detection probability analysis as proposed by J A Royale, D I MacKenzie, J D Nichols and U K Karanth. The analytic methods are peer reviewed and categorised: sign-detection within probabilistic framework: animal density estimation following distance sampling

theory, and tiger population estimation following mark-capture framework.

Critique: Ungulate estimation — related to converting encounter rates to abundance.

Response: Habitat specific effective strip widths estimated by actual sampling by research team in each landscape complex.

Critique: Tiger numbers are considered to be unimportant in the proposed methodology.

Response: The proposed monitoring protocol addresses the reality that it would not be possible to estimate tiger numbers throughout the landscape in the entire country. The hierarchical approach of the protocol proposes to intensively monitor (numbers) in all source populations (tiger reserves and protected areas, Phase IV). The research-level monitoring (Phase III) for establishing relationship between sign index and population size would ensure population estimation in representative samples of varying tiger density in each landscape complex.

3 Practical problems in operation:

Critique: Non-existence of beat boundaries in several tiger-occupied landscapes.

Response: The beat system exists in majority of tiger occupied landscapes. Where the beat boundary is not delineated, an appropriate sampling unit of 15-20 sq km would be marked on a 1:50,000 scale map based on natural recognisable boundaries and used as the sampling unit.

Critique: Questionable reliability of data obtained by untrained and unmotivated data collectors

Response: Experience from Satpura-Maikal, Kuno, Sariska, Ranthambhore and Dachigam strongly suggests that with appropriate training, the forest staff can collect the required data with high levels of motivation. This system will serve to revitalise, provide a sense of belonging and ownership to the agency (forest department) responsible for the conservation of our biodiversity resources.

can the Wildlife Institute of India be made the sole agency responsible for the entire spectrum of scientific work, for that would mean failing to take advantage of the enormous potential in a multitude of other Indian agencies. Indeed, in case of tiger population assessment itself a great deal of work has

been done by groups outside not only government agencies, but also other research institutes and universities. So every effort should now be made to encourage all interested parties to participate in furthering our understanding of the tiger and its habitat.

Recommendations

1. The time has now come to go beyond the pugmark count method (aiming at a total census), to a sample-based approach. The massive effort required to estimate the numbers of tigers over its entire range cannot be equally intensive throughout the range. It is, therefore, necessary to go in for different levels and kinds of efforts at a hierarchy of spatial scales, focusing the more intensive effort in relatively limited selected areas.
2. The effort at assessment of tiger populations and their habitats would have to look at whole landscapes, as also at a range of ecological, social, economic, political as well as ethical issues. Such an effort would have to engage natural and social scientists as well as resource managers, and be open to participation of all interested public as well.
3. The most wide-ranging effort spanning the entire tiger range will have to aim at a qualitative understanding of (a) the state of tiger habitat, (b) the abundance of tiger prey species, (c) the abundance of tigers, (d) human impacts on tiger habitat and (e) people-wildlife conflicts. This wide-ranging effort must engage the extensive network of forest guards and watchers, as well as knowledgeable members of local communities. In this context, it would be appropriate to take advantage of *panchayat*-level documentation of biodiversity in the form of 'people's biodiversity registers' that is now being initiated as a follow-up of the Biological Diversity Act.
4. Given that a substantial proportion of the tiger population occurs outside tiger reserves, we are increasingly beginning to appreciate the significance of conservation efforts focusing on the whole landscape. GIS-using satellite derived and other spatial information should serve as a key tool in this context. A qualitative understanding of the entire tiger range would be the starting point of designing more thorough investigations. A set of sample localities may then be chosen from the overall tiger range for more intensive, rigorous investigations.
5. The Tiger Task Force has reviewed the revised methodology for estimating/monitoring tiger status and its habitat proposed by the Project Tiger directorate and the Wildlife Institute of India. It believes that this is a move in the right direction and endorses the methodology. It hopes that the national tiger estimation, which is to be conducted from November 2005, will be done using this evolved methodology.
6. However, as many details will have to be refined, for instance, in terms of analysis of the data collected, the Tiger Task Force recommends that even as the work on estimation proceeds using this new methodology, the Project Tiger directorate must set up a scientific expert group immediately with expertise in relevant technical disciplines such as wildlife management, population and community ecology, statistics, and remote sensing for overseeing the process. This group should work from the very inception of the process and assist in suggesting appropriate ways of analysing and interpreting the data. This expert group should in fact be funded to enable its members to engage in data analysis as well as do other research relevant to further development of the methodology.
7. It is essential to facilitate involvement of a broad range of researchers in wildlife biology, especially in the context of intensive studies at the field level. All effort must be made to encourage and facilitate the intensive research and monitoring studies of source population of tigers using a variety of tools — photo-identification and monitoring, camera traps, radio-telemetry and DNA-based genetic studies in different landscape units. The Tiger Task Force feels that it is important to put in place institutional mechanisms that would streamline existing procedures for clearance and co-ordination of research and ensure better utilisation of the research output.

8. This could take the form of panels that may be chaired by the inspector general of forests (wildlife)/chief wildlife warden, and include the secretary of the National Biodiversity Authority/State Biodiversity Board, and experts in ecology, social sciences and bio-statistics. It would be best if these panels serve as 'single window' clearing houses for all matters relating to wildlife research so that they streamline current procedures rather than create another layer.
9. The emerging techniques of DNA is an important new area of estimation. The Task Force would recommend that the work in this field needs to be supported. The Wildlife Institute of India and the Centre for Cellular and Molecular Biology (CCMB) must be encouraged to take on pilot programmes at a landscape level using this technique. In particular, the Task Force would like to invite the CCMB to provide inputs in the development of molecular techniques for identification of individual tigers.
10. The Tiger Task Force feels very strongly that the most serious lacuna in our approach to managing information on tigers has been a lack of openness and willingness to take everybody along. The inclusive, open approach that we advocate depends crucially on free access to all information, except where very evident security concerns are involved, to all people. In modern times, this would be best ensured by posting all pertinent information on the Web, in English as well as in all Indian languages.

3.6 The research agenda

Wildlife research has been facing some serious problems. Almost every wildlife researcher has a grouse against the wildlife bureaucracy: either for its failure to aid in their research or for ignoring the findings of their research. The wildlife bureaucracy, in turn, has complaints about individual researchers and questions about their motivations for research. The situation, as a result, has become quite chaotic. Earlier this year, the Union ministry of environment and forests reportedly issued a circular asking all state forest departments to stop giving permission for any kind of research that entails ‘handling’ of animals (touching, holding or even wire-tripping them for a camera shot). The ban was across forests, protected or otherwise, as well as across species.¹

The fact is that wildlife research, unlike most other research areas, is extremely dependent on the cooperation of the protected area administration, as all protected areas are controlled and access is only through the bureaucracy in charge. Therefore, without any pre-agreed rules, the relationship is highly dependent on the individuals concerned. Some researchers complain of the time it takes to get clearances for conducting research; some allege harassment when their findings go against the forest department, and still others speak of arbitrary decisions to revoke permission for their work. Of course, there are also those who contend that this is not the case across the country.

In his submission to the Tiger Task Force, Raghunandan Chundawat, a wildlife researcher working on snow leopards and on tigers in Panna tiger reserve in Madhya Pradesh, presented a list of the problems faced by wildlife researchers working in India in recent years. In his note to the Task Force, Chundawat said: “Unfortunately, in the last three decades, no system has been created that encourages or institutionalises access to available professional research in protected areas, nor one that takes advantage of the growing body of professionals with expertise in relevant areas who work outside the government. We need to change the attitude of our management from a guard protecting jewels to a librarian who is managing a library of unexplored knowledge and inviting people for learning. These problems occur now and again because we have failed to create a system which supports and provides protection to independent research in the country.”² (see box: *Relationship blues — problems faced by wildlife researchers*)

The problems are so engaged and often, personal, that it is virtually impossible to take an unbiased or

independent view of the situation. It is, therefore, important to discuss a management framework that will facilitate research and also ensure that this research is used for policy formulation.

Procedures for clearance of research

Currently, the provisions of the Wildlife (Protection) Act, 1972, govern wildlife research in the country. Section 28 (grant of permit) of the Act gives authority to the chief wildlife warden to grant permission “on application, grant to any person a permit to enter or reside in a sanctuary for all or any of the following purposes, namely:

- investigation or study of wildlife and purposes ancillary or incidental thereto;
- photography;
- scientific research;
- tourism;
- transaction of lawful business with any person residing in the sanctuary”.

In addition, Section 12 (grant of permit for special purposes) allows the chief wildlife warden to grant a permit in writing to hunt any wild animal specified in such permit for the purpose of:

- education
- scientific research
- scientific management

There is also Section 17B (grants of permit for special purposes) which allows the chief wildlife warden, with previous permission of the state government, to grant any person a permit to pick, uproot, acquire or collect from the forest land specified plants, including for the purpose of education and scientific research.

There are other provisions about working with animals and species listed in Schedules I and II of the Act. In cases that involve any research that is invasive (which includes handling of animals), permission has to be sought directly from the Union ministry of environment and forests.

Need for research guidelines

The problem is not the legislation *per se*, but its implementation, say researchers. For this reason, they argue for a policy that will guide wildlife research in the country. In mid-1998, the standing committee of the erstwhile Indian Board for Wildlife (now the National Board for Wildlife) had ratified a set of guidelines to issue permits by state forest departments. But these guidelines, prepared by scientists R Sukumar and K Ullas Karanth, were not

Relationship blues — problems faced by wildlife researchers

1. *Tiger project in Nagarhole by Ullas Karanth:* Has had to face tremendous problems in conducting research; more recently, several cases in courts have been slapped on him.

2. *Tiger research project in Panna, Madhya Pradesh:* After the death of radio-collared tigers due to poaching, death of prey species in snares and complaints made to chief wildlife warden regarding the lax protection measures and destructive management practices, the forest department started harassing the researcher and curtailing research activities in this case. After a petition was filed regarding the flawed management practices based on the information gathered by the researcher and following his whistle-blowing on the deteriorating status of tigers in Panna, the management began a harassment campaign against the researcher. It included acts like cancelling research permission, refusing to renew the permission to monitor the radio-collared tigers, retrospective charges for using elephants as transport and legal notices to recover the revenue through forfeiting the researcher's property and asking him to vacate his field camp, seizing the research vehicle and equipment etc.

3. *Study on the forest owlet in Shahda, Maharashtra, by the Bombay Natural History*

Society (BNHS): The forest owlet had been considered extinct till recently, until surveys rediscovered a few small populations of the species. The BNHS launched a detailed study. After completing his field-work, the researcher left the field to write his thesis. On a visit to his field site later, he was shocked to see most of the forest in which he had conducted the study had been clear felled. When he made an attempt to find out the reasons and the circumstances surrounding this, he was slapped a charge of Rs 90,000 retrospectively for his use of accommodation provided by the department during his field-work.

4. *Research project on the white-bellied shortwing in Annamalai:* The researcher has 50-60 ringed birds but is not able to study and monitor them as permission has not been renewed. A sum of Rs 16,000 is being charged for entry retrospectively, including that of his two assistants who are locals and reside inside the sanctuary.

5. *Research project on crickets:* This project was proposed and permission for it granted by the chief wildlife warden, but the director of the Kudremukh sanctuary did not allow the researchers to enter the sanctuary and work during the night.

Extracts from Raghunandan Chundawat's submission to the Tiger Task Force, May 2005

finalised and implemented.

The draft guidelines for a national wildlife research policy included the following principles:

- a. The need to differentiate between wildlife research, as research conducted by qualified scientists or by assistants and students working under their supervision, and photographing, filming, video-graphing of wildlife and such other activities which are of a potentially commercial nature, proposed to be carried out by individuals who are not qualified scientists or their assistants and students. The latter must not be treated as wildlife research.
- b. The guidelines pertain to research by Indian nationals only. In case of foreign nationals wanting to do research in India, all existing laws governing their presence and work under other government rules (home ministry, external affairs ministry and others as applicable) would apply additionally.
- c. The guidelines set out the time period that would be taken by the agencies for granting research as well as the levels that need to be involved, given the complexity and duration of the research application.
- d. The guidelines asked that there should be clear objective reasons for rejecting any proposal for wildlife research. In case a research proposal is rejected, either by the chief wildlife warden or the director (wildlife), government of India, the reasons for such rejection must be clearly communicated to the researcher at the time of communicating the rejection.
- e. The guidelines also set up provisions for arbitration: in cases of such rejection by the chief wildlife warden, the state government shall be the executive appellate authority, and in the case of director (wildlife), the Central government shall be the executive appellate authority.
- f. The research questions and methodologies used will be decided by the researchers according to their own institutional agenda of priorities in the case of independently funded wildlife research projects.
- g. The guidelines also set out terms for ownership

of the research, saying it must be recognised that the product of any wildlife research in terms of its scientific results and publications is the intellectual property of the researchers. The agency or personnel managing the area in which such research is permitted to be carried out will not have the right to claim these research results or impose their names on the publications, without the express and voluntary permission of the researchers. Research permission should not impose any conditions relating to the publication of research results, as this would constitute an infringement of the fundamental right of academic freedom of the researchers.

- h. The chief wildlife wardens and director (wildlife), government of India, must constitute technical panels comprising individual specialists on various aspects of wildlife research, to assist them in reviewing scientific wildlife research proposals. All studies involving destructive or manipulative research, and, those studies whose quality or methodologies the chief wildlife warden is unsure about *prima facie*, must be referred to these technical review panels. Proposals submitted by qualified scientists can be rejected only after reference to the technical panel.
- i. Wildlife researchers engaged in *bona fide* research shall inform the managing authorities of the area of any fact or observation relevant to wildlife conservation, including violation of laws, occurring in the area. However, they should not interfere in the normal day to day administration of the area nor can they escort or accompany unauthorised personnel into the area.³

Research to guide management

A broad-based framework, inclusive of management and human aspects of conservation, is the prerequisite for wildlife research. A major objection that field managers raise is that a lot of today's wildlife research addresses only animals and not habitats or plant ecology. There are very few studies that look at interface conflicts and the way out. There is no experimental research with respect to habitats, except by managers. This is one of the reasons for managers to be somewhat indifferent to animal biology research — and that too, about the more charismatic species.

The issue of prioritising research has been considered in depth at the Wildlife Institute of India. In 2001, the Training Research and Academic Council of the Institute nominated a sub-group to consider a research agenda. The report of the sub-group emphasised a “landscape approach”. The

consensus was that the complexity and seriousness of the problems at hand could not be addressed in the limited scale of a single protected area. The idea was to upscale field conservation to the landscape level, in a manner inclusive of the concerns of local people and with their participation.

The conservation of the tiger and most other species of flora and fauna faces the typical ‘source and sink’ situation with respect to the protected area and its surrounding. It is, therefore, necessary to first identify some landscapes in the country which required priority because of their relative biodiversity significance and the magnitude of problems. The next stage is to do baselines on biological, management and socio-economic attributes and issues in an interdisciplinary manner. Once this stage is through, depending upon the severity of the problems, research topics could be identified in the respective ecological-biological, management and human aspects of conservation and of the welfare of local people. Such a framework is a useful tool to prioritise basic, applied and experimental research, and can assist in generating information useful to management.

If anything, tiger conservation needs such a framework urgently. The tiger's long-term survival depends on it. Even if we prioritise initial management to target protected areas and their immediate ‘mutual impact zones’, it is imperative to look beyond to the physical and social landscape. The 1983 task force under Madhavrao Scindia had also seen the management imperatives along these lines, but neither the management nor the research which came after, followed the roadmap proposed by the task force. The result is here for us to see. All research definitely contributes to a better understanding, but only a few can be of effective help in solving problems. It is this link that must be strengthened.

This also points to the importance of prioritising research and the need for interdisciplinary research. Wildlife research is needed in three disciplinary and research activity domains — basic, applied and experimental.

Facilitating networking

It is clear that while all research is important and can assist in building knowledge-based actions, what is needed is a coordinating mechanism to allow networking between researchers and park managers. This forum would facilitate identification of priorities, strengthen the exchange of information and build a strong community of researchers. One institution which can play this role is the Wildlife Institute of India, which was set up to undertake research and training in wildlife science and management. Since its inception in the 1980s, the

Institute has spawned a large number of researchers working in different parts of the country. The community of wildlife researchers has grown enormously over these years. In addition, there is a new breed of wildlife managers, who have specialised in research and who can play effective roles in this discourse (*see box: Wildlife Institute of India — a critical role ahead*).

It is important, then, to realise that internal expertise and confidence in research abilities has grown enormously since Project Tiger was launched in the early 1970s. At that stage, Indian expertise was considerably weaker and cat specialists and wildlife biologists who were consulted for the design of the programme came from abroad. But today, with the growth of this area of expertise in the country, the situation has changed.

Indian researchers are competent to undertake this research. In fact, unlike their counterparts in the rest of the world, they bring uniquely Indian perspectives to wildlife matters. It is this research knowledge that now needs to be integrated with policy.

It is clear that research should not be singly

designed for policy. At the same time, nobody can argue that policy should, or can be, designed without research. It is here that networking is needed the most.

Let us be clear: researchers do policy research when there is a demand for it. Unfortunately, many times, policy is research-proof. On the other hand, policy makers argue that research is policy-proof. Clearly, there is no easy resolution to this issue. What is needed is to create forums — not just one but many — which can bring together these different communities to a common discussion ground. This facilitation of research and policy is essential.

The Tiger Task Force would not want to suggest that any one institution be put in charge of this work. But it is clear that the Wildlife Institute of India must play a greater and involved role in bringing together these different groups and interests.

Mechanisms to facilitate research

The Tiger Task Force finds the Sukumar and Karanth guidelines to be quite reasonable, but would like to suggest institutional mechanisms that would further

Wildlife Institute of India — a critical role ahead

Set up in 1982, the Wildlife Institute of India (WII) marched ahead only when it was accorded autonomy in 1986. Support from its society, governing body (GB) and the Union ministry of environment and forests (MOEF) facilitated its work in training, academics and research domains so as to accord with field realities of conservation — interspersed communities in wilderness areas of all kinds across the length and breadth of India. Its faculty structures and programmes were tailored along these essential field requirements and the progress was hailed by state forest-wildlife organisations and scientific circles.

Unfortunately, a decade's setback after the early 1990s undermined its functional autonomy and even programmes. Delayed increase in faculty strength and in filling vacancies stalled progress. Low ingress of proven field wildlife managers to its deputation reserve in the faculty exacerbated the adversity. It is ironical that upgrading of the director's post in proportion with the enhanced responsibility and status, though approved by its governing body, chaired by the secretary, MOEF and endorsed by its society presided over by the minister, MOEF, has remained pending now for 15 years.

There is no question that WII has to play a nodal role in resurrecting wildlife and protected area

management along the imperative of a rational paradigm shift so as to balance conservation and the socio-economic well-being of forest dwelling people. Its founder faculty has the strength to carry forward this agenda meaningfully and speedily if the deficiencies pointed above are remedied and its functional autonomy with total transparency restored without further delay. There is no reason for this not to happen, as all the concerned decision makers are part of the institution's governance as well.

The WII has a nodal facilitating and coordinating role in prioritising wildlife research so as to meet the concerns of protected area managers in terms of not just animal species but also for habitats within and for wildlife outside protected areas. It has to infuse professional capacity among foresters in order to have a dynamic and effective protected area sub-cadre. WII also has to help national, regional and state level forest training institution to ensure that they have cogent curricula and competent trainers. Last but not the least, it has major work to do in order to advance and consolidate its impressive progress in the development of wildlife forensics. Its help, in setting up wildlife forensic cells within regional-Central and important state forensic laboratories, is needed by way of training scientists and providing scientific protocols and reference materials for such labs to identify species of seized animal skins, other body parts and derivatives.

Knowledge-based management plans

The Project Tiger guidelines make it mandatory for every tiger reserve to be managed in accordance with a site-specific management plan. This is the roadmap for managing a tiger reserve. It lays down the concept of core-buffer zoning, prescribed interventions for protection, habitat improvement, field data collection relating to change in the composition of flora and fauna on account of protection, animal estimation and other aspects.

But the management plan needs to be made more dynamic and incorporate both the concepts and plans of science, cohabitation, habitat management and monitoring more comprehensively.

It is notable that at the moment, there is a disconnect between the scientific research conducted in tiger reserves and the monitoring and revaluation of the management plans. As soon as the proposed prioritisation of research is done for each tiger reserve, the same must be made part of a tiger reserve's management plan. Upon completion of the research, the findings of research carried out on the priority areas should be used to constantly update the management plans after an open discussion on it with the stakeholders, including appropriate representatives of the people inside and outside the park (on the fringe), as they are immediately affected by changes in the management of the reserve. This can ensure two things: one, the management plan remains a more dynamic and alive document; two, there is a validation of the conservation-oriented research as to its practicality.

Similarly, on the social issues that affect the reserve, the management plan should also work as a dossier of information on the social profile of the reserve. The reserve authorities should compile and collect all social parameters, as delineated by the Project Tiger directorate. On the basis of the data and the plans made with Project Tiger for people-related issues, the plans should be made

part of the agenda for the tiger reserve authorities by incorporating them into the management plan. The surrounding fringe areas as well as the buffer zone need village level, participatory microplanning, with a legally enforceable memorandum of understanding between the tiger reserve management and the ecodevelopment committees (already formed or about to be formed) spelling out the reciprocal contractual agreement.

But for these management plans to become documents that are open to advice and information from all possible sources, either governmental or non-governmental the plans must be put out in public domain by placing them on the project tiger website. There must be a method to incorporate the suggestions and submission made by researchers and other interested people and the method of incorporating such submissions must be clear to everyone as well and in public domain.

The Task Force has recommended the creation of management committees for each reserve. The plan must be discussed in the management committees.

The implementation of the plan and the outcome of the interventions contained in the same should be annually monitored by a panel of independent experts.

The Project Tiger directorate has prescribed a set of criteria (45) for standardising the monitoring work which the Task Force has asked for a comprehensive review. The management plans should include these criteria as well as evolve a set of their specific criteria, typically useful for evaluating the site.

The evaluation criteria should assess planning, process, inputs and output. The criteria should cover: legal status, land use, biotic pressure, use of the area by other departments, management plan updating, status of buffer, staff development, antipoaching strategy adopted, infrastructure, fund flow, tourism regulation, trust with the local communities, vision beyond the tiger reserve and the like.

streamline the procedures and ensure better utilisation of research output. As noted above, researchers feel that their work is not properly used to make management decisions, while managers contend that much of the research fails to address significant management issues. This is undoubtedly related to the fact that there is no existing mechanism of fruitful communication between researchers and managers.

The Tiger Task Force feels that such an institutional mechanism should be established both

at the state and the national levels. This could take the form of panels that may be chaired by the inspector general of forests (wildlife) or chief wildlife wardens, and include the secretary of the National Biodiversity Authority or the State Biodiversity Board, and other experts in ecology, social sciences and bio-statistics. It would be best if these panels serve as 'single window' clearing houses for all matters relating to wildlife research, so that they can streamline current procedures rather than create another layer. The Tiger Task Force further suggests

Independent audits of the tiger reserves

An independent audit of any enterprise is the substratum of a good review and method for seeking mid-route corrections, if needed. A tiger reserve, too, with its several facets, must be looked upon as an enterprise that requires constant review against a specific dynamic plan. The Project Tiger directorate has begun a system of independent audit of the working of the tiger reserve. This process needs to be taken forward.

Amongst the criteria, the experts have generated a ranking-based system of measuring each tiger reserve for its performance and the possible problems that weaken the protected area. Legal status, compatible land use, pressure from people, status of management plans, staff situation and equipment are some of the criteria that have been used to rank the reserves.⁴ This is a good start. But it needs to be taken beyond the first step.

A good audit is as good as the parameters and the protocols behind filling up the information to measure a reserve against those parameters. The Project Tiger directorate must, in a time-bound fashion, build up a complete dossier of information on the process of audit and the method by which the ranking on each parameter is used. It is essential that both the officials in each reserve and other interested people know well in advance what information is used to measure the reserve against what parameter. This benchmarking will be critical.

The parameters with appropriate weightages must be then used to create a ranking of the reserves.

Confidence in the audit

The audit in itself cannot be the end of the process. The audit must be carried forward and merged into the management of the plan by linking the resources that Project Tiger provides to the reserves. The rankings must be used to also give weight while devolving Central funds to the tiger reserves. This shall ensure that there is an incentive for the tiger reserves to improve upon the rankings. At the same time there must be a reputational advantage to gain for the parks by ranking higher. The Task Force, in its deliberations, has been advised by many field officers that parks like Kaziranga national park and Gir wildlife sanctuary and national park have gained a lot by the states and their people holding the areas in high regard as state treasures.⁵ The ranking system developed on basis of this audit too should feed into such reputational credit.

To ensure that the system retains a reputation for fairness as well as academic caliber, it must be completely put out in public domain, including the protocols, methodology and periodic results. And to ensure the system also undergoes a complete governmental review, it must form part of the report that the directorate makes to the Parliament.

that the panels must be required to meet every two months and clear all pending decisions.

The Tiger Task Force recommends that these panels perform the following functions:

- Develop broad guidelines governing all wildlife research by wildlife managers as well as other researchers; such guidelines would pertain, for instance, to the collection of plant specimens, creation of grazing enclosures and such like pertinent areas of research.
- Create online databases (Web-based) of all relevant research findings, so that both managers and researchers are aware of the state-of-the-art research and can direct their energies in the most fruitful channels.
- Suggest areas of research relevant to management decisions — for instance, what the *bona fide* fuelwood needs of villages still inside tiger reserves are. There should, however, be no ban on undertaking projects that may seem to have no immediate relevance to the park management. After all, understanding of what is relevant is limited. Despite his many years of work, for

instance, Salim Ali had not understood the vital role of buffaloes in maintaining bird habitats at Bharatpur.

- Arrange dialogues between researchers and managers so that research findings relevant to management are taken on board.
- Examine and decide on according permissions for research, along with any conditions that the researchers must observe. Since the state panels would be chaired by the chief wildlife wardens, no further clearance from the forest department should be necessary. In case either a researcher or local forest officials have any grievances, the same panels should serve as a dispute resolution forum. In case the disputes persist, the central panel should serve as an arbitrator.
- Ensure that the researchers make their data available to the public within some specified time frame. While it is legitimate for the researchers to claim intellectual property rights over their research, it is important that they agree to release their original data within some specified period (such as three years from the

date of collection). This would give sufficient time for researchers to publish their work and gain scientific credit, while ensuring that all work done becomes available to the public and for management purposes within a reasonable period.

Putting information in the public domain

The Tiger Task Force feels very strongly that the most serious lacuna in the approach to managing information on tigers has been a lack of openness and willingness to take everybody along. The inclusive, open approach that we advocate depends crucially on free access to all information for all people, except where very evident security concerns are involved. In modern times, this would be best ensured by posting all pertinent information on the Web, in English, as well as in all Indian languages. Recent moves towards ensuring freedom of information have fortunately

removed all bureaucratic hurdles to such an endeavour. The information to be thus made available should include all research and survey results, pertinent satellite imagery (such as LISS 4 images), resource maps, working plans and management plans, as well as on-going schemes of habitat manipulation interventions, information collected through the People's Biodiversity Registers, and so on. An attempt should be made to also incorporate information on past and current activities of other government agencies such as agriculture and tribal development in the concerned localities.

A competent technical group involving ecologists, statisticians and computer scientists should help in organising all the relevant information in a suitably designed information system. This effort may be conducted in collaboration with the recent initiative of the National Biodiversity Authority to develop a countrywide, networked Biodiversity Information System.

Recommendations

1. It is essential to facilitate involvement of a wide range of researchers in wildlife biology, especially in the context of intensive studies at the field level. It is also essential to undertake interdisciplinary research moving beyond a single protected area and into a broader landscape framework. This should cover, besides biological aspects, the management and socio-economic aspects of wildlife conservation and protected area management.
2. The Tiger Task Force is of the opinion that it is important to put in place institutional mechanisms that would streamline existing procedures for clearance and coordination of research and ensure better utilisation of the research output.
To do this, panels should be set up at the state and national levels, chaired by the inspector general of forests (wildlife) or the chief wildlife wardens, and including the secretary of the National Biodiversity Authority or the State Biodiversity Board and other experts in ecology, social sciences and bio-statistics. These panels must serve as 'single window' clearing houses for all matters relating to wildlife research, so that they streamline current procedures, rather than create another layer of decision-making.
3. Internal expertise and confidence in research abilities have grown enormously in the country since the time of the launch of Project Tiger. Indian researchers are competent to undertake specialised research and unlike their counterparts in the rest of the world, they bring uniquely Indian perspectives to wildlife matters. It is this research and its integration with policy that needs to be fostered. The Wildlife Institute of India must be encouraged to play the role of a facilitator to improve the interface of research, management and policy. The agenda for research is massive and it will need the involvement and active engagement of many institutions and researchers. What is needed is to create forums that can bring together this knowledge and improve its use in policy.
4. The process of designing and implementing the management plans for each tiger reserve needs to be reworked.
 - a. The plans must be updated regularly, taking into consideration the scientific and

- socio-economic research that has been conducted;
- b. Their process of updation must include open discussions with the local communities, local NGOs and researchers;
- c. The proposed reserve-level management committees must be asked to scrutinise the details of these plans;
- d. The plans must be put in the public domain and be used for the independent evaluation of the reserve.

The Project Tiger directorate must work with chief wildlife wardens and all field directors to set up and implement this process.

5. The independent audit of each tiger reserve is potentially a vital tool for decision making. This audit can be used to create a reputational advantage for the reserve. In order to do this, the Task Force would recommend:
 - a. Project Tiger directorate should work to further improve its criterion and indicators for the rating. The criterion must be done to benchmark the progress and problems in all critical areas and set targets for its improvement.
 - b. The rating should then be used for management decisions and for creating an informed and involved public opinion on the working of individual reserves.
 - c. It must be used to inform Parliament of the progress being made in tiger conservation and the challenges ahead.

But this will only be possible if the process has credibility and independence. To do this, the findings of the independent audit must be put in the public domain. The peers and critics are the best auditors and insurers of quality.

6. The Tiger Task Force strongly feels that the most serious lacuna in the existing approach to managing information on tigers has been a lack of openness and willingness to take everybody along. The inclusive, open approach that the Task Force advocates depends crucially on free access to all information for all people, except where very evident security concerns are involved. In modern times, this would be best ensured by posting all such information on the Web, in English, as well as in all Indian languages.

3.7 The relocation agenda

Wildlife conservationists say it is necessary to create inviolate spaces for the tiger. They state that India must be prepared to set aside this land — 37,761 sq km of tiger reserves, which, they say, is barely 1 per cent of the country’s land area — for this flagship species to breed and roam in.

This is clearly not unreasonable. After all, tiger reserves have been designated with this distinct purpose in mind. When they were created in the 1970s, the international agency assisting the government had said that it was necessary for the tiger “to have large areas of at least 2,000 sq km with similar contiguous areas so that a viable population of about 300 tigers in each area could be maintained”. The task force chaired by Karan Singh then went on to investigate the feasibility of this proposal, but found that it could not locate many areas as large as 2,000 sq km, which could be ‘reserved’ for tiger conservation. It, therefore, decided to adopt an approach in which smaller reserves would be created as model parks to preserve the tiger, while much more would be done to build public opinion in favour of wildlife preservation and so secure larger areas for protection.¹

Even when the first eight tiger reserves were selected in different ecological systems, the task force noted that each reserve had existing human pressure — of grazing, resource use and commercial felling. It then suggested a management plan that would involve restricting and minimising human activities within the reserves. The core of the reserve would be designated a national park, with no human activity, while the buffer area could sustain people.

The plan was that people would be relocated from the core areas of the tiger reserves, while they would continue to co-exist in the buffer areas. But the problem has been that while Project Tiger is based on a management plan, using concepts of core and buffer, the law does not have this provision. While the concept of core-buffer is deployed for administrative purposes of the reserve, the law provides for something else: two main categories of protected reserves — national parks and sanctuaries — and two categories of protected forests — reserve forests and protected forests.

The tiger reserves in the country are a patchwork of these existing legal land uses. In many cases, where there were a large number of settlements, adjustments were made to exclude these areas from the core and to keep the area under the category of either a ‘sanctuary’ or a ‘reserve forest’. In fact, in certain cases, the core area of the tiger reserve does

not have the legal protection a forested space gets when it receives ‘national park’ status. It remains a sanctuary, but its administrators have to manage it as a completely protected zone.

The problem is that while there is an emphasis on removing the biotic pressure that people bring to the tiger’s habitat in most cases, there is little empirical evidence of the nature of this impact and what can be done to manage or mitigate it, before the option of relocation is considered. What is interesting is that the architects of Project Tiger had noted, even then, that the “information on the effects of villages and their occupants on surrounding areas is generally lacking”. In addition, it had pointed out that the forest department considers that “poaching by villagers in the reserves is spasmodic and its effect is negligible. Villagers are undoubtedly a fire hazard, but they are also available to assist in extinguishing serious fires”.

But as villagers would impact the habitat over time, that task force said it was desirable that small pockets of forest villages should be shifted. In case this was not possible, then, at the very least, cattle that are a menace to forests should be diverted to alternative sites. In case people were angry because their cattle were killed by tigers and were resorting to retaliatory poisoning, the task force said that compensation should be paid urgently.

Since then, more reserves have been created. The principle followed is the same: absolute protection for the core and human activity geared towards conservation in the buffer.

But unfortunately, 30 years hence, this picture is far from perfect. In fact, matters have become much worse. People continue to live in the core as well as the buffer areas of the reserves. There has been inadequate work done to relocate settlements and, in the meantime, poverty and destitution has driven more people into the reserves. Authorities maintain that according to the plan, these people are not allowed to use forest resources, first in the core and now even in the buffer areas. People live there, so they do use the resources; but this use is illegal. The authorities say that people should not be living in the reserves, as per the management plan for the reserve, which has demarcated areas as core and buffer, so there is no question of providing development assistance or even compensation for cattle kills. There is escalating and deadly tension between the people and the park because of all this. At the end of it, the tiger and the people are both losing.

The issue, then, is to review what has been done

till date to make these spaces 'inviolable', and what needs to be done in the future. The Tiger Task Force found to its surprise that whereas some conservationists and wildlife managers discuss the need for the relocation of human habitations as their top priority — they also say that human pressure within the reserves is creating problems for the tiger's survival — there is virtually no compilation of data on firstly, the number of habitations within these reserves or on the fringes of the reserves; and secondly, the impact of these habitations on the tiger population.

Clearly, without this data, little can be done to understand the nature of the challenge.

Therefore, the Task Force has worked with the director, Project Tiger, to collect information regarding the number of villages inside the reserves — the core areas of Project Tiger (mainly national parks). This is the first time a review has been made of the number of people living in these areas and of what needs to be done.

The number of relocated villages

Since the inception of Project Tiger in the early 1970s, a total of 80 villages and 2,904 families have been relocated from different tiger reserves (see table:

VILLAGES, FAMILIES AND LIVESTOCK RELOCATED FROM DIFFERENT TIGER RESERVES

Name of reserve	Villages relocated	Families relocated	Livestock relocated
Simlipal	3	72	51
Melghat	3	94	1,556
Ranthambhore	11	195	3,879
Sariska	1	71	165
Panna	3	210	2,131
Kanha	27	656	10,509
Bhadra	12	439	4,930
Corbett	3	300	3,000
Buxa	1	33	20,000
Nagarjunasagar-Srisaillam	1	167	Nil
Bandipur	3	417	120
Nagarhole	12	250	NA
Total	80	2,904	46,341
Non-tiger reserves			
Kuno Palpur	19	1,400	
Madhav national park	1	102	
Chandaka Dampara	3	188	

Source: Information submitted to Project Tiger by states, June 2005

Villages, families and livestock relocated from different tiger reserves).

The largest and oldest relocation concerns Kanha in Madhya Pradesh in the 1970s and 1980s, while the most recent relocation has been undertaken in Bhadra tiger reserve in Karnataka, where the Central government has spent Rs 11.68 crore and the state government Rs 4.65 crore on costs of rehabilitation.² In addition, it is estimated that the bulk of the land on which the 439 families have been settled is extremely productive and irrigated land, along the Shimoga-Bangalore highway, which has been valued at another Rs 15-25 crore at market value.³ This relocation cost the government, at a conservative estimate, Rs 8.3 lakh per family, as against the stipulated Rs 1 lakh per family under the norms.

Money spent on relocation

It is difficult to estimate the money spent on relocation, for much of the work was done a long time ago, when the schemes were still unclear. We do know that recently, in the Bhadra tiger reserve, the Central and state governments have spent Rs 4.02 lakh per family, without accounting for land costs. But excluding this expense in Bhadra, the country has spent Rs 3 crore to relocate 467 families, or, on an average, Rs 64,000 per family since the 9th Five Year Plan in tiger reserves (see table: *Cost of relocation since 9th Five Year Plan and the average spent per family*).

For purposes of estimation, if we assume that Rs 50,000 has been spent, on an average, on the 2,904 families relocated from reserves all over the country since the inception of Project Tiger, the total amount spent on relocation would amount to Rs 14.52 crore. Given that the Centre's spending on Project Tiger till 2002-2003 is Rs 173 crore, the

COST OF RELOCATION SINCE 9TH FIVE YEAR PLAN AND THE AVERAGE SPENT PER FAMILY (WITHOUT ACCOUNTING FOR LAND COSTS)

Name of reserve	Funds spent/ allocated (Rs lakh)	Families relocated	Average spent per family (Rs)
Kanha	3.80	25	15,200
Bandipur	14.65	100	14,650
Nagarhole	243.50	250	97,400
Bhadra*	1,765.00**	439	402,050
Melghat	46.00	92	50,000
Total	2,072.95	906	

Note: *Not included in 9th Plan

**includes Rs 13 crore of Central government and Rs 4.65 crore of state government funds. Not all funds may have been disbursed.

Source: Project Tiger directorate

NUMBER OF VILLAGES AND PEOPLE IN THE CORE AREA AND IN THE TIGER RESERVE

Tiger reserve	Core			Overall tiger reserve		
	Villages	Families*	Population*	Villages	Families*	Population*
Bandhavgarh	6	210	1,050	75	2,625	13,125
Bandipur	54	2,592	12,960	54	2,592	12,960
Bhadra	0	0	0	5	67	335
Buxa	0	0	0	89	3,122	15,608
Corbett	0	0	0	25	875	4,375
Dampa	0	0	0	61	2,135	10,675
Dudhwa and Katarniaghat	1	35	175	37	1,295	6,475
Indravati	56	1,300	7,956	56	1,300	7,956
Kanha	19	665	3,325	169	5,915	29,575
Kalakad-Mundanthurai	15	1,703	9,580	16	1,728	9,700
Manas	0	0	0	167	5,845	29,225
Melghat	19	1,585	7,925	58	2,950	24,607
Nagarjunasagar-Srisaillam	24	840	4,200	149	8,432	43,978
Namdapha	2	52	260	2	52	260
Nameri	0	0	0	8	630	3,150
Pakke	0	0	0	0	0	0
Palamau	3	105	525	164	5,740	28,700
Panna	45	1,565	7,825	45	1,565	7,825
Pench (Maharashtra)	1	52	239	1	52	239
Pench (Madhya Pradesh)	0	0	0	99	3,465	17,325
Periyar	0	0	0	4	599	2,995
Ranthambhore	4	140	700	25	875	8,643
Sariska	11	6,337	34,185	27	7,793	43,506
Satpura	6	224	1,122	60	2,114	35,548
Simlipal	7	245	1,225	65	2,275	11,375
Sundarbans	0	0	0	0	0	0
Tadoba-Andhari	0	0	0	6	210	1,050
Valmiki	0	0	0	20	700	3,500
TOTAL	273	19,215	101,077	1,487	66,516	380,535

Note: *The information on the number of villages has been extrapolated in many cases to estimate the families (x35) and population (x5).
 Source: Information sent by state governments to Project Tiger directorate, July 2005.

amount spent on relocating people who lived in these reserves is clearly a small fraction of the costs. Also, if we compare these costs to Bhadra, where more has been spent to resettle 439 families than all the 2,904 families relocated till date, it is clear that the funds spent on relocation have been very small and inadequate.

It is also important to note that the quantum of funds and the current budgetary allocation under the

tribal relocation scheme, which has now been merged with the Project Tiger funds, require urgent reworking. The costs to be incurred in relocation — at Rs 1 lakh per family — were estimated many years ago and are clearly inadequate. If the costs are computed on the basis of what was spent in Bhadra — Rs 4.02 lakh per family (without land) and Rs 8.3 lakh (with land costs) — it would make the process much more acceptable to local people.

The numbers still to be relocated

There is no assessment of the total number of settlements in the tiger reserves. There is also no assessment of the number of settlements in the core areas of the reserves, which are in particular impinging on the health of the tiger.

The Task Force has worked with the Project Tiger directorate to put together an estimate of the number of villages that are in the core and buffer areas of the tiger reserves. This data is, however, still not validated as there is tremendous uncertainty about the number of settlers. The problem is compounded by the fact that in large tracts of forests in the country, the rights of people have never been settled — there are no real records of the number of families who live in these villages. When the reserves were declared, people lived in these lands. But the lands were reserved forest lands, notified as such by the state. Unfortunately, in many parts of the country, when the reserved forests were notified, the rights of the local people were not recognised. In other words, people have seen their homes changed from being ‘reserved forests’ to ‘reserved for tigers’ while they have become ‘illegal settlers’.

According to this compilation, it is estimated that there are roughly 1,500 villages within the 28 tiger reserves and roughly 65,000 families (3,25,000 people at five people per family) that need to be relocated from both the core and buffer areas of tiger reserves (see table: *Number of villages and people in the core area and in the tiger reserve*).

Cost of relocation

If we compute costs at the current rate, we need Rs 665 crore for 66,516 families; if we take an enhanced scheme of say Rs 2.5 lakh per family, it would require Rs 1,663 crore to resettle them (see table: *Cost of relocation*). Compare this to the funds available for relocation in the 10th Five Year Plan period: Rs 2-3 crore annually, or Rs 10-15 crore in all.⁴

In addition, as revenue land is rarely available and forest land is usually used for resettlement, the state has to pay between Rs 5.8 to Rs 9 lakh per ha for diversion of this land. The fact is that this is forest land which is being lost to the nation: so, the cost should be paid, even if there are gains inside the conservation area. If this is added to the total, assuming that there are 65,000 families that require 2.5 ha of land each, the additional financial cost for this land will be Rs 9,645 crore. If we compute these costs only for the 273 villages in the core areas of the reserves, it will cost Rs 192 crore at current rates and Rs 480 crore at an enhanced rate, without assuming the cost of land. This, it has to be noted, is equivalent to the annual budget for the entire forestry sector at the Centre.

COST OF RELOCATION

	273	1,214	1,487
Number of villages	273	1,214	1,487
Number of families ¹	19,215	47,301	66,516
	Cost of relocation from core (Rs/crore)	Cost of relocating from buffer (Rs/crore)	Cost of relocation all
At current rate of Rs 1 lakh per family	192.00	473.00	665.16
At enhanced rate of Rs 2.5 lakh per family ²	480.00	1,183.00	1,663.00
For payment for land ³	2,786.00	6,859.00	9,645.00
Total cost, assuming enhanced rate	3,266.00	10,042.00	11,508.00

Note:

1. If figures are not available, then extrapolated at 35 families per village (underestimate)
2. The current allocation needs to be revised, this amount been taken for purposes of estimation only.
3. The current guidelines provide for 2.5 ha per family. This estimation is taking the current net present value of Rs 5.8 lakh per ha, as the cost of forest that needs to be diverted and is lost or the cost of revenue land that needs to be bought.

Source: New Delhi; Project Tiger directorate

Relocation from core

The originators of the programme had conceptualised that the core area would be free of human habitation. The core areas of the 28 tiger reserves constitute roughly 17,612 sq km, less than half the total area under protection (see table: *The area of reserves and percentage of core to the total area*).

The Task Force has also estimated the number of families in the core area of the reserves. According to the data collected, there are 273 villages in the core of the 28 reserves.

Therefore, one option would be to focus the relocation programme on the core areas of the tiger reserves. In which case, the number of villages to be relocated will be far less. This is because six reserves — Panna and Kanha in Madhya Pradesh, Melghat in Maharashtra, Nagarjunasagar-Srisailem in Andhra Pradesh, Indravati in Chhattisgarh and Bandipur in Karnataka — contain as much as 217 of the 273 villages in the core. In other words, 79 per cent of the human habitations in the core areas of tiger reserves are found in these reserves. It is also important to note that two of these reserves — Indravati and Nagarjunasagar-Srisailem — are in naxalite-infested areas, where relocation will be difficult.

AREA OF RESERVES AND PERCENTAGE OF CORE TO THE TOTAL AREA (sq km)

Name of tiger reserve	Total area	Core area	Buffer area	% of core to total
Dampa	500	340.00	160.00	68.00
Sariska	866	497.00	369.00	57.39
Ranthambhore	1,334	274.50	1,060.14	20.58
Pench (Maharashtra)	257	257.00	–	100.00
Kalakad-Mundanthurai	800	537.00	358.00	67.13
Palamau	1,026	213.00	813.00	20.76
Panna	542	542.00	–	100.00
Tadoba-Andhari	620	218.76	357.02	35.28
Periyar	777	350.00	427.00	45.05
Buxa	759	385.02	375.90	50.73
Bandipur	1,508	523.00	357.00	34.68
Indravati	2,799	1,258.37	1,540.71	44.96
Bhadra	492	276.66	175.03	56.23
Kanha	1,945	940.00	1,005.00	48.33
Valmiki	840	335.64	358.00	39.96
Pench (Madhya Pradesh)	758	292.85	465.00	38.63
Simlipal	2,750	845.70	1,904.30	30.75
Corbett	1,316	520.82	797.70	39.58
Satpura	1,486	1,486.00	–	100.00
Manas	2,840	520.00	2,317.00	18.31
Dudhwa	1,362	490.20	190.03	35.99
Bandhavgarh	1,162	624.75	536.71	53.77
Namdapha	1,985	1,807.82	177.42	91.07
Nagarjunasagar-Srisaillam	3,568	1,200.00	2,368.00	33.63
Melghat	1,677	340.00	160.00	20.27
Pakke-Nameri	1,206	1,206.00	–	100.00
Sundarbans	2,585	1,330.00	1,255.00	51.45
Total	37,760	17,612.09	17,526.96	46.64

Source: <http://projecttiger.nic.in>, as viewed on June 5, 2005

Issues in relocation: land

It is important here to consider the question of the land needed to resettle families and its implications for conservation. It is clear that across the country there is no revenue land available for resettlement. State governments, therefore, increasingly ask for the diversion of forest land for resettling families. As forest land cannot be diverted for non-forestry purposes without the sanction of the Central government, an application is made under the Forest Conservation Act, 1980 for this land. Recent

directions of the Supreme Court require state governments to pay the net present value of the diverted forest land. This cost has been computed by the apex court at Rs 5.8 to 9 lakh per ha (depending on the category of forest that is diverted). The forest land is then cleared of all vegetation before it is handed over to families for resettlement. But what is also important to note is that even after the forest land is handed over to the relocated families, its classification in government records remains as “forests”. This means that the regulations of the Forest Conservation Act, 1980 applies to the land.

Thus, families remain highly restricted in the facilities they can get on this land and are still dependent on the forest agencies for all assistance.

The issues, therefore, are three-fold:

- What will be the total quantum of forest land required to resettle families relocated from tiger reserves?
- What will this diversion of forest land do to the tiger habitats and critical corridors where tigers live?
- Does this forest land provide the resettled people with opportunities to build livelihood securities, which will help to relieve the pressure on the tiger reserves?

There is little evidence to suggest that wildlife managers have taken these issues into consideration during the planning of their relocation strategies. In all the reported cases of relocation it is clear that the quality of land — degraded forest land — which is given in the relocation package does not lead to adequate livelihood security, unless there is investment in reliable irrigation facilities. As a result, people who get these lands in compensation find no alternative but to join the ‘fringe’ villages in putting pressure on the protected area for their daily survival: for firewood, fodder and minor forest produce.

On the other hand, the relocation itself leads to clearance of forests and destruction of habitats. It is also important to note that the impoverishment of forests leads to impoverishment of people, which in turn contributes to the pressure on the protected areas. In Karnataka’s Nagarhole tiger reserve, for instance, of the roughly 1,500 families living inside and over 3,500 other claimant families displaced earlier, some 250 families have moved outside. The forest department has worked hard on providing the villagers with model houses, yards and even solar panels. Each family has been given 2.5 hectares of degraded forest land for cultivation. But as the families have little economic ability to invest in the development of the land, they find that they still have to earn their living from labour and foraging in the forest.⁵

In this way, relocation can easily become a self-defeating proposition. Firstly, the land needed to settle each family will be enormous. The forest land will have to be turned into marginal agricultural land — degraded land for poor people is not the best solution. Secondly, displacement leads to further marginalisation and exacerbation of poverty. It defeats the purpose of conservation; people have no alternative but to continue to use the forest for basic survival needs.

There are no estimates of how much forest land will be required to relocate the families within

protected areas. But if one makes such an estimate based on the families living within just the tiger reserves — 1,500 villages or 65,000 families — we would require 162,500 hectares (1,625 sq km) of forest land for just these families.

The problem is not the quantum, but the location and ecological importance of the forest, often part of the corridor used by wild animals and the landscape in which they live. For instance, it is said that the villages of Sariska were slated to be relocated to prime tiger habitats like Ajabgarh and Serawas forests. These forests were known to have tigers and were in fact ‘tiger shooting blocks’ of the state in the days of the Maharajas and their hunting sorties.⁶

The problem also is that a protected area faces pressure from villages within the park and from outside. In other words, by simply relocating settlements to outside the demarcated zone of protection does not necessarily lead to better protection, for the relocated villages merely add to the pressure from outside. Also, as wildlife protection improves, animals find the boundaries of the park inadequate and move outside. Their spill-over is not tolerated by the already hostile people and this leads to increased retaliatory killings and loss of species. The effort of park managers has been to ‘think’ relocation and so, as the pressure exacerbates, they start looking for solutions in relocating the villages at the periphery as well. In this way, the cycle continues.

This is not to say that relocation is not necessary, in certain cases. Relocation is indeed important in cases where human activity is impacting on the key habitat of animals and, if done well, can bring substantial conservation benefits.

But if poorly done, relocation contributes to the hostility of the local people towards the sanctuary and can be counter-productive. Therefore, it needs careful planning and execution. For instance, in April 2005, villagers living in Dobjhirna village in Hoshangabad district of Madhya Pradesh were engaged in a hostile battle with the forest department. The problem was that the department was planning to shift a village — Dhai — from within the core area of Satpura tiger reserve and had identified the land of Dobjhirna for re-settlement. The problem was that Dobjhirna itself was an ‘illegal’ settlement; the villagers were living on and cultivating what was officially forest department land. With the department moving in to clear land for the settlers, the proposed relocation led to tensions and reports of violence by the police and forest department. The people who were to move to Dobjhirna were already apprehensive about this move to transfer them from within the protected area — where they had fodder for their cattle and the clandestine sale of *mahua* to meet their needs — to

this area which was devoid of vegetation and livelihood options. All in all, a situation is not going to help conservation as new settlers find that survival is not possible without forests and old settlers are further displaced to look for more land to cultivate.⁷

The quality of relocation

It is also clear that relocation requires money, facilities, administrative skills and commitment from the implementing agencies. It is important to note that if this relocation is not 'satisfactory', it leads to greater anger and alienation of the local people towards the sanctuary; it makes the next effort for relocation even more difficult, for people, aware of the past experience, stoutly resist. Most of all, the conservation imperative becomes even more difficult when people have no option but to turn to a protected area for their survival once again. The exercise virtually ends up defeating its own purpose.

An example of relocation: Sariska

The quality of relocation in the country has mostly verged on being disastrous. For instance, the one village that was relocated from Sariska tiger reserve in Rajasthan found itself in such poor conditions that all the villagers returned to the original village inside the forest. Now, when agencies are keen to move the remaining villages from the core, there is resistance and deep suspicion. Researcher Radhika Johari, a doctoral student at the department of anthropology, York University, USA, reports of her conversation with villagers within the reserve, who recalled the violent efforts of the administration to evict non-revenue villages from the core area. The villagers at Kraska spoke of how they were offered land by the forest department in a village located outside the core area, how they relinquished their land-ownership certificates, only to face opposition from the existing residents of the village and to find that the land allotted was hilly and unsuitable. They sold off this land at low prices and returned to the forest, where they were declared illegal by the forest department. When they refused to move, the department used force to evict them. All this irreversibly destroyed the relations between the authorities and the people and also left enough resentment and bad memories to fuel resistance to further relocation.⁸

Retired foresters V D Sharma and R G Soni, and Rajendra Singh of Tarun Bharat Sangh, in their submissions to the Tiger Task Force, explained that the process followed was extremely faulty. The land was allotted only on paper but when the settlers went to the village, the revenue officials in charge of the entire relocation programme did not hand over the land. In fact, the land was then taken over by a few influential people.⁹

But it is also important to note that relocation of key villages from within the core zone — a high priority tiger habitat — would be important for conservation. A J T Johnsingh of the Wildlife Institute of India, who has worked for long in this habitat, argues that the area of 'Core-1' is capable of sustaining both prey and tiger species. Therefore, he suggests that relocation, particularly of Umri village (which has 26 families and a high livestock population) would be an important step ahead.¹⁰ The problem is to rebuild the confidence of villagers and to repair the broken relationship between villagers and protectors, which has in no small measure contributed to the disaster in the reserve.

It is only more recently that there have been instances where implementing agencies have gone beyond what is technically required to give people a package, which is both satisfactory to them and helps rebuild their livelihoods. But even here, success is hard to come by. Firstly, this work demands that other agencies — from irrigation to education — coordinate their activities with the forest department. Secondly, it demands long-term work to ensure that all the facilities needed are provided. Thirdly, and most critically, it needs careful and sensitive working with affected people so that they are fully engaged in the process.

An example of relocation: Kuno

Relocation in Kuno wildlife sanctuary in Madhya Pradesh, being developed as a site to introduce the Asiatic lion from Gir in Gujarat, was planned carefully. A total of 19 villages — 1,400 families — were resettled to the outskirts of the sanctuary. The inhabitants were mostly poor, forest-dependent Sahariya tribals. The package was based on a Central scheme — the beneficiary oriented scheme for tribal development — which considers every male above 18 years, and provides a compensation of Rs 1 lakh per family, for all the services and facilities needed.

In 1997, the Union ministry of environment and forests cleared the use of 3,721 ha of forest land for rehabilitation. This was inadequate, so an additional 1,283 ha of land was given for relocation in 2000. Researchers from the Samrakshan Trust found that in many villages, there were complaints regarding the quality of the land and its clearance, but these were sorted out over time. They found the rehabilitation process had both negative and positive fallouts — the land in the sanctuary which the people had cultivated was of a much better quality and had good drainage facilities, so they were not satisfied with the allotted land. On the other hand, it was also a fact that there was greater degree of equality in the allotted area, with every family receiving 2 ha of land. Health, education and communication facilities were better in the new area, although

unreliable and costly.

The real problem concerned people's livelihoods. On the one hand, researchers found crop yields were substantially lower in the new areas, primarily because the land quality, being degraded forest land with little irrigation, was poor. On the other hand, without access to forests, people had lost other sources of revenue and food: from hunting to the collection of minor forest products like honey, *tendu* or berries. People also had to leave their livestock inside the sanctuary because of the lack of fodder sources in the newly settled sites. The people have now shifted from cattle to goats, which again puts a stress on the degraded ecosystem. This led researchers to conclude that "in the short run, there has been a significant decline in livelihood security, which can be directly attributed to displacement from resource-rich forests". This meant that agencies would need to sustain their investment in the relocation efforts and would require institutional capacities to do this development work.¹¹

But the challenge to sustain investment is difficult. It is, therefore, little surprise that a journalist writing for the magazine *Frontline*, who visited the relocated village of Pehra in 2005, found a high order of economic distress and destitution: agricultural productivity had declined and villagers were forced to migrate for work. Without the resources of the forests, malnutrition had increased, and drinking water was scarce. In resettled Pipalbawdi village, people decided to return to the forest for the monsoon crop in 2004. In other words, with all the time and money spent, the work on relocation could well be lost.¹²

An example of relocation: Bhadra

The Bhadra experience is widely considered a model for future relocation in the country and needs to be carefully considered. This 500 sq km area was declared a wildlife sanctuary and tiger reserve in 1998 — with an initial notification issued as early as in 1974. The 1992 census found there were 736 families in 16 villages located within the sanctuary area.¹³

In 2003, a study conducted by wildlife researchers found 4,000 people were living inside Bhadra — a few had recognised legal status but most were 'encroachers'. Researchers also studied the impact of human activity and found the villagers depended on firewood and minor forest product collection for their livelihoods. When they modelled the use pattern, they estimated the total area affected by intensive human activity around the 13 villages they studied was about 12 sq km, in addition to the area of the villages. The total area affected by human activity was computed at 53.70 sq km — roughly 11

per cent of the total area of the sanctuary.¹⁴

The people's initial reaction to relocation was hostile. On the one hand, park authorities increased pressure on people to leave the sanctuary by seizing all firewood, putting a stop to livestock grazing and closing the sanctuary gates so that people could not use the roads. As their harassment increased, people become more and more angry. Large areas were burnt each year as people deliberately set fire to forests.

But park authorities then worked hard to get the people involved in relocation and agreed on an attractive and rewarding package. In its official document chronicling the relocation programme, the government of Karnataka says: "...to wax eloquent on conservation to people who are cut off from civilisation during monsoons is a ridiculous proposition. After all, these people have been living here for over a century. To deny them the right to use the game roads, to cut fodder for livestock or to gather firewood seemed inhuman."¹⁵

The reason why Bhadra is more successful is:

- The quality of land given to the settlers is extremely productive and fertile. It is also over 50 km away from the sanctuary, so it helps build new livelihood opportunities.¹⁶
- The quantum of money spent on individual families and services was substantially higher than what has been sanctioned through the Central scheme for relocation.
- The fact that all settlers — legal or 'illegal', landed and landless — were given land in the relocation venue provided a much greater interest in relocation.
- The government agencies worked carefully to coordinate the activities between the different departments and, more importantly, ensured there was little misappropriation of funds. This is also a case where local NGOs played an important facilitating role.

But even here, recent evidence suggests a few families that received unirrigated land are unhappy. Also, villagers in the fringe of the core area, who are agreeable to relocation, want the same quality of irrigated land. The question in Bhadra is how will it ensure the expectations of these people will be met. If it is not, Bhadra might well witness unrest and tension between park authorities and people.

The question remains if the money spent on Bhadra — Rs 4.02 lakh per family — would not have been utilised to 'manage' the impacts within the reserve. After all, research shows that the area impacted by human beings was only 11 per cent of the reserve. Are these conservation benefits worth it? More importantly, was the decision for relocation taken after these considerations?

Recommendations

Task Force rationale for the future

It is important for India to assess, in the light of the above data, the feasibility of undertaking relocation in all reserves and of relocating all villages in the reserves. Let us be clear till date only 80-odd villages have been relocated from tiger reserves. The track record of that relocation exercise has also not been uniform or praise-worthy. In fact, in many cases, people who have been relocated have either come back or are today contributing to the pressure on the park from the fringes.

Currently, all action on this front is suffering from what can only be called an ostrich syndrome. On the one hand, conservationists argue relocation is an absolute necessity to ensure effective reserve management; on the other, everyone accepts — discreetly — that the scale of relocating all villages from all reserves is so huge that it becomes a strategy virtually impossible to contemplate. The solution then is *status quo*. The state governments have informed the Supreme Court, in not so clear terms, that they neither have the finances or the land to settle the rights of all people living within reserves. They had informed the secretary, ministry of environment in the early 1990s that this work would cost over Rs 600 crore, which they do not have.

The law, the Wildlife (Protection) Act, 1972, maintains that there should be no people in the national parks (mostly, the core of tiger reserves). If there are any, then their rights should have been settled and they should be allowed to remain only after it has been accepted that their use of the reserves will not lead to conservation problems.

The forest department maintains that it must relocate people, but does very little on the ground. Also, there is no clarity on why a particular village in a particular reserve gets targeted for relocation. Moreover, relocation that is undertaken is poorly done in most cases, leading to increased stress on the protected areas.

In the meantime, people continue to live in the parks. They are denied access to basic needs. They do not have legal livelihood options and so everything they do to survive is done stealthily. This leads to conflict between them and the park managers. No development can be done for villagers for they are ‘unwanted’ and ‘temporary’; they should have been shifted out. In this way, the stalemate continues.

This Task Force had visited Hindala village in Ranthambhore and witnessed the terrible poverty and destitution of people, who have been living within this prestigious national park. They have no water, no school, no medical facilities. They are harassed if they graze their animals in the land outside their village. The forest department says that it is planning to ‘relocate’ this village. The villagers told the Task Force that they were prepared to move, but also expressed concern that the villagers who had been relocated from Ranthambhore in the past, were facing problems, even more severe than theirs. They feared for their future. Given their sheer destitution today, this is a real indictment of the process of relocation.

Currently, policy denies that there is a need to do anything different. The National Wildlife Action Plan (which works as the country’s policy on wildlife) says that “while all facilities should be provided to the people who volunteer to move outside national parks and sanctuaries, adequate safeguards will have to be taken to prevent land-based developmental activities within national parks and sanctuaries, because such effort will be in violation of Section 29 of the Wildlife (Protection) Act. However, there should be no ban on imparting skills to local communities, which will reduce their dependence on natural resources of the protected areas”.¹⁷

In other words, no development activity can be allowed, as it will contravene the Wildlife (Protection) Act, 1972. But in some abstract way, the people who formulated the policy get out of the problem by asking for ‘skills’ to be ‘imparted’ to the lakhs of people that live within the network of protected reserves. However, there is no clarity about how many people need to be relocated, by when, and how this is to be done. There is, therefore, no policy that seeks to end this logjam: people or parks, or people and parks.

The Task Force therefore recommends

It is vital that policy must be devised to break this logjam. The Tiger Task Force accepts the reality of the situation and has devised the best possible options for the future. The following are the recommendations:

1. There should be an urgent and realistic review of the number of villages that actually need to be relocated from the reserves. The decision must be based on the fact that the villages that need to be relocated are so made to do so because they are located in the critical habitats — tiger natal areas and key conservation priority areas.

2. One option is to consider that all villages in the core area of reserves — roughly 273 — need relocation. The other option is to undertake a review of all the villages in the reserves and only then decide which of these actually need to be moved for ecological imperatives. There must be a criterion for the identification of these villages, so that it is clear which village is to be relocated and why. This is essential.

In this context, the Tiger Task Force is not suggesting any fixed numbers of villages or areas for relocation. But it is urging for speed and careful decision-making. It is important that the decision to relocate takes into account all financial and logistical implications. Till date, in 30 years, if only 80-odd villages have been relocated, the agencies that work out the relocation estimates must take into account the feasibility and capacity of implementing agencies to undertake this work.

3. In order to ensure that the process of selection of villages to be relocated is completed speedily, the Tiger Task Force recommends a tight schedule of one year to study settlements and list the ones to be relocated. This schedule must be strictly complied with.

4. Based on this list, the Project Tiger directorate must draw up a time-bound action plan to complete the process of relocation. The action plan for relocation must be completed in terms of its financial and land provisions before it is finalised and accepted. This is essential, as only once this is completed can the park management be clear about the plans it has to develop for the families it has to co-exist with. It is clear that not all the 1,500 villages can be relocated. Or even need to be relocated. But what is important is to work on the plan for relocation speedily, so that the villages that co-inhabit the land of the tiger can do so with dignity.

5. During the formulation of this action plan, the responsible agency must keep in mind the experience of past relocation efforts to ensure that the process of relocation does not lead to further resource degradation or loss of livelihood of people.

6. The financial allocation for the relocation scheme must be revised and enhanced so that it can take into account the needs, particularly, of providing irrigated land and other facilities to ensure livelihood security. The provision of irrigation facilities is crucial, as the land for resettlement, if it is forest land, is degraded and provides people little options for economic survival or improvement.

The allocation for the scheme within the umbrella Project Tiger scheme is Rs 10-15 crore for the 5 years of the 10th Plan – roughly Rs 2-3 crore a year. If all the families in the tiger reserve need to be relocated it will cost Rs 1,660 crore (taking an enhanced allocation of Rs 2.5 lakh per family). If the plan is to relocate 19,215 families from the core areas, it will require Rs 480 crore. Given that relocation usually occurs on diverted forest land, the cost of relocation to the state would include the net present value of the forest land. Accounting for this would bring the total bill to relocate families out of the core areas of the reserves to Rs 3,200 crore.

7. The scheme must take into account the options for livelihood in the resettled village. It is important for planners to take into account the fact that people who live within the

reserves are forest-dependent communities, and survive within agro-silvo-pastoral economies. The relocation package must be designed to provide viable alternatives. Currently, there is no grazing land or irrigated agricultural facilities offered in the relocation package. This means that people have no alternative but to revert to the forest fringe for survival.

8. The scheme must ensure that all families — and not just those families with recorded rights or who have revenue land — are relocated.

9. Families are usually relocated on forest land from which the standing forest is cut to transform a forest into a relocation site. But even then, the land is categorised as forest land. This means that the rules of the Forest Conservation Act, 1980 continue to apply to this land, in which families now live. This places restrictions on their livelihood and development opportunities.

This, clearly, must change. Such land as becomes a relocation site, if it is categorised as ‘forest’, must duly be re-categorised as ‘revenue’ land, otherwise it will continue to create problems for the resettled villages.

10. To monitor the quality of relocation and to ensure that there is careful coordination and follow-up in the relocation work, a task force for relocation must be set up at the Project Tiger directorate, which will coordinate the work with the state offices.

The Task Force has deliberated upon whether the work of relocation should be handed over to revenue agencies, or to other district-level agencies. It has come to believe that while there is a need for close coordination with district and irrigation agencies, the task must remain with the wildlife agencies, as they are most interested in its successful completion. However, as these agencies often lack the necessary experience in rural development, the state working with the Project Tiger directorate must find innovative methods of involving other agencies in this work.

The Task Force would suggest that a mechanism be set up at the Central level in the Project Tiger directorate to oversee the implementation of the relocation work and most importantly, follow it up over the years. This is crucial. At the end, it is clear that even if the massive task of relocation is undertaken, it will still leave a large number of people within the protected areas and also tiger reserves. The issue of coexistence with these people, who share the tiger’s habitat is discussed in the following section of the Task Force report.

3.8 The coexistence agenda

Conservation in India has been consistent about at least one imperative: a protected area such as a tiger reserve is exclusively for the megavertebate to roam in, with the corollary that people living inside the reserves must be relocated elsewhere. But over the last 30 years, this imperative has become abstract, and abstracted from the real conditions that exist in the tiger reserves, indeed most protected areas, today.

For, in reality, in the last 30 years only 80 villages — some 16,000 families — have been relocated. Data with the Tiger Task Force shows 273 villages continue to exist in the core areas of tiger reserves; the non-core areas are where about 1,000 villages exist — in both cases, living precariously. A rough calculation shows that there could be 250,000 to 350,000 people living in the total area the reserves comprise.

Add to this livestock. This population is difficult to estimate but assuming that the roughly 65,000 families residing inside own two-three head of cattle, the number would be 130,000 to 200,000.

Indeed, it is logistically and financially impossible to relocate even these people from just the 28 tiger reserves; the imperative thus becomes even more difficult if all protected areas are taken into

account. Just to put the issue in perspective, tiger reserves occupy a little more than 1 per cent of the geographical area of the country, while the protected area network — about 600 sanctuaries and national parks — account for 5.1 per cent of the country's land area. In other words, the number of people residing in protected areas will be five times higher. There is no definite data on all villages that exist inside these areas, but so far as people are concerned the count could be three to four million people (*see box: How many people live in protected areas?*).

So it is that the Tiger Task Force has asked for a clear relocation plan in those reserves where conservation managers find human settlements are negatively impacting tiger habitat — not notionally, but empirically. This plan must be based on criterion to identify the key conservation zones and natal areas of tigers. It must be speedily executed, and with sensitivity, so that the livelihoods of poor people can be secured in their new homes (*see 3.7: The relocation agenda*).

Given the reality of the situation in the tiger reserves, the Task Force would like to examine an option that is beginning to gain increasing importance in the wider conservation network: coexistence.

How many people live in protected areas?

Nobody really knows. But the Indian Institute of Public Administration, in a 1989 project to survey the management of national parks and sanctuaries in the country, had collected data on human populations within protected areas. From this survey, it was found that 56 per cent of the national parks and 72 per cent of the sanctuaries reported populations inside their areas. Based on the responses received and extrapolation to other unreported reserves, the status report computed that there were three million people (600,000 families) living within the protected area network of India. It also found that 36 per cent of the national parks and 56 per cent of sanctuaries reported removal of minor forest produce.

In the late 1990s, this survey was repeated and an effort was also made to verify the information on human habitation received from the managers of protected areas, with census data. The researchers estimated that there are 3.7 million people (740,000 families) who live in the 600-odd

protected areas of the country.

The questions then are: how long will it take to relocate people from such areas? Is this a feasible option? Forester H S Pabla explains that in 1997 there were 955 villages and 77,339 families living in the 45 protected areas of Madhya Pradesh — on an average, 21 villages and 1,718 families in each reserve. If these figures are extrapolated at the national level, it would mean that there are over 859,000 families (roughly 4.3 million people). At the current rate of compensation — Rs 1 lakh and 2.5 ha of land per family — the resources needed would be prohibitive. Madhya Pradesh, for instance, has relocated only 33 villages (3 per cent of the villages) till date — 26 of these in just one tiger reserve, Kanha.¹

In the past 30 odd years, roughly 80 villages have been relocated till date and roughly 14,000 families shifted. If any of these estimates is accurate then the country has relocated only 1.8 per cent of the families in the protected areas till date. It becomes vital, therefore, to work out policies for relocation or coexistence. There is no other option.

Coexistence: why consider this option?

If the way ahead is to come to a practical resolution on how to balance, and manage, the livelihood needs of people with the imperatives of conservation, it is important to understand the impact of human resource use on tiger reserve forests: is such use detrimental *per se*? What is the threshold beyond which such use begins to so severely degrade tiger habitat that the animal's existence is truly endangered? What if such use is not detrimental? Clearly, this terrain of competing needs is a complicated one.

Currently, the approach is rather simplistic: deny that competing needs exist. People who live inside these reserves are treated as 'biotic pressure' and policy seeks to remove them as fast as possible. But on the ground, relocation is not speedily done. It becomes a protracted process, leading to uncertainty and the alienation of people from the park. Puja Sawhney is a researcher who has studied Bandhavgarh tiger reserve in Madhya Pradesh. After the reserve was declared, she found, economic hardships of forest-dependent people increased. The legal stipulation of eviction compounded the problem — thinking that they would be relocated, people simply lost the incentive to use the forest sustainably. The fear of relocation, and resultant harassment, turned people here more hostile. In the absence of viable alternatives, people here have no option but to use the forest and this results in recurrent friction between them and park managers.²

When the policy is one of denial, little gets done to work out arrangements that will meet the needs of both conservation and people. The anger and hostility of people living within reserves, instead, continues to increase. The costs are huge: in pure money terms as well as in pure conservation terms.

Relocation related to the Tadoba-Andhari tiger reserve in Maharashtra is a good instance of this. In 1955, an area of 116.55 sq km around the Tadoba lake was declared a national park. Two villages were resettled outside. Then in 1986, the area under protection was expanded to include the Andhari wildlife sanctuary. Six villages now fell under the park's boundary; one of them — Pandharpauni, renamed Navegoan, or new village after the first resettlement — faced possible relocation for a second time. The area was declared a tiger reserve in 1993, but a year before, all rights regarding collection of minor forest produce were suspended, leading to the villagers being impoverished. All development activities have been stopped, pending relocation. Employment the forest department provides is reduced: the forest cannot be 'worked' any more. So people survive by taking recourse to 'illegal' practices — cutting bamboo into small pieces and

smuggling these out on bicycles. A bundle of 50 pieces requires 15 bamboos and fetches a meagre Rs 15 per bundle: equally, the forest cover is also turning meagre.³

As a result, protection is compromised. A major effort — if not the entire focus — of park managers is to 'fight' against 'illegal' activities. In Bandhavgarh tiger reserve in Madhya Pradesh, for instance, in five years from 1995 to 2000, park authorities registered 488 cases of illicit felling, 255 cases of illegal grazing and 62 cases of illegal bamboo extraction, among others. Increased hostility here translated into people setting fires within the park and poisoning animals. In this period, authorities registered over 19 cases of fire; researchers noted there were actually 73 incidences of fire. The reserve here came under pressure both from within and outside. Of the total cases of illegal activities, 25 per cent involved villagers from within the reserve and 37 per cent involved villages at the fringe of the protected area. In such a situation, would relocation provide answers?⁴

In this situation of uncertainty the 'war of conservation' has only intensified. In the years to come, it will be impossible to protect species against widespread hostility. The matter requires urgent resolution.

So it is that the following issues must be better understood:

- What are the legal provisions that govern the rights of local people in protected areas?
- What is the empirical evidence that the use of habitats by people is endangering conservation efforts?
- What can be done to better manage competing needs? What resolution does coexistence provide?

Till date, government has no authentic estimate of the numbers of people who live within the various categories of protected areas in the country. As a result, there is no empirical assessment of the impact these people have on protected areas. More importantly, there is no understanding of the impact a protected area has on the lives of people. In other words, what is the dependence of people on these lands to meet their subsistence and livelihood needs? In these circumstances, conservationist pressures drive governments into believing it is the biotic pressure of humans that is destroying our natural heritage.

The problem is compounded by the fact that in many parts of the country, the rights of local people in forests remain unrecorded. In some areas, forests were declared as 'reserved', without the rights of local people living in these lands being enumerated,

and accepted, by the erstwhile colonial government. When these lands were later notified as sanctuaries or national parks, the customary and traditional rights remained unrecorded.

What happens in such a situation? At a public hearing organised by the National Forum for Forest People and Forest Workers in April 2005, it transpired that inside the Buxa tiger reserve of West Bengal, there were an estimated 37 forest villages and five hamlets, habitations set up by the colonial government in the late 19th century for labour in forest operations. In return for settlement rights and rights over forest produce, the communities had to provide their labour, also known as *begar*. When the Buxa reserve was declared, employment opportunities dried up. But villagers still do not have legal ownership over homesteads or agricultural land and are denied their customary rights to collect forest produce.⁵ How can the objectives of conservation be served by turning people into trespassers in their own lands, as has happened here?

The Supreme Court matters

The Supreme Court today plays a critical role in ensuring environmental protection and conservation in the country. It has directed to stop mining, habitat destruction and improve protection in the interest of reserves over the years.

In February 2000, the *amicus curiae* (in the omnibus forest case ongoing in the Supreme Court), filed an application seeking clarification if an earlier order of the Supreme Court — the apex Court had passed it in 1996; it pertained to a ban against removal of fallen or dry standing trees — applied to protected areas as well. The application pertained to commercial felling of trees in protected areas by the Karnataka state forest department. The apex Court, in its order dated February 14, 2000, then ordered that “in the meantime, we restrain the respondents from ordering the removal of dead, diseased, dying or wind-fallen trees, driftwood and grasses etc from the national park or game sanctuary or forest”.

This order led to a number of directions from the Supreme Court:

- On February 28, 2000 it clarified this ban was not for forests, but only for protected areas.
- On April 3, 2000 in response to a representation received from the state of Rajasthan, the Court further clarified that the order “will have no application in so far as plucking and collection of *tendu* leaves is concerned”,
- On May 10, 2001 it noted that “the removal of forest produce such as leaves, *harra*, *sal* seeds, *mahua* flowers and *mahua* seeds from forest other than national parks and sanctuaries is not prohibited”.

- In February 2002 it clarified that “the order of this Court prohibiting cutting of trees does not apply to bamboo including cane, which really belong to the grass family, other than those in national parks and sanctuaries. In other words, no bamboo including cane in national parks and sanctuaries can be cut but the same can be cut elsewhere.”⁶

On October 20, 2003, the Union ministry of environment and forests wrote a letter to all chief secretaries. The letter detailed guidelines for diversion of forest land for non-forest purposes under the Forest Conservation Act, 1980. It said the ministry had approved certain modifications for the diversion of land under the act; one of these was:

*“Para 1.2 (iii) now clarifies that rights and concessions cannot be enjoyed in the protected areas in view of the orders of the Supreme Court dated 14.2.2000 restraining removal of dead, diseased, dying or wind-fallen trees, drift wood and grasses etc from any national park or sanctuary”.*⁷

It is important to note that para 1.2 (iii) of the rules of the Forest Conservation Act, 1980, referred to in the ministry letter, pertains to the harvesting of fodder grasses and legumes which grow naturally in forest areas. The para says the removal of these grasses will not require approval of the central government. This Act, in fact, has nothing to do with the rights and privileges of people living within protected areas, which are governed by the Indian Wildlife (Protection) Act, 1972.

On July 2, 2004, the Central Empowered Committee — set up the Supreme Court to assist it in all forestry matters — wrote to all state governments drawing attention to the fact that a number of instances had come to its notice, of prohibited activities occurring within protected areas. These activities, the Central Empowered Committee said in its letter, were happening without the prior approval of the Supreme Court and should be stopped.

The list of prohibited activities mentioned in the letter included felling of trees and bamboo, cutting of grass and collection of minor forest produce. The Central Empowered Committee warned the states to “ensure strict compliance of the Hon’ble Supreme Court’s order so that none of the prohibited activities are allowed to be undertaken either by the project authorities or the forest department; prior permission of the Hon’ble Supreme Court shall be obtained before undertaking them”.

Impact on conservation

The result has been that state governments have rushed to stop all use of minor forest produce and collection of grass from protected areas. The Task Force during its visits to different states was

repeatedly told, in its interactions with chief wildlife wardens, that they were implementing the order. The problem was that while the directions sought to increase conservation of valuable forests and biodiversity sites, the unintended result has been increased tension between people and park staff.

All studies carried out on people-park interactions show that people who live within the park and on its fringes are highly dependent on the collection and sale of minor forest produce for their livelihood needs. A detailed household level survey in Bandhavgarh tiger reserve in Madhya Pradesh, for instance, found that sale of minor forest produce — *amla*, *tendu* and *mahua* — contributed 25 per cent of the household income. On an average, households earned Rs 2,023

per year from these products. These forest products are also important for household consumption and for barter. Therefore, the attempt to stop such resource use leads directly to further impoverishment and heighten people’s anger against authorities.⁸

The experience from the Bilirangan temple wildlife sanctuary in Karnataka shows that extraction of minor forest produce can, in fact, be done sustainably by local communities and can work for conservation. But now, the Karnataka government has issued orders to ban all collection of minor forest produce. Now, people still collect these forest products, but illegally, leading to greater stress and exploitation (see box: *An experiment in sustainability*).

An experiment in sustainability

The Bilirangan temple wildlife sanctuary is probably the most studied experiment in sustainable use of minor forest product or non-timber forest produce. It is one of the few sanctuaries where such extraction has not only been systematically run, but also closely monitored for a decade by the forest department, ecologists, and conservation organisations as well as groups engaged in rural development in the region. All the observing groups unanimously agree that the collection of non-timber forest produce is a sustainable source of livelihood for tribal people.

However, in February 23, the principal chief conservator of forests (wildlife) of the Karnataka government instructed the sanctuary to ban non-timber forest produce collection by the tribal cooperative society, Large Area Multipurpose Cooperative Society. This, the wildlife department said, was in pursuance of the amended section of the Wildlife (Protection) Act, 1972 which does not permit removal of forest produce from the sanctuary (Section 29), other than for *bona fide* needs of people living in and around the sanctuary. This notice has brought 25,000 Soliga tribals to the brink of destitution.

Spread over 540 sq km, the sanctuary lies between the Eastern and the Western Ghats. The Soliga tribe

migrated from the Nilgiris centuries ago and settled here. Once the area was declared a sanctuary under the Act, they were ‘allowed’ to practice shifting cultivation and were engaged as labour in various forestry operations and plantations. Primarily a hunting-gathering tribe at that time, the Soliga gave up hunting but continued to gather forest produce, including honey and lichen. Today, more than 7,500 Soliga families make a living by collecting honey, lichen, and other produce from the sanctuary.

The tribal cooperatives were formed to regulate the collection of forest produce, purchase the produce at fixed rates and then auction it off. The government created it under the state forest department to collect and sell non-timber forest produce, besides managing other activities for the state’s tribals. Before the societies were created, the tribals used to sell the produce at a pittance to a city contractor who had bagged the rights for collection from the forest department. Over the last eight years, the arrangement developed into a systematic process with the involvement of two other non-governmental organisations: the Vivekananda Girijana Kalyan Kendra and the Ashoka Trust for Research in Ecology and Environment (see table: *Forest produce collection has been careful*).

The former has been organising the people into self-

FOREST PRODUCE COLLECTION HAS BEEN CAREFUL

Name of produce	Quantity collected in two divisions out of three			Average per year	Quantity per ha per year
	2000-01	2001-02	2002-03		
Gooseberry	134,034	666,891	137,447	31,790	9.74
Lichen	21,515	7,815	45,658	24,996	0.77
Honey	6,983	16,193	19,406	14,194	0.442

Note: all figures in kilogramme; ha = hectare; Total Forest Area of Collection of these two societies = 32100.834 hectares
 Source: Nitin Sethi, 2004, *Stop Trade, Down To Earth*, Vol 13, No 9

Do people have rights?

In this situation, it is important to examine what the rights are of people living within sanctuaries and national parks. Do they even have rights? What is prohibited? What does the law say on this issue?

The law which governs the setting up, management and protection of sanctuaries and national parks, is the Wildlife (Protection) Act, 1972. The Act has been amended five times, with the latest changes passed in 2003.

Sanctuaries and national parks: the rights to be determined and settled

The law provides that governments must 'settle' the

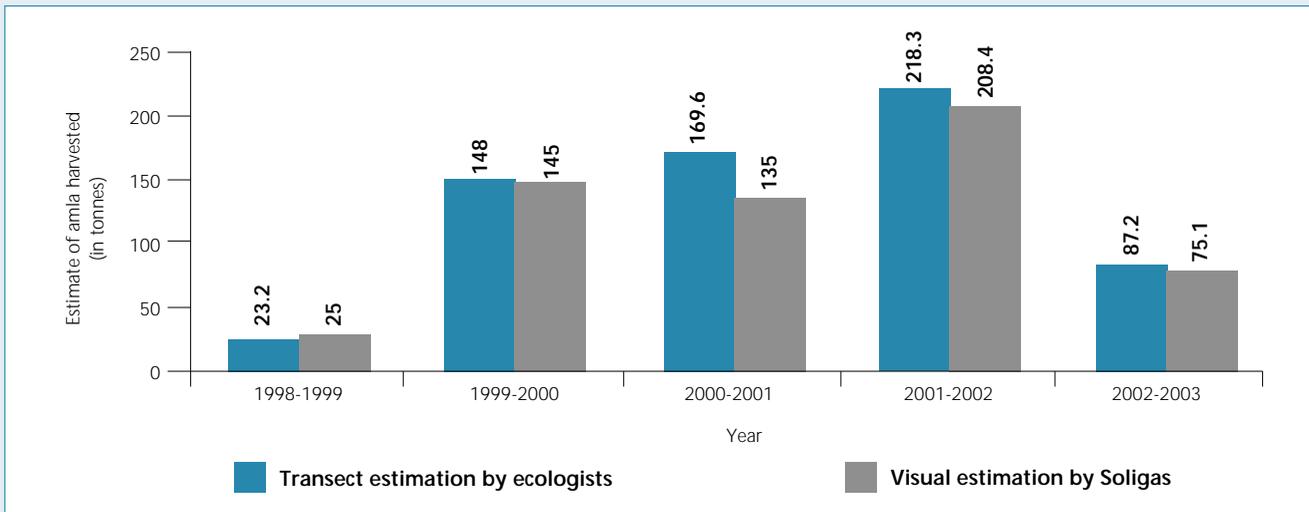
rights of people who live within a protected area before a sanctuary or national park can be formally notified.

The provisions of the Wildlife (Protection) Act, 1972, say:

1. The government can by notification declare its intentions to constitute any area as a sanctuary (Section 18) or a national park (Section 35).

Subsequently, the government has to take steps to settle the rights of people and once this is done, it can notify the sanctuary or national park.

THE SOLIGA KNOW SUSTAINABLE HARVESTING



Source: Siddapa Shetty 2003, Ashoka Trust for Research in Ecology and Environment, Bangalore, mimeo

help groups, and ensuring value addition, such as packaging honey into bottles. The latter has been monitoring the impact of extraction on forest health as well as working with the tribals to develop a participatory self-monitoring mechanism.

It has taken the Vivekanand Girijana Kalyan Kendra almost two decades to set up the entire infrastructure. Now they have a secondary high school for the Soliga, a primary health centre and a honey-processing factory; they also provide alternative employment through other vocational activities. In the last two years, profits have been ploughed back to the community from all their activities.

Ecologist Siddapa Shetty of the Ashoka Trust for Research in Ecology and Environment has been carrying out research in the sanctuary for the past eight years. He has studied the extraction of honey as well as

amla by the Soliga. Shetty reiterates that they didn't have to teach the Soliga what sustainable harvesting was (see graph: *The Soliga know sustainable harvesting*). The Soliga are themselves very selective and systematic about collecting lichen, *amla* as well as honey. It is not random and certainly not rampant exploitation. His studies show that they harvest only 29 per cent of the fruits of *P emblica* (one of the two varieties of *amla*) each year and only 60 per cent of the fruits of *P indofischeri* (the other variety). The percentage of overall collection of fruits is low and does not seem to have a negative impact on regeneration of the fruiting trees (one measure of sustainability of extraction). In fact, studies show that the Soliga in the sanctuary are far more advanced in their collection practices than the tribals in some of the other forested regions of the Western Ghats.

The process of determination of rights is:

2. The government will appoint an officer (or collector) who within 30 days of the issue of notification (intention to declare the area as sanctuary) shall inquire into and determine the existence, nature and extent of rights of any person in or over the land comprised within the limits of the sanctuary (Sections 18-19);
3. After the government has declared its intentions no further rights shall be acquired in, on or over the land, except by succession, testamentary or intestate (Section 20).

The process of settlement of rights is:

4. Once the collector has determined these rights, these will be publicly announced and all affected parties will be given a chance to assert their claims and demand compensation. These claims will be verified by the collector “from the records of the state government and the evidence of any person acquainted with the same”. (Section 21-22);
5. Once the collector has determined these rights and ascertained their veracity the following can be done (Section 24):
 - Exclude these lands from the limit of the proposed sanctuary;
 - Proceed to acquire these lands or rights, except where the holder has agreed to surrender his rights to the government. The rights will be acquired by making payment of such compensation as is provided in the land acquisition act;
 - Allow, in consultation with the chief wildlife warden, the continuation of any right of any person in or over any land within the limits of the sanctuary (only in sanctuaries).

The process of acquisition is:

6. Once the rights are determined, the process of acquisition begins. The compensation award could be given in land or in money or part of each.

The time period for settlement is:

7. All this must be completed within a period of two years from the date of notification of declaration of sanctuary under Section 18. However, the notification will not lapse if the above is not done (Section 25A).

What happens after this?

After the rights are settled, the sanctuary or national park can be formally notified (Section 26A).

After this, the imposition of the regulatory regime of prohibitions and restrictions follow (Sections 27-34A). The prohibitions include:

- a. Restriction on entry into sanctuary without permission
- b. Scientific research without permit
- c. Destruction or removal of wildlife including forest produce without permit.

After the sanctuary is notified — Section 29 in the case of sanctuary and 35 (6 and 7) in the case of national parks — a regime of prohibition and permits comes into operation. This section says that “no person shall destroy, exploit or remove any wildlife including forest produce from a national park ...except in accordance with a permit granted by the chief wildlife warden, and no such permit shall be granted unless the state government being satisfied in consultation with the Board (of wildlife) that such removal of wildlife from the sanctuary (or national park) or the change in the flow of water from outside the sanctuary (or national park) is necessary for the improvement and better management of wildlife therein, authorises the issue of such permits.” In other words, it is an extremely prohibitive clause that allows resource use only in exceptional circumstances. Wildlife is defined as “any animal, aquatic or land vegetation, which forms part of any habitat”. In other words nothing, from honey to fish, can be removed.

However, the law distinguishes between the needs of local people and extraction purely for commercial purposes: “provided that where the forest produce is removed from a sanctuary (and national park) the same may be used for meeting the personal *bona fide* needs of people living in and around the sanctuary and shall not be used for any commercial purposes”. But whereas in a sanctuary, grazing and movement of livestock is not deemed to a prohibited act, in the case of national parks it is not permitted. In addition, the chief wildlife warden may “regulate, control or prohibit, in keeping with the interests of wildlife, the grazing or movement of livestock”.

The difference between a sanctuary and a national park

After the settlement of rights has been made, in a sanctuary the law allows that rights can continue to exist after consultation with the chief wildlife warden. In other words, people can live within the area, and use resources based on the rights that were determined and agreed upon. In a national park, this is not allowed. Therefore, once a national park is declared, all the rights of use have to be settled, compensated and extinguished.

In a sanctuary, grazing or movement of livestock is not a prohibited activity. It is in a national park.

Therefore, the law is clear. It says that it is incumbent on government to record and to settle

these rights speedily before the reserve is declared. The law is based on the premise that whenever an area will be declared as protected for wildlife species or conservation, it will be done only once the government compensates inhabitants of the land and agrees on a 'settlement' with people. This assumes the process will be speedily done so that, in the meantime, no new rights will be created — no new people will be allowed to settle on the land or use its resources — other than those that lived there when the process of notification began.

In other words, like in any other land acquisition matter, the law provides that the rights of people who live on these lands, which the state needs to acquire for public purposes, have to be verified and compensated. They cannot be extinguished or negated. The law does provide for the fact that these rights, once determined, can be allowed in consultation with wildlife authorities in certain areas — sanctuaries, not national parks.

Perfect in law, imperfect in life

The law is straightforward. But the implementation of the law has been negligent, to say the least.

In fact, there has hardly been any settlement of rights in India's protected areas. In its 1989 survey of protected areas on the country, a report compiled by the Indian Institute of Public Administration found that only 40 per cent of the national parks that responded to its survey, and only 8 per cent of the 209 sanctuaries that responded, had completed their legal procedures.⁹ In tiger reserves, two reserves have been formally notified as national parks.

The problem is compounded by the fact that till the 1991 amendment to the Wildlife (Protection) Act, 1972, a sanctuary could be notified without the rights being determined. Therefore, in notified sanctuaries created in the period 1973-1991, the rights would not have been determined or settled. Even as the Wildlife (Protection) Act, 1972 was implemented, what got overlooked was the original statutory defect in the law: the fact that a sanctuary could be declared immediately even if the rights weren't settled.

The 2003 amendment to the Wildlife (Protection) Act, 1972 is the latest attempt to rectify this defect. It has tried to do so in the following way:

1. The regulatory regime was to apply even though the final notification, under section 18A(1), had not been completed.
2. Till rights were settled, the state had to make alternative arrangements for fuel, fodder and minor forest produce for people living in areas declared as a protected area (section 18a (2)).
3. The settlement process was supported by a

process in which settlement personnel were to be appointed within 30 days for both past and future notifications to declare a sanctuary (section 18 B).

4. The settlement was to be completed within 2 years (section 25A(1)).

5. The settlement process would not lapse if not completed in 2 years (section 25A (2)).

But these amendments failed to solve problems: Unfortunately, the situation on the ground worsened. Settlements did not take place, and the government did not make provisions for fuel, fodder and forest produce. But the enforcement regime was strengthened without these safeguards.

What is shocking is that, till date, very few protected areas have completed the process of recording the rights of people, let alone completing the process of acquisition of those rights and compensating people who live there. The practice has been to turn all people living within protected areas into outsiders and illegal users of their own lands. In the name of conservation, what has been carried out is a completely illegal and unconstitutional land acquisition programme.

In fact, by not even recording the rights of people in these areas the authorities are in violation of the Wildlife (Protection) Act, 1972.

In 1997, hearing a case filed by the Worldwide Fund for Nature, the Supreme Court (writ petition no 337/95) ordered all state governments to issue a proclamation asking for claims to be filed and to complete the process of determination of rights and acquisition of those rights within one year. For a few months after this order, state governments furiously issued orders, leading to even more tension and confusion.

Then, many states such as Madhya Pradesh responded to the Supreme Court saying that they had neither the finances nor the land for relocation. States also told the Union ministry of environment and forests that more than Rs 600 crore would be needed to settle the rights of people and they did not have these resources. The case is ongoing.

What happens if rights are not determined?

Currently, the situation is that people live in these lands. Their rights have not been settled, but are being extinguished by different agencies interested in conservation. Can this be allowed? What are the rights of people over the use of resources, in the absence of their rights being finally decided? The law is clear that the rights continue till they are expunged through a formal process of compensation.

It is worth repeating here section 18a (2) of the 2003 amendment to the Wildlife (Protection) Act, 1972. Explicitly, it says that after the government has

declared its intention to declare an area a national park or sanctuary and before the rights of affected people are finally settled, “the state government shall make alternative arrangements required for making available fuel, fodder and other forest produce to the persons affected, in terms of their rights as per the government records”.

In other words, the ground reality is that the government has to provide for the “needs” of people if it declares any area as a sanctuary or national park or any other protected reserve — till the rights have been compensated. At the same time, the ground reality is that it does not. So, a situation gets created in which a double negligence occurs: on the one hand, rights that ought to be settled by law are not settled; instead they keep getting expunged. Institutions whose intention is to protect the reserves — the Union ministry of environment and forests, or the Central Empowered Committee — seem to have done nothing to ensure that, when rights are taken away by their fiat, alternatives are provided.

There seems to now exist two procedural regimes, and institutions seem to pick one or the other, not tackling the inherited ambiguities caused by the original defect in the law:

- Rights are settled, the sanctuary is notified and all prohibitions come into force;
- Rights are not settled, but the sanctuary or national park exists; so, all prohibitions come into force but none of the safeguards.

Either way, people are the losers. Either way, conservation is jeopardised.

What is being done?

In November 4, 2004, the Central Empowered Committee filed an interim report for the clarification of the Supreme Court order of February 14, 2000 (in which it had banned the removal of dead trees etc from national parks and sanctuaries). In this report, the committee recommended the apex Court clarify the following:

- What is allowed for the better management of parks — like firelines, maintenance of fair weather roads, habitat improvement?
- What is prohibited in a protected area?
- Can exemption be given for small public utility projects of non-commercial nature?

The key recommendation that concerns the rights of people is that the committee includes removal of bamboo or grasses in the list of prohibitions. Without provision of alternatives, this impinges on people’s fodder requirements. Equally, it is silent on the extraction of minor forest produce by people.

A particularly vexed question

The law, as interpreted by conservationists, provides that people living in and around the protected area can collect and remove forest produce, but only to meet *bona fide* needs. The problem is that no one has ever defined what “*bona fide* needs” mean. In other words, if poor tribals in the Nagarhole national park in Karnataka collect honey and sell it for their subsistence needs, would this constitute a “*bona fide*” need?

This issue was taken up by the deputy conservator of forests of the Chamarajanagar range in Karnataka — where the Bilirangan temple sanctuary is located — with his superior officer, in response to the order banning collection of minor forest produce by Soliga tribal cooperative societies existing there. The matter, he said, would have been very simple to interpret if the definition of “commercial collection” and “personal *bona fide* use” was defined in the Wildlife (Protection) Act, 1972 or the rules. The issues, as he elaborated, are:

- Soliga are a forest tribe, who migrated from Nilgiri centuries ago and settled with the forests. They were allowed to practice shifting cultivation in lieu of which they were engaged as labour in various forestry operations. As a result, they do not own land. Collection of minor forest produce for their cooperative society is their only source of income. In other words, says the deputy conservator, for the Soliga this collection serves subsistence needs only.
- Commercial exploitation then could be understood, he says, in terms of the quantity of produce collected per ha of forests. In this case, can collection of 10 kg of gooseberry or 442 gms of honey per ha be termed as commercial?

Moreover, banning the collection of minor forest produce will destroy the relationship that has developed between the Soliga and forests and sustainable extraction of these resources.

In addition, he admits, the ban is unlikely to be effective. The first difficulty will be in finding which Soliga is collecting, or has collected, minor forest produce for the purpose of trade. If a Soliga is found with 10 kg of gooseberry or five kg of honey, can it be said what use it is for, personal or commercial? In fact where there has been a ban, the experience has been that extraction continues, without any safeguards.¹⁰ But the ban in the sanctuary continues. Extraction continues, but illegally, in a more unsustainable fashion. Moreover, it inevitably leads to more harassment of tribals and corruption.

The problem is that these provisions — used, interpreted and misinterpreted, with good intentions — are leading to tremendous harassment of people.

Let us be clear. The entire effort of the Supreme Court, investing its valuable time and commitment, is to safeguard the protected areas of the country from commercial and illegal uses. But it is completely inexplicable how the Union ministry of environment and forests issued the guideline which, in effect, expunged all rights and concessions of people in protected areas, using moreover a provision of the Forest Conservation Act, 1980. The Central Empowered Committee, in its letter to states, has included in the list of prohibited activities cutting of grass and collection of minor forest produce. At no stage has it been clarified if this has been done after rights have been settled or alternatives made available to poor people.

The fact is that this interpretation of the law by first the ministry and then the committee has, in fact, cost the country's conservation efforts dearly. The anger of people against conservation has only worsened and will make protection even more difficult.

The reality is that since people live in these reserves and use resources, conservation policy has driven the process underground. This has worked to the detriment of the forest as well as the people. For instance, in Sariska in Rajasthan, villagers used to traditionally graze their cattle inside the park and the forest department used to issue receipts to people for using the park. In this way, the authorities could 'manage' and 'regulate' use. But in 1982, when it was decided Sariska would be declared a national park, the forest department stopped collecting grazing fees. The idea was that if the fee was not charged, people could not claim grazing rights and it would be easier to notify the area as a national park. The fact is that the final notification for the national park is still in abeyance and grazing continues, but in an illegal, uncontrolled and destructive way.¹¹

Barring rights to property

Under section 20 of the Wildlife (Protection) Act, 1972 there is a provision; rather innocuously worded, it is turning out to be devastating for people living in protected areas whose rights have not been settled.

The provision says that after notification under Section 18 (intention to declare), "no rights shall be acquired in, on or over the land comprised within the limits of the area specified in such notification, except by succession, testamentary or interstate." This provision could have been inserted to ensure that during the short period in which government would settle the rights of people in the protected areas, no new settlers would emerge in order to reap the benefits of settlement.

But because the settlement of rights has never

taken place, and is quite likely never to take place, the situation for people living within reserves is such that even owning private revenue land has become unbearable. The principle chief conservator of forests, Madhya Pradesh, has drawn the attention of the Union ministry of environment and forests of the need for an urgent review and revision in this provision (*see box: Submission of the Madhya Pradesh government on section 20 of the Wildlife (Protection) Act, 1972, barring accrual of rights*). In his submission, it is pointed out conditions have become terrible for local people, in turn generating intense hatred for the wild animals.

In the Karera Great Indian Bustard Sanctuary in Madhya Pradesh, for instance, there have been cases where people are unable to get their sons married, because no one wants to give his daughter into a village where no progress is possible. As a result of the ban on land transactions here, restrictions placed and the resulting hostility, the entire bustard population has been wiped out. Now there is a strong demand to denotify the sanctuary, says the submission.

It is important to note here that a large number of people who live within the protected reserves live on revenue land, which is privately owned. But while the law provides that the rights should be acquired, this has not been done. This selective use of provisions of the Wildlife (Protection) Act, 1972, is making people enemies of conservation.

Is de-notification an option?

If people cannot be relocated from the protected areas, is it possible to denotify areas of human settlement so that these can be excluded from reserves? This would improve protection within the reserve and meet the conservation objectives of wildlife managers, who see no alternative but to exclude people to save the wild animals.

There is a fear that this approach can be used to divert protected areas, so the 2003 amendment to the Wildlife (Protection) Act, 1972 has made the process extremely cumbersome and centralised. It has legislated that "no alterations of the boundary of the sanctuary or national park shall be made by the state government except on the recommendation of the national board (National Board of Wildlife)". In 2000 and again in 2004, the Supreme Court further tightened this provision, directing "no de-reservation of forests/sanctuaries/national parks shall be effected".

This makes it even more difficult for state governments to recognise the fact that if they cannot settle the rights of people and cannot relocate them, they could de-notify areas of human settlement within a protected area. In Bandhavgarh tiger reserve

Submission of the Madhya Pradesh government on section 20 of the Wildlife (Protection) Act, 1972, barring accrual of rights

“As you know, section 20 of the Wildlife (Protection) Act, 1972 bars the accrual of any fresh rights in, on or over the land comprised within the limits of the area specified in the notification issued under section 18, except by succession. This section has been erroneously interpreted as banning any sale/purchase of landed property, as well as the development of these properties, in the villages situated within the notified tentative boundaries of the proposed protected areas. The sale/purchase of land and any change in the land use are seen as the creation of new rights in violation of this section. This interpretation, though erroneous, would not have caused any problems if we had been able to acquire all the rights over these lands, as required by the Act, expeditiously. However, our inability to acquire the private lands situated inside the proposed protected areas for more than two decades, and forbidding people from selling their lands to other buyers as well, has resulted in tremendous economic and social difficulties for the people, and extreme discontent among people against conservation itself. An extreme example of the situation is seen in the Karera Great Indian Bustard Sanctuary in this state, where there have been cases in which people are unable to marry their sons off as no one wants to give his daughter into a village where no progress is possible. As a result of the ban on land transactions, and restrictions placed on the people, and the resulting hostility, the entire bustard population has been wiped out and there is a strong demand to denotify the sanctuary. A more or less similar situation prevails in nearly all the other sanctuaries and proposed national parks of the state. The state is facing a spate of litigations on the issue as conservation extremists want the government to implement

this interpretation of the section rigidly, without bothering about the implications for the affected people.

As the government does not have the wherewithal to expeditiously acquire all the rights in proposed protected areas, and we can ill afford to let popular discontent against conservation continue indefinitely, urgent steps are required to mend the situation. The problem can be easily solved if people are allowed to exercise full ownership rights, including the right to sell and purchase, over their properties, and the bar on accrual of new rights such as grazing, is limited to government forests only. However, the current text does lend itself to the extreme interpretation that we are forced to follow now. The bar on accrual of rights even on private lands may have appeared benign at that time, as the framers of the law may not have envisaged a situation in which hundreds of villages and thousands of acres of private lands would be affected by this ban. It may also have been inserted to force people to opt for relocation. However, in the current context, it appears extremely highhanded, in violation of the fundamental rights of a large and poor population, and is certainly counterproductive for conservation.

Three alternative drafts for the amendment are enclosed herewith for your consideration. I hope you would be able to include it in the proposal for amendment already under consideration in the Ministry.”

Letter by P B Gangopadhyay, principle chief conservator of forests (wildlife), Madhya Pradesh to additional director general of forests (wildlife), ministry of environment and forests, with copy to Tiger Task Force, June 19, 2005

in Madhya Pradesh, for instance, state authorities had put forward a proposal to delineate the park boundary so as to exclude certain villages. This ensured 319 sq km would be free from human habitation and completely protected. But it was not done, as it would further fragment the reserve.

In Melghat tiger reserve in Maharashtra, for instance, this option was exercised. The government was aware the buffer zone of the reserve had many villages. It was not possible to acquire the rights of these villages because of the sheer size of the operation. People lived an illegal existence. Therefore, park authorities decided to opt for de-

notification of an area of the sanctuary which could be then developed for villagers, while the core could be protected, without human interference, for tigers.

But conservationists were unhappy about the move and took the matter to the state high court. Since then a desperate *status quo* persists. The state government has informed the court, under pressure from the conservation lobby, that it will not use the area for commercial purposes (interpreted as not allowing cutting of trees, other than for the basic subsistence needs of people). The tribals continue to live in destitution, their poverty driving them to use the resources of the tiger reserve and their anger

leading to unsustainable use and destruction. The tigers are under threat and the park authorities have to focus their energies on protecting against all odds. It is clear that the *status quo* is unsustainable and unproductive. The situation has once again created anti-conservation anger and jeopardised protection (see *box: Melghat's conservation conundrum*).

People verses tigers

In this situation, matters are fast deteriorating. The law provides that the rights of people should be settled before a sanctuary or national park can be formally notified. But this has not been done. People live in protected areas and are driven to destitution. If tigers kill their livestock, there is no compensation because their existence is not legal; if they want to sell their private land, they cannot because it is not allowed. They cannot collect minor forest produce because it is interpreted to be illegal in the permit system that operates and they cannot graze animals or even practice agriculture in many cases. But because they live there, they engage in all these activities. It is done illegally. It is done under tremendous harassment and it leads to corruption. It is also completely unsustainable as illicit use only makes the use more destructive.

In all this, conservationists keen to protect the tiger and other species are asking for even stricter compliance and adherence to what they perceive is the legal framework. They make no mention of the fact that in the absence of rights remaining unsettled, the process of declaring an area as a protected area is incomplete and illegal. Selective interpretation of the law is leading to huge conflicts — inside and outside protected areas. It is truly a war within, imploding inside reserves and taking everything in its wake.

Is coexistence then possible? How?

Conservation policy in India, which aims to exclude (remove) people from protected area, is based on the premise that all human use is detrimental to conservation. It is also built on the assumption that people's knowledge is irrelevant in the management of protected areas. But again, given the reality of the Indian situation where people live within the protected reserves, it is important to revisit these assumptions to look for answers beyond.

Even when villages are proposed for relocation, wildlife authorities have little empirical evidence of the impact that needs to be contained. For instance, there is one village — with less than 35 families — in the tiger reserve of Pench in Maharashtra. Reserve authorities are determined to relocate the village, at considerable cost, to degraded forest land in the

vicinity of the reserve. They estimate that, with the payment of the net present value, as mandated by the Supreme Court for diversion of forest land to non-forestry purposes, the relocation will cost over Rs 3-4 crore.

When the Tiger Task Force visited Pench, it asked officials about the impact of this tiny settlement on the reserve, which would then explain why it had to be relocated. The officials could not explain why. Nor had they any idea of what could be done to mitigate its impact or manage its resource use.

It is, therefore, essential we understand the possible human impacts, so that policy can be better informed and effective. There is no comprehensive assessment of this issue but an analysis of the research papers for different protected areas can help to build a better understanding of the situation.

The fact is that people, who live in the protected reserves and on its fringes, depend on its resources for their survival. Rucha Ghate from Nagpur University has worked on quantifying the value of the minor forest produce used by people living within Tadoba-Andhari tiger reserve in Maharashtra. She gathered information on the number of cattle and the collection of fodder, firewood, medicinal plants, fruits and household timber. She found the imputed value of these resources was a staggering Rs 77.5 lakh per year for all six villages in the sanctuary. Importantly, as little as 25 per cent of the annual income came from “legal sources” — agriculture and employment; the bulk (67 per cent) came from consumption of forest produce like fodder, fuel and fruits and the rest from illicit bamboo sale.¹²

Still, Ghate found that even with this level of resource use of resources in the period 1989-2001, forest cover had actually increased, and not reduced, in the tiger reserve. In fact, she found the habitat was more degraded where there was pressure from the villages outside village and not in the areas surrounding the villages inside the reserve. Her conclusion and submission to the Tiger Task Force, therefore, is that until the villages are relocated, they should be involved in protection work within the sanctuary, earning between Rs 1,000-1,200 per month per household. Furthermore, if people are involved in tourism, they will have a greater stake in the reserve and can be encouraged to become human buffers. To meet the needs of people, plantation of fodder and firewood belts around the buffer villages will take pressure off the reserve. In other words, the management strategy should move from being ‘exclusive’ to ‘inclusive’ says Ghate.¹³

Another researcher, Harini Nagendra, who has been working on satellite image-mapping of different reserves, confirms that within Tadoba-Andhari, for

Melghat's conservation conundrum

Melghat tiger reserve (MTR) is today in a piquant position. It has a plan to ensure people co-exist with the tiger reserve but the plan is now in limbo. Forest officials at the reserve are in a predicament: the management plan of the reserve in Maharashtra's Amravati district cannot be executed, even though the state's chief wildlife warden gave it his assent way back in November 2003. While the plan has laid out in an elaborate form how to involve the tribal community in managing the reserve. But the state government has done a volte-face in an affidavit it has filed, undertaking that it will not allow any commercial

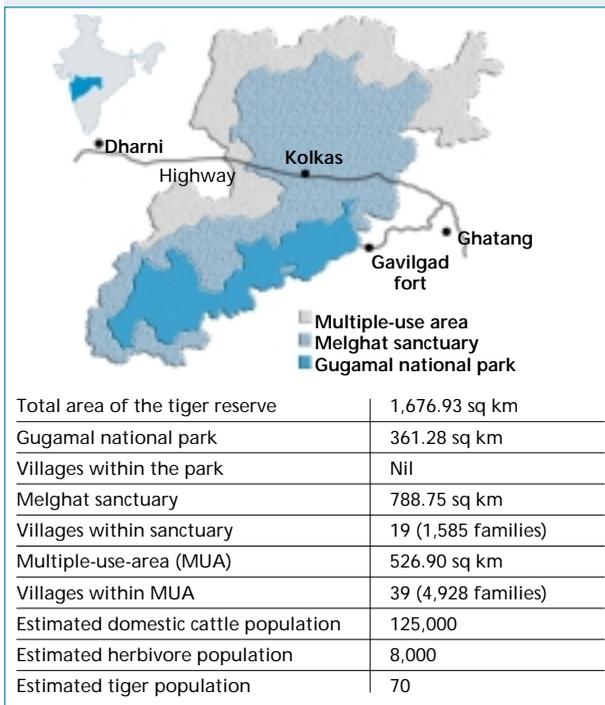
be relocated outside the sanctuary. In 1994, the forest department realised that relocating so many people was unfeasible. There was no land to relocate 61 villages. The challenge was to marry the interest of both the tiger and the tribal. So, an enquiry was conducted and via a notification dated February 15, 1994, 526.90 sq km of the sanctuary was re-classified as an multiple use area. The area comprised 39 villages and the people here were to be given certain rights to collect non-timber forest produce (NTFP).

Conservation groups, however, opposed the order. In 1995, the Mumbai-based Bombay Environmental Action Group filed a public interest litigation in the Nagpur high court pleading the move would destroy the reserve. In response, the Maharashtra government gave the HC an undertaking that it won't allow "commercial extraction of forest produce" in the multiple use area. As the case still sits in court, the forest department, scared of irking the court, has taken a defensive note. It has now decided to look upon bamboo harvest — which would have provided livelihoods to many — as "commercial extraction" and therefore put a hold on it. In 2003, the department had come out with a working scheme for bamboo-bearing areas in the multiple use area. Officials of the department estimate Rs 2,000 crore can be raised annually — and the money ploughed back into the reserve and for development of the 39 villages within the multiple use area — if bamboo is harvested scientifically in a three-year cycle. But now the scheme cannot be implemented before the imbroglio over "commercial extraction" gets resolved.

But, as is the case in all such conflicts, the *ad hoc* ban order has only pushed the people in the 39 villages to extract forest produce illegally or by bribing forest guards — there is no other option. Both the people and forests suffer. This, even as the denotification order clearly states that the multiple use area does not fall within the Melghat sanctuary and so people here do have rights over forest produce. But the forest department's forced vacillation means that, now, the people in the 39 villages cannot avail of these rights till the legal mess is set right.

In the consultations held with the Tiger Task Force at Nagpur the principal chief conservator of forests (wildlife) informed that the state government will soon file a fresh affidavit before the high court, restating its case for allowing use of resources in the multiple use area. Has the state realised it has hurt its own interests as well as caused many people to become destitute?

THE DIFFERENT ZONES OF THE TIGER RESERVE



exploitation of forests within the multiple-use area of the reserve. The affidavit comes in a court case filed against demarcation of a part of the tiger reserve as a multi user area — where people would be able to utilise the forest usufructs.

The multi user area plan

In 1994 Melghat tiger reserve comprised a core (the Gugamal national park) and a buffer zone (the Melghat sanctuary). The core area was uninhabited, while there were 61 villages within the sanctuary. As per the reserve's pre-1994 management plan, these villages with a population of 28,000 were to

instance, forest villages located within the park have much less impact on its degradation as compared to the excessive pressure placed by villagers outside the park.¹⁴ These findings need to be considered by the government of Maharashtra when it works on its proposal to relocate the villages.

But this is not to say that human activities, given the high dependence, will not impinge on the quality of the habitat. The question is to understand the nature of the intervention and what can be done to mitigate or substitute its impact.

For instance, it is clear that the use of non-timber forest produce is critical to the livelihood security of millions in the country. Economist Kanchan Chopra has estimated that in certain areas such produce contributes up to 40 per cent of the household income.

The issue then is to determine how unsustainable this use is and what can be done to improve resource utilisation and management. Researchers Ghazala Shahabuddin and Soumya Prasad have put together key studies that assess the ecological sustainability of such extraction in India to analyse trends. They find the studies present a mixed picture — in some studies researchers find heavy extraction of non-timber forest produce leads to reduced regeneration and resource degradation. But there are also cases where there is no visible impact of low- and high-intensity harvesting.

Many studies indicate that the method of extraction — setting fire, removal of reproductive species, destructive harvesting — is often much more damaging than the quantum of extraction. In certain studies, researchers did find the competition between humans and wild animals over minor forest produce adversely impacted the latter. For example, a study found that harvesting the fruit of *Artocarpus sp* did deprive the lion tailed macaque of its diet.

But it was also noted in many cases that if the method of extraction took into account the food habits of other species, this conflict could be avoided — harvesting fallen fruit and leaving the rest for animals.

The problem is, as the researchers of this review conclude, there is “scant, mostly anecdotal information on the ecological sustainability of extraction of non timber forest produce in India”. The available literature suggests species and populations differ in their response to harvesting. But unsustainable extraction will depend on the harvesting technique adopted, the extent of extraction and the plant part used. They conclude that much more research is required before it can be clearly understood to what extent and in what ways livelihoods based on these products can be compatible with conservation.¹⁵

Legal vs illegal: what is more sustainable?

If the challenge is conservation, then policy must be designed to practice sustainable resource management. In this context, it becomes important to understand if illegal use, in vogue because of current policy, is more sustainable than legal use, which could be practiced if policy was modified for conservation's sake.

Unfortunately, there is little analysis available with park managers or conservationists about resource use and its impacts. Therefore, policy is designed in the absence of data.

Take the issue of two reservoirs — one in Madhya Pradesh on the Tawa river, within the Satpura river reserve and the other on the Pench river, in Maharashtra. The reservoirs are in the core of reserves and therefore, by policy, all use is banned. Conservation demands this. But compare what happens when use is legal and when it is illegal.

Tawa: legal but under threat

In Tawa, 44 displaced villages took up an alternate source of livelihood and have managed resources in a sustainable manner for over 9 years now. In 1974, the 21,000-hectare reservoir was handed over to the state government in 1975 for fish production and then to the Madhya Pradesh Fisheries Development Corporation till 1994. It was auctioned to a private contractor for a year after that. The reservoir was open to all from 1995 to 1996 and then handed over to a co-operative after a prolonged struggle. Because of a lack of any source of livelihood after the area came within national park limits, the displaced people demanded exclusive fishing rights to the reservoir. So came into being the Tawa Matsya Sangh.

Initially, the Tawa Matsya Sangh got fishing rights for five years in 1996, which was later extended. The co-operative is constituted solely of local communities and is two-tiered. At the local level, it started off with 33 primary co-operative societies, which undertook the actual fishing and then handed the catch over to the second level of a federation that took care of marketing, transport and sale of fish, stocking of fish seed, and supply of nets and boats to fishermen.

Tawa serves as a good example because over the years it was under state, private and then cooperative control and the trends clearly show that the co-operative regime has been able to manage production, maintenance of stock, employment and income generation most efficiently.

Sustainable production

A report by the Ahmedabad-based Centre for

Environmental Planning and Technology shows that production was highly fluctuating when the reservoir was under the control of the Madhya Pradesh Fisheries Development Corporation. Under the Tawa Matsya Sangh, production steadily increased from just under 100 tonne in 1996 to almost 400 tons in 2000, though it has figured a slight decrease in the past three years. Per hectare production in 2000 was 32.37 kg, three times the national average for big reservoirs (see graph: *Total production of fish in Tawa reservoir*).

Moreover, the increase in fish production did not adversely affect the fish stock in the reservoir. In fact, the average size of the catch increased over the years. The proportion of the three major crops of *Catla*, *Rohu* and *Mrigula* has been maintained at 80 per cent. Also, the use of mono-filament yarn nets is banned by the sangh to avoid over-fishing. Though these nets increase the catch marginally, they are harmful because they catch fish of smaller size. This is a good place to compare the private regime to the co-operative regime. The private contractor had forced the fisherfolk to use these nets to merely increase the catch, thus affecting the stock adversely.

Stocking of fingerlings is another important factor in maintaining production. If adequate fingerlings are not available, future production cannot be ascertained. The stocking increased dramatically in the first four years and then declined marginally. Another achievement of the co-operative is the ability to develop capacity among the local communities to harvest fingerlings and reduce dependence on external sources. From almost nil the co-operative increased the production of fingerlings to 37 per cent in 2003-2004, displaying an internal

institutional capability to manage and sustain the reservoir’s fish production.

The livelihood of almost 4,000 families from 45 villages began to depend on fishing from the reservoir and the number of fisherfolk rose from a mere 200 to almost 500 in 2004.

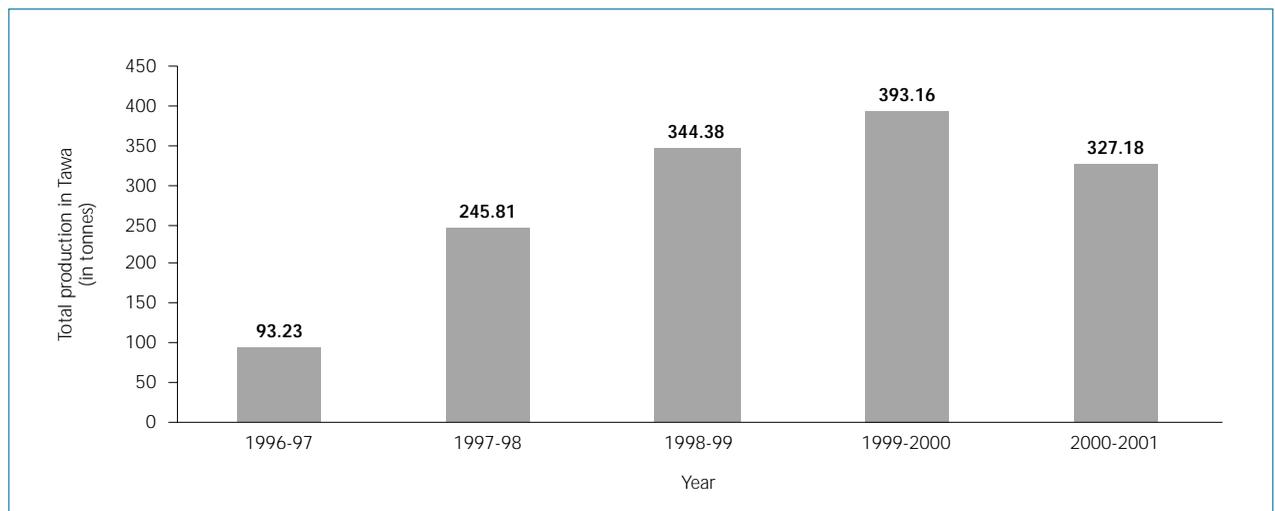
The Tawa Matsya Sangh has successfully marketed its fish catch to local as well as distant markets, with some of the fish even going to Howrah in West Bengal. The total income of fisherfolk increased from 1997 to 2000, dipped slightly till 2003 and went up again. In the last year, average income of the fisherfolk increased although the production dipped slightly, which means they were getting a better price for the catch.

Conservation fishery

The Tawa Matsya Sangh is very cognisant of the need to protect and maintain the natural resource that is the backbone of the local livelihood and the community. It ensures that mono-filament yarn nets and nets below a certain mesh size are not used for fishing, to protect the juvenile fish. It has also ensured that every fish gets at least one opportunity to breed. Every year, a closed season of two months is observed, during which fishermen patrol the area in boats and jeeps to prevent any violation. Every village around the reservoir has a primary co-operative, which gives every villager and potential poacher an opportunity to participate and get a sense of ownership. This is probably one of the best ways to fence the areas from poachers.

The sangh has also established a system of wages, wherein they pay the highest wages in the seasons when the tendency to poach is the highest.

TOTAL PRODUCTION OF FISH IN TAWA RESERVOIR



Source: Amalendu Jyotishi and R Parthasarthy 2005, *The Tawa Reservoir Fisheries Management: Experiences and Options*, School of Planning, CEPT, Ahmedabad, February, pg18

All of the above only go on to point that the inclusion and participation of the local communities are instrumental not only to protecting and conserving natural resources but also to sustain livelihoods and raise local levels of income.

But fish is defined as wildlife under the Wildlife (Protection) Act, 1972. The Central Empowered Committee of the Supreme Court has written to state wildlife agencies not to allow any “prohibited” activities without prior permission of the Supreme Court. By law, fishing in the sanctuary or national park cannot be allowed without the permission of the chief wildlife warden in consultation with the National Board for Wildlife, and now the Supreme Court. The permission can only be sought and granted if the removal of wildlife from the national park is necessary for the improvement and better management of wildlife.

Clearly, there is no provision on what is sustainable use in these conditions. The restrictions placed by conservationists has also meant park authorities are under pressure to stop what is not destructive. Notices have been put up in the tiger reserve, telling fisherfolk that the permission will be withdrawn and that it is illegal. Once again, people will be driven to unemployment and anger against the reserve.

Pench: illegal and threatening

What is happening in neighbouring Pench should be a lesson for Tawa. In Totladoh settlement of Pench tiger reserve all fishing rights have been taken away from the local people. It is important to compare the differences between both the situations — one where the people are involved in protecting the area and second in which the people are totally excluded from any participation.

Totladoh is a settlement of migrants from Seoni and Chhindwada districts of Madhya Pradesh and Nagpur district of Maharashtra in the 1970s. After the construction of the Pench hydro-electric project, the villages in the submergence area also migrated to Totladoh. Over the years, most of the villagers started earning their livelihood by fishing in the reservoir.

Under an agreement between the Maharashtra and the Madhya Pradesh governments over the Totladoh reservoir (2,000 ha), the Madhya Pradesh fisheries department started fishing operations in the Totladoh reservoir. All the local and displaced were slowly rehabilitated into the fishing business and were given the right to fish in the reservoir. The Nehru Yuva Matsya Society was formed by the fisherfolk and also landed a contract for fishing from the state government. The government was paid royalty from the fish trade.

Then, in 1995, the Maharashtra government

banned fishing in the reservoir, claiming the Totladoh area came under a reserve forest area the British had declared in 1879 and which was declared a national park in 1975, making it illegal to fish in the reservoir. The local people, of course, did not have an alternate source of income and they continued to fish in spite of the ban. They got into skirmishes with the forest officials and the police and the tension between them mounted.

On the Madhya Pradesh side, an agreement was reached between fisherfolk and the park authorities in which compensation was paid in lieu of fishing rights. The people on the Maharashtra side continue to suffer under the ban imposed by the forest department, interpreting fishing as a violation of the Wildlife (Protection) Act, 1972.

The villagers of Totladoh were thrown out in 2002 and fishing was stopped; however, the tension still continues. It is estimated that about Rs 25 lakh worth of fish is extracted in a year. The illegal chain of fishing is industriously managed. Fisherfolk enter the national park at night for four hours and make their way to the reservoir. They are paid Rs 100 by the middlemen for this fishing. A different person collects the fish at the reservoir and transports it by a bicycle through the park for Rs 100. This is deposited at the fringe village, from where another courier collects the fish and takes it to the nearest town, where the middleman waits. All this is illegal. All this continues to happen each night at the reservoir.

The forest department has raided and captured 100 boats that were submerged in the reservoir. It must be noted that these fishing boats had been transported through the core of the secured park to the reservoir. Now tension has intensified further. The seizure by the forest department has elicited a violent response from the local people, who have started forest fires each time their boats have been captured by the authorities. The situation is that people are kept out of the reservoir, the illegal fishing will continue, the forest officials and police will continue to capture fishing boats and the villagers will continue to retaliate.

By not letting the local communities to participate and sustainably utilise the whole purpose of protecting the park and the natural resources is defeated. It is important to ask if this is the right policy: for conservation (*see box: Changing attitudes through participation*).

The coexistence imperative

The choice is therefore ours to make. People live in protected areas and will continue to live there because there are no real alternatives. The issue is if we can work with people to create situations in which they can live with the rules of the protected

Changing attitudes through participation

In 1991, the Bwindi National Forest Reserve and Game Sanctuary in Uganda was gazetted as a National Park, barring communities access to the park, and making collection of forest produce illegal.¹⁷ The park covers 33,000 hectares and is known for its exceptional biodiversity: more than 200 species of trees, 350 species of birds and half of wild population of the endangered mountain gorilla.¹⁸

Though the process of reducing access has been occurring since the declaration of the forest reserve in 1932, the complete denial of access to the forest seriously aggravated the situation. The park has witnessed constant illegal encroachments and deliberate arson¹⁹. Fires in the park, a third of which were caused by arson, caused the destruction of 5 per cent of the park.²⁰ The attitude towards conservation was apparent in interviews where community members said that “Gorillas should be put in cages and taken to zoos”. Further, park rangers faced constant harassment and were subject to attacks, denied sale of food and even ambulance services, despite the rangers being locals themselves.²¹

It immediately became clear that ban on access might have been a mistake, and that denial of access to resources was untenable.

In 1992, Uganda National Parks, which

administered the park, began pilot schemes to include the community in the management of the park, a potentially risky move, given the precarious situation of the gorilla population and local attitudes towards the animal. However, a Raid Vulnerability Assessment gave empirical data on the impact that would result from the community collecting various plants species. With this analysis, the park and elected member of local parishes negotiated limits on collection on different forest produce, and limited access to the park was resumed. Beekeeping was recognised as low impact, and authorities began by allowing this activity. By 1996, 500 people from four parishes have setup 3000 hives in the park. These limited measures began to ease the relationship on the ground between the community and the park authorities by creating a better relationship between the communities and the park authorities. No more deliberate fires have been reported started. Through a collaborative management approach which covered 20 per cent of the area of the park, fifteen of the twenty-two parishes bordering the park went from being a park threat to being a park resource, assisting with the conservation of the park by helping guard against encroachment and even assisting with putting out forest fires⁶. A serious scientific look at the impact of community access to forest resources can help park management, even when the community is apparently hostile to conservation efforts.

area and in fact work to strengthen the protection of these areas. Or we can work against people so that they increasingly turn against the protected areas and animals. In this situation, we can invest more and more into its protection — more fences, guns and guards. Maybe we will win. But it is more likely we will lose.

In the current situation of unrest, it is clear there are no winners. The people who live in the most destitute situations within the reserves are certainly not gaining. But simultaneously, conservation is not gaining.

Most wildlife managers the Tiger Task Force met in the past few months have wanted more and more fire power. Some even suggested the forest department should be given the same status as the forces fighting the insurgents and naxalites. The reserves were equivalent, they said, to “disturbed areas”.

It is clear that protected areas need the sanctity of restrictive use and protection. It is also clear that protection is much simpler if there are no competing uses and if the rules are simple. If there are no people in the reserves, then it is easy to identify the outsider

or the poacher, was repeated to the Tiger Task Force on its visits to tiger reserves. Perhaps rightly.

But what does one do when there is no choice? It is clear that even after certain areas are made inviolate, many areas will remain which are also critical tiger habitats, but have human habitation.

The alternatives are also not easy. But they will have to be tried seriously to make them work. But for alternatives to work, there should be clarity that use of resources *per se* is not unsustainable. Poorly managed use of resources is unsustainable. If this is understood, then what is needed is to put into place regimes that will promote the sustainable use of resources. It is well understood, across the world, that sustainable use arises out of security of tenure and rights.

Therefore, if we want to move towards more sustainable use of resources in our protected area, we have no choice but to work towards agreements of reciprocity — where local communities who live in the reserves have rights over the use of resources, in return for protection and conservation benefits.

This can be done in many different ways:

- Reservation of jobs in protection and

- management of the reserve;
- Reservation and preferential opportunities in the benefits that arise out of protected areas — share of tickets, tourism opportunities;
- Rights to harvest and sell minor forest produce and fish in a sustainable manner;
- Clarity of the rights over grazing so that areas are clearly demarcated. Investment in improving the productivity of grazing lands so that the pressure on the rest of the park is reduced;
- Investment in development activities — schools, medical facilities and communication — so that basic minimum needs are met;
- Investment through development programmes and forest development programmes so that there is investment in building the productive asset base of the villages.
- Rights to collaborative management of certain areas of reserves — so that people can take the responsibility to manage the protected areas.

In other words, we are designing a regime of explicit benefit sharing and ‘compensatory rights’¹⁶ for communities who pay the greatest price for conservation.

It is clear that if this is not done, then the cost to conservation will be devastating.

Recommendations

1. Policy must accept that people will continue to live in protected areas. It is not possible to settle the rights and relocate all the families living in the reserves. The facts are clear: in the last 30 years, less than 10 per cent of the families in tiger reserves have been relocated.
2. If people live in protected areas, ways must be found to secure their use of resources and livelihoods. In the current legal framework, the use of resources by communities is not included, because people are not expected to be in the national park at all, and in a limited way in sanctuaries. But it is important to note that even in sanctuaries, use of resources is legal after rights have been settled and use agreed upon. The law also provides that during the time the rights are settled and people live in protected areas, the state government has to provide alternative sources of fuel, fodder and other forest produce. In short, the rights of people cannot be expunged without providing alternatives.
3. In this situation, the selective interpretation of the Indian Wildlife (Protection) Act, which curtails the use of resources by people without taking into account the safeguards has only led to greater unrest around our protected areas and has been detrimental to conservation.
4. Strategies for joint-collaborative-inclusive management of our protected areas are then essential, so that this “illegal” use is made legal and regulated.

Even if it is accepted that the management of competing uses in our protected areas will be difficult, the fact is that in the current circumstances there are no options. It is not the intention of this Task Force to suggest that the protection awarded to protected areas should be diminished or that destructive use should be allowed. It is also aware that it is perceived by managers in the field that protection is easier without the management of competing uses. If all use is disallowed then it should be easier to guard against the illegal.

But this is not the case. ‘Illegal’ use continues, because it has to, given the reality of the more than three million people who live on these resources. The current use, precisely because it is ‘illegal’, is destructive — both for resources and for the relationships between animals and parks. It is not good for conservation.

5. The conservation strategy should be as follows:
 - a. The areas, which are essential for total protection, should be made inviolate. People

living in these areas should be relocated and the rights settled. These areas, to begin with would be the core areas (national parks) of tiger reserves. If the agencies are able to relocate more people, because of the availability of finances and resources like land, more area can be made exclusive for conservation.

- b. In the remaining areas within the tiger reserve and protected areas, the strategy for management has to be inclusive and use of resources must be accepted and allowed.
6. It is not necessary that all use will be destructive. The question is how the use will be regulated or managed. In order for the resource use not to be destructive, the participation of local communities in decision-making and in management becomes essential. Regulation is best possible, if all are parties to the decision.
 7. This use of resources within protected areas will require very innovative thinking by the park managers. It is not possible to find one prescription that will fit all reserves. But once it is accepted that use if not necessarily destructive or that the management of resources by communities is not necessarily destructive, practices can be evolved for each area.
 8. The work within protected areas can include activities that promote conservation, protection and sustainable management. The forest development committees can be initiated so that there is investment in habitat improvement and grassland development. Cooperatives can be formed to sustainably harvest minor forest produce.
 9. It is essential that this approach of inclusive protection is incorporated into conservation management urgently. For this, the following must be done:
 - a. Each tiger reserve (to begin with) must take into account the current needs of people who live within the reserve and evolve a plan for resource management and use. This strategy must be evolved in consultation with local communities, researchers and local NGOs.
 - b. The strategy must include plans for careful monitoring and evaluation.
 - c. The Project Tiger directorate must have internal capacity and staff to be able to monitor and guide this process carefully. Every effort must be made to encourage innovation and experimentation.
 - d. This process must begin immediately. The plans for each reserve must be completed within one year and be available publicly.
 10. The independent monitoring of tiger reserves must provide a high weightage for the work done by park managers in collaborative management. The improvement in relationship between people and parks must be a key criterion in the review. Each tiger reserve must be rated for this work and the best and worst identified for rewards and penalties.

3.9 The fringe agenda

While the problems of people inside our protected areas exacerbate, the country remains ignorant of the situation of many more who live on the fringes of these national parks and sanctuaries. Conservation faces the challenge of working with people inside as well as with communities on the fringe.

Harini Nagendra, a researcher with the Bangalore-based Ashoka Trust for Research in Ecology and Environment (ATREE), has studied and compared the war within and outside the Tadoba-Andhari tiger reserve in Maharashtra. Her assessment is clear: the villages outside the park, connected to markets by road networks, have a larger impact on deforestation and forest fragmentation compared to the more isolated interior villages. Her prescription for the park is equally clear: instead of focussing on resettling the forest villages, the demands of forest protection will be better served by working with these surrounding communities to develop alternate mechanisms of income generation.¹ She goes on to explain the phenomenon in depth.

She and her colleagues have studied changes in four categories of forest cover in the reserve:

- Zone 1: In areas within the tiger reserve, far from habitations
- Zone 2: In the 2-km buffer stretching inwards from the reserve's periphery
- Zone 3: In a 2-km area radiating from the villages inside
- Zone 4: In a 5-km area extending outwards from the park periphery

She clearly finds that the impact on the forest of the villages outside the reserve is much greater. The 53 villages outside, denied rights they enjoyed earlier, now resort to illegal sale of forest produce to nearby markets. Comparatively, the six villages inside primarily use the forest for subsistence alone.

There are two issues worth understanding here:

1. The sheer number of people on the fringe is greater than the few who live inside the park.
2. The villages on the fringe are connected to markets far beyond the vicinity of the park and have the resources to transfer forest produce to these markets. Therefore, what they extract from the forest is far more than what they need for immediate personal consumption; in the case of villages inside, this is often not possible.

Unfortunately such studies, useful in taking careful

conservation decisions, are extremely few. Thus, reliable data related to fringe community practices and aspects of existence is absent. Such absence is directly related to the belief — consistent among some conservationists and foresters — that it is the villages in the interior of tiger reserves that need to be shifted out to enable successful conservation. The point is that while this policy prescription may still hold true, pressures on the reserve will continue to mount if no rational answers are available for villages on the periphery. Indeed, at times, if the relocation of villages is badly done — say, villages are automatically resettled at the fringe — the problem is merely transferred from the inside to the outside. The issue then is to find solutions to the problem of providing the people with alternate ways of subsistence and livelihood.

There is little reliable information on the number of villages at the periphery of reserves; in particular, information that details their resource use patterns and the consequent impact on the park. But what is available shows that in many parks, the number of villages within is fewer than those at its periphery. In other words, here is a problem that demands different strategies of coexistence.

For instance, in Ranthambhore there are 25 villages within, with less than 8,500 people. But outside, there are 96 villages, with over 100,000 people. However, reserve authorities relocated villages to the fringe without clearly considering the implications of this action. Now, these villages have joined the crowd which is pushing its way into the reserve. Clearly, here the strategy is to engage with the fringe villages. Relocation from within this reserve may be vital to isolate tiger habitat, but without tackling fringe pressures, the habitat will remain under increasing threat.

In Madhya Pradesh, while there are 726 villages and 60,137 families inside the parks, there are 2,200 villages and 1,32,000 families in the periphery.²

Thus it is clear that, given the high dependence of people on these last remaining forests, human activities will impinge on the quality of the habitat. The question is to understand the nature of the intervention and what can be done to mitigate or substitute its impact.

An interesting study arises out of work done by other researchers in the fringe villages of Bandipur national park, which forms part of the Bandipur tiger reserve in Karnataka. As M D Madhusudan of the Nature Conservation Foundation, Mysore shows, a lack of resources and livelihood drove the people to

the closest available resource: the forest.

In the early 1990s, village Hangala along with 74 other villages stumbled upon a windfall while grappling with severe water and debt crises. The demand for Indian coffee was spiralling, and the villagers took to rearing cattle for the dung, which then catered to coffee plantations (as manure for the coffee fields) elsewhere. Over time, villagers bought more cattle; the bovine population increased in all the villages participating in the trade — in some, by as much as 30 to 40 per cent over just five years. In a few villages, the growth rate of livestock shot up 13-17 times higher than the average national livestock growth rate for the same time period.

But consecutive droughts and bad water management, coupled with faulty agricultural prescriptions by the government, had wiped out grazing lands and common pasture lands in village areas: the forest, therefore, began to serve as a free and open source for fodder (*see map: Cattle density in villages around Bandipur national park*). The result: the forest close to the northern boundaries of the park adjoining the villages, is today more degraded than elsewhere in the reserve. Preliminary studies of the area show a heavy livestock density at the northwestern edge of the reserve and a disappearance of vegetation cover from the area around Hangala village.³

Repeatable situation

This situation, with local variations, is repeated across the country. The landscape immediately outside is under intense use, with people living in an agro-silvo-pastoral economy. They need access to grasslands for their livestock. They need income

sources that come from the forest: firewood and sale of minor forest produce. They need construction material and medicinal plants from the forests. Their drinking water and their sources of irrigation water come from the forest.

The problem is two-fold:

- The productivity of the forest, and land surrounding fringe settlements, has declined over the years. It has been overused and has seen little management or investment.
- Investment made in development — irrigation, rural development, drinking water or tribal affairs — has not worked as it should have. Money and programmes have been spent on the welfare of fringe villagers, but their poverty has only been exacerbated.

This has then led to increased conflict as the imperatives of conservation have clashed with the needs of livelihood.

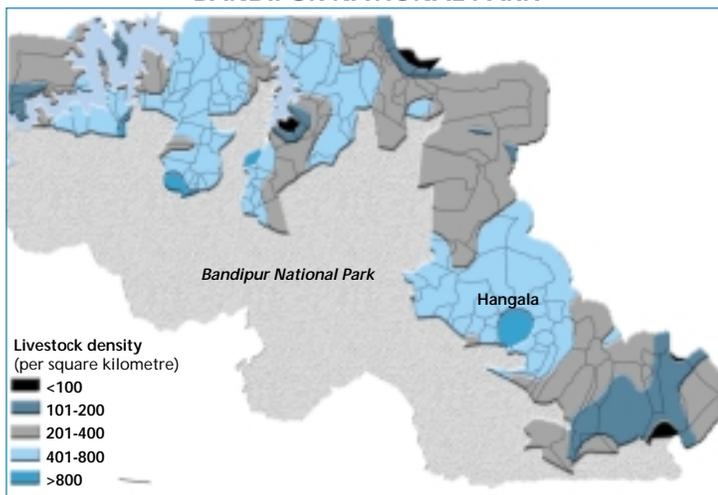
Compensation

The poor share their homes and fields with wild animals. Just as animals suffer when people enter their habitat, people suffer when animals enter their homes and fields. Most state governments pay monetary compensation for the loss of human life and livestock; and only a few pay for crop losses. But even where a compensation scheme exists, applications for compensation for livestock death are usually not accepted, or the amount sanctioned is much lower than what was asked for. It is clear that with this interface of humans and large mammals, conflicts are inevitable. The issue is to see how the friction can be managed better.

Wild animals and predators often take a serious toll of livestock and human lives, causing huge losses to the rural economy. In Madhya Pradesh alone, conservation impacts nearly 5,500 villages within two km of forest boundaries, with 451,000 families and 879,450 ha of cultivable land. According to H S Pabla, additional principal chief conservator of forests, Madhya Pradesh, 166 human deaths and 3,131 human injuries from wildlife were reported from the state between April 1998 and March 2003. In addition, 14,090 heads of cattle were lost to large predators.⁴

There is no record of the extent of damage to crops, found Pabla in his investigation. This is because while most states have provisions for compensation for human life and livestock loss, very few have any provision for compensating crop loss. A

CATTLE DENSITY IN VILLAGES AROUND BANDIPUR NATIONAL PARK



Source: M D Madhusudan 2003, Uneasy Neighbours, Human Resource-use and Large Mammal Conservation in the Tropical Forests of Karnataka, India, National Institute of Advanced Studies, Bangalore, mimeo

SUMMARY OF COMPENSATION SYSTEMS IN VARIOUS STATES

State	Crop damage (Rs)	Livestock (Rs)	Human deaths, permanent disability, injuries (Rs)	Loss of house, other property (Rs)
Andhra Pradesh	At par with natural calamities or riots	Market value	Upto 20,000	At par with natural calamities or riots
Assam	—	—	20,000	—
Bihar	500 per acre	—	6,000-20,000	200-1,000
Gujarat	250-5,000	—	25,000-100,000	—
Jharkhand	2,500 per hectare	500-3,000	33,333-100,000	1,000-10,000
Karnataka	2,000 per acre	—	25,000-100,000	5,000
Madhya Pradesh	—	5,000	10,000-50,000	—
Maharashtra	—	3,000-9,000 (or 75% of (market value, whichever is less)	50,000-200,000	—
Meghalaya	3,750-7,500 per hectare	100-1,500	30,000-100,000	5,000-10,000
Orissa	1,000 per acre	—	2,000-100,000	2,000-3,500
Tamil Nadu	Upto 15,000 per acre	—	20,000-100,000	5,000
Uttar Pradesh	150-2,500 per acre	—	5,000-50,000	400-3,000
West Bengal	2,500 per acre	70-450	5,000-20,000	500-1,000

Source: H S Pabla, 2005, *The Mantra for Man-animal Coexistence*, mimeo

rapid survey conducted in Noradehi, Raisen and Vidisha forest divisions in Madhya Pradesh in September 2002 to assess crop damage, found the situation serious.⁵ Data from Noradehi showed farmers lost as much as 30 per cent of their paddy crop, 10 per cent of the wheat crop and 40 per cent of the pulse (gram) crop in villages located inside the sanctuary. But villages on the outskirts also suffered equally. A village two km from the forest boundary lost 10 per cent of its paddy crop and 25 per cent of its gram crop.

The study assessed the average crop damage at Rs 1,067 per ha per year in the sample villages, which comes to between 10-20 per cent of the total yield. On the basis of the human population and cultivated area of 214 villages situated within five km of protected area boundaries, and the crop loss assessed in the sample villages, the total loss to the state has been estimated at Rs 628 crore — Rs 94 crore as direct loss and Rs 534 crore as the cost of protection in the form of labour and material. “The figures are rather crude, but the estimation helps to understand the enormity of the problem. It is obvious that the actual damage to crops, coupled with the opportunity cost of protecting the crops is so high that it deserves serious attention. Equally serious is the quality of life of people of the vulnerable villages, who spend close to 100-200 nights, year after year, guarding their crops from wild depredators,” says Pabla⁶ (see table: *Summary of compensation systems in various states*).

The case of the Bhadra tiger reserve, Karnataka, has been well documented by M D Madhusudan. Covering an area of 495 sq km, Bhadra is located in the foothills of the Western Ghats and has 26 villages on the fringe, with 6,774 families. Livestock killing by large predators has had a significant impact on cattle population in Bhadra. The livestock kill in the five sample villages covered by the study was 219. Compensation was sought in over half the instances. Of 71 applications filed for compensation, only 15 were accepted and compensated for Rs 17,250. Compensations awarded by the forest department were three per cent of the overall loss villagers sustained from livestock depredation, and five per cent of the loss for which villagers filed claims.⁷

In terms of crop damage, villagers near Bhadra lost 11 per cent of the monetary value of their annual production. The annual loss per family amounted to Rs 5,100, or 30 per cent of the average annual household income in the region. Fourteen per cent of those who suffered losses said they did not file for claim because of the lengthy bureaucratic process — it takes 77 days to fully process an application for crop loss compensation. Even so, 69 per cent of respondents in village surveys wanted the compensation programme to continue despite the fact that it undervalued losses, as long as the process was made quicker and less bureaucratic (see table: *Bhadra crop compensation processing time*).

The difficulty of access to forest offices and non-availability of concerned staff make the seemingly

BHADRA CROP COMPENSATION PROCESSING TIME

Village	Total compensation per cent to total loss claimed	Time taken (days)
Hipla	4	196
Karvaani	0	
Kesave	5	172
Maadla	5	181
Muthodi	5	
Overall	5	183

Source: M D Madhusudan 2003, *Living amidst large wildlife: livestock and crop depredation by large mammals in the interior villeges of Bhadra tiger reserve, south India*, Springer

simple act of filing a compensation claim a troublesome task. The requirement to produce documents for land rights to support claims of livestock has ensured that none of the livestock kills in Karvaani, inside Bhadra, have been compensated to date. Similarly, landless families have had little success in obtaining compensation in livestock kills. The filing and follow-up of compensation claims also require significant financial investment (travel to forest offices) on the part of claimants.

Finally, compensations, even if awarded, offset only a miniscule part of the loss sustained by the victim.⁸

As a policy, compensation does recognise and address the monetary aspect but the process from policy to action needs review. The procedure for awarding compensations needs to be more realistic and responsive if it is to help in assuaging conflicts.

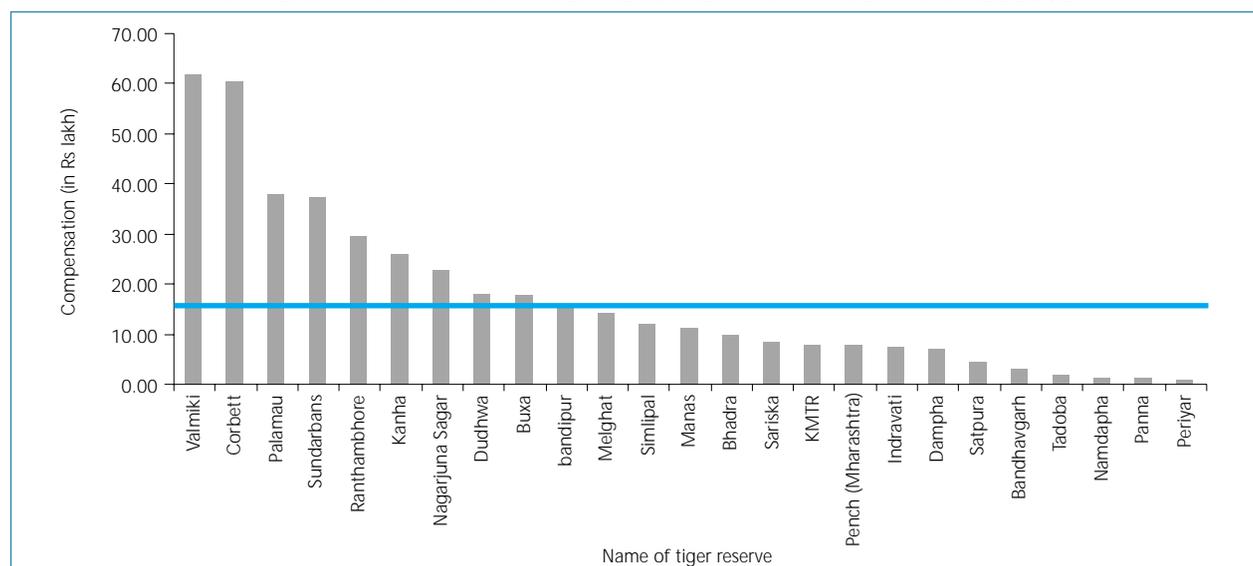
The Project Tiger directorate has collected data on compensation park managers in different reserves have paid up (*see graph: Compensation tiger reserves have paid till 2000*). This data is still being compiled, but what is already evident is that more compensation, relatively, is paid to villages in naxalite-infested park areas than in others. If this is indeed correct, it reveals the necessity, where tensions are higher, of disbursing claims for compensation as fast as possible. It clearly also shows the need to ensure that disbursal of compensation claims is done by park managers themselves, so that hostility is reduced.

It is Corbett, considered a better managed reserve, which has disbursed the largest compensation amounts.

Ecodevelopment

There have been two planned experiments which attempted to resolve tensions along the fringes of parks in India. Both have used the concept of ecodevelopment. The first was called the Forestry Research Education and Extension Project (FREEP). Ecodevelopment was a project component in it and it was implemented in two national parks — the Kalakad-Mundanthurai tiger reserve, Tamil Nadu and the Great Himalayan National Park, Himachal Pradesh. Since 1991, the Union government had tried to run a centrally-funded ecodevelopment project in several protected areas, on a less ambitious scale. The Forestry Research Education and Extension Project began in 1994. It was planned to be the precursor to the much larger, more elaborate and more ambitious India Ecodevelopment Project (IEDP)

COMPENSATION PAID BY TIGER RESERVES FROM INCEPTION TILL 2002



Source: Project Tiger directorate

that began in 1996. Both projects ran with part-funding and part-grants from the World Bank and the Global Environment Facility.

The India Ecodevelopment Project had the following basic objectives:⁹

1. *Improve protected areas management:* This was to be done to strengthen forest department capacities and increase people's participation in park management.
2. *Village eco-development:* This was aimed at reducing negative impacts of 'local people' on parks and vice versa. This asked for participatory microplanning of activities at the village level, to help villages and the forest department decide on a set of reciprocal promises. The forest department would provide alternative livelihoods and the people would commit to help the department in better managing and protecting the forest. Ecodevelopment also meant so-called special programmes, including the 'option' of voluntary relocation and other 'investments' to benefit people and biodiversity.
3. *Generate support for park management and eco-development:* The project also focussed on environmental education and visitor management at the parks. More importantly, it promised funds for impact monitoring and goal-oriented ecological and social science research.

When this project was in preparation in 1991-1992, the Forestry Research Education and Extension Project's eco-development work was taken as a model. The India Ecodevelopment Project took one-and-a-half years, and numerous consultations, to come into being. The Union government hired the Indian Institute of Planning and Administration, New Delhi, to chalk out the 'indicative plan', a proposal submitted by the government to the World Bank to launch formal negotiations, which the department of economic affairs took up with the Bank in 1994.

The project initially began with eight sites in mind. The one to be finally rejected was Simlipal in Orissa, for the state government had relocated villages even as the project was being planned and the Bank did not want to be associated with a site that had relocated people. The government finally selected and proposed seven sites: all but two were tiger reserves — Gir national park and sanctuary in Gujarat and the Nagarhole national park in Karnataka (see map: *The India Ecodevelopment Project*). The latter was later on added to the Bandipur tiger reserve.

What is interesting is the way the project delineated the idea of fringe. Usually, the impact of a fringe radiates out from a park periphery till it

SOURCE OF FUNDS FOR INDIA ECODEVELOPMENT PROJECT

Funding agency	US \$ (million)	Per cent
International Development Agency	28.00	42
GEF Trust	20.00	30
Project beneficiaries	4.59	7
State government	9.06	13
Union government	5.36	8
Total (for 28 reserves)	67.00	100

Source: Anon 1996, Staff Appraisal Report, World Bank, Washington

becomes negligible. But even as the project proponents and the government discussed the limit of the 'fringe', what ultimately came to be understood as a fringe was via a random idea of what was practical rather than what was necessary. So, in the case of the Buxa tiger reserve in West Bengal, for instance, even though the project was aware of 125,601 scheduled tribe people working in the surrounding tea gardens, it finally excluded them.¹⁰ Similarly, in Nagarhole national park in Karnataka, the population in the project area was 72,652 (as per the 1981 census), but the project identified only 66,507 people to work with.¹¹ In other parks, too, people were left out for reasons of 'practicality'.

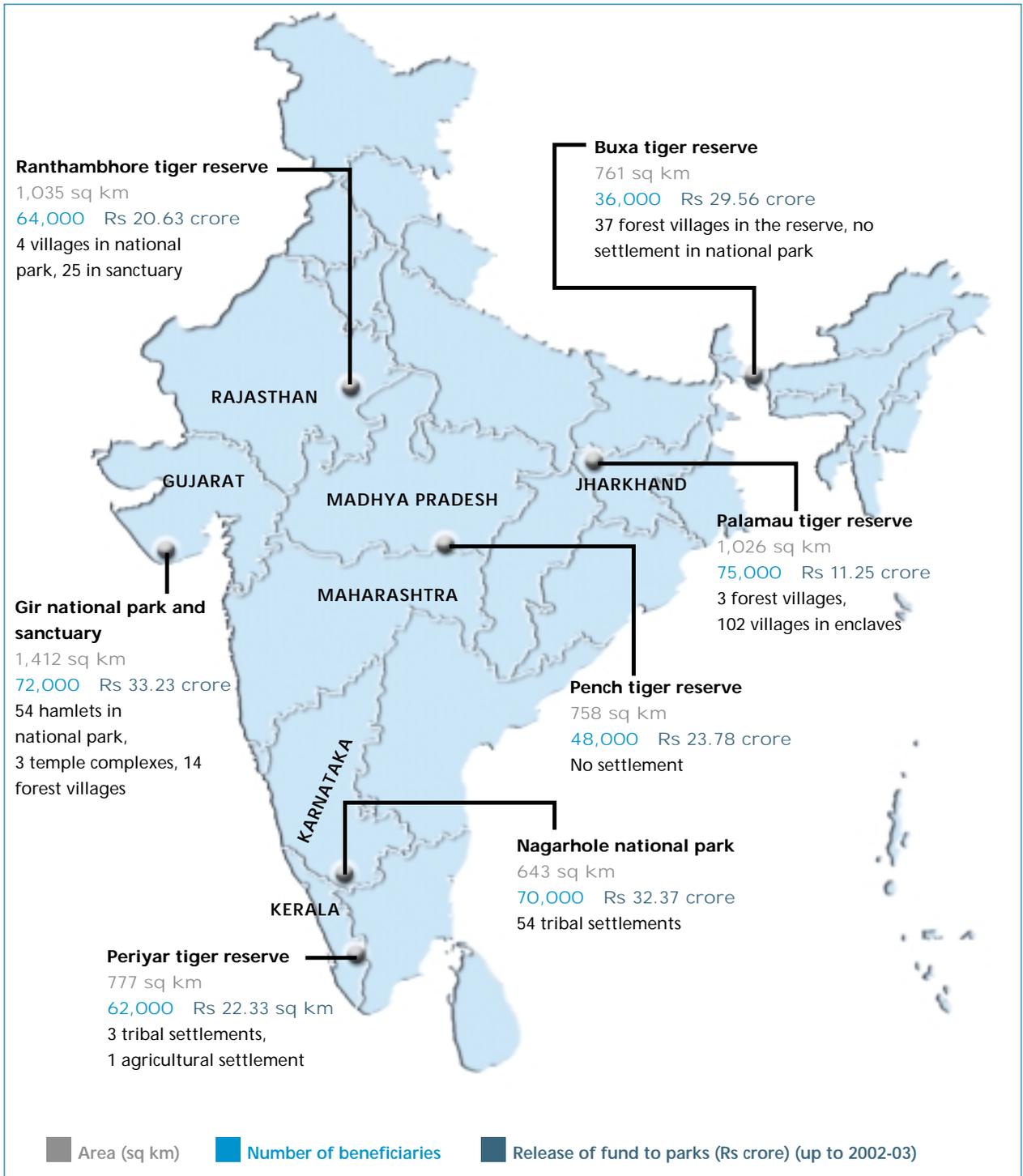
The project's funds came from five primary sources (see table: *Source of funds for India Ecodevelopment Project*). At the same time, 'project beneficiaries', as people were referred to in the project framework, had to contribute as well to the project cost. The idea was to bring in people's stake in the project, and therefore into conservation, by asking them to pitch in roughly seven per cent of what it would cost to launch activities under the project. While this may look minimal as compared to the overall costs, it meant substantial contribution on the part of the people. The money was to be spent under various heads.

In all, the India Ecodevelopment Project decided to consider 3,715 villages spread around the seven parks (see box: *Fringe villages*): it would involve 164,786 families and a population of 823,928. Again, one must emphasise this was not the total population on the fringe of the parks selected as project sites; this was the segment the project decided it could afford to work with.

The idea of eco-development

The key objective of the project was to reduce the negative impacts of 'local people' on protected areas by providing alternative sources of firewood and income.

THE INDIA ECODEVELOPMENT PROJECT SITES



Source: World Bank 2002, aide memoire, Annexure 3 budget and expenditure, November, mimeo

Administratively, the project went on to create a parallel set of village-level bodies called the village ecodevelopment committees. These consist of villagers along with a forester or guard as the officiating secretary. The president of the committee is elected from among the committee members. The

committee was meant to sit with the department and a non-governmental organisation and make a microplan of all activities it would undertake over the project period. In return for the forest department providing alternative livelihoods using project resources, people reciprocally promised to help the

Fringe villages

A profile of the people on the fringe of the forest and inside each park:

Buxa

According to the 1991 census, 15,608 people inhabit forest villages and fixed demand holdings within the protected area. In 1996, according to a World Bank project report, there were 37 forest villages inside the reserve's boundaries, and eight within the park. The report also mentions 44 revenue villages, with a population of 84,648 (1991 census). The project decided to target 36,000 of these for ecodevelopment.

Ranthambhore

In 1996, the national consultants to India Ecodevelopment Project identified 211,695 people within 10 km of the reserve to be included in the project. But the project authorities then reduced the numbers they wanted to work with to 64,000. Before this, Worldwide Fund for Nature-India (1994) had identified 85,000 people, in 85 villages, for possible inclusion in ecodevelopment activities. The project realised that it would also have to deal with major urban settlements near reserve boundaries, as in the cases of Sawai Madhopur, Khandar and Karauli (combined population of 82,000).

Gir

Over 70,000 people were surveyed to be living in the intended project area during the 1981 census. The protected area authorities identified a population of 72,000 within a two-km radius of park boundaries, in 97 revenue villages, for participation in ecodevelopment. Within the park itself, 54 pastoral settlements or 'nesses' inhabited by 2,540 Maldharis; 14 forest villages with a population of 4,500 residents including 239 Siddis,

a scheduled tribe of African origin; and three temple complexes occupied by 65 people, were identified.

Nagarhole

The total population in the project area was 72,652 as per the 1981 census. Within a five-km radius of the boundary, the protected area authorities identified a population of 66,507 in 96 revenue villages, for participation in project activities.

Palamau

Three villages were recorded in the core zone. According to the 1991 census data, 30,795 people, in 102 villages, were located within legally excluded enclaves in the sanctuary's buffer area. Another 89 villages within a five-km radius of the sanctuary were selected to participate in ecodevelopment activities, to give a total population of 75,000 targeted for this project.

Pench

The 1981 census counted 50,000 people in the intended project area (99 revenue villages). Findings from the participatory research carried out in over 10 villages around the national park suggest that 80 per cent of families suffered from varying degrees of poverty, and that most of these families belong to scheduled tribes.

Periyar

While the protected area authorities and the national consultants (Indian Institute of Public Administration) identified a population of 225,000 according to the 1981 census within two km of the reserve for inclusion in the project. The Bank suggested that the project planners need to reduce the target population to a more manageable size. A revised target population of 58,144 in the selected villages within the two-km radius was chosen.

department protect the forest: among other ways, by helping department frontline staff in patrolling; gathering intelligence on poaching; preventing cattle from grazing in parks, and whatever else the forest department suggested. In practice, all these could happen only after mutual agreement among all stakeholders.

Each ecodevelopment committee member was allocated Rs 10,000 against which he or she would then contribute 25 per cent of the costs, or Rs 2,500. The money could then be used to invest in different schemes and productive assets, either at individual levels or at community basis.¹² The money could

then generate, as the World Bank and the government put it, livelihoods reducing the impact of people on the forest.¹³ On its part, the forest department would improve its functioning, and ensure better protection of parks: project funds allowed purchase and construction of infrastructure and better equipment for park officers and staff (computers, boats, Geographical Information Systems software, and vehicles).

Ecodevelopment as envisaged earlier

The idea of ecodevelopment entered conservation discourse in India in 1983, when the Indian Board

for Wildlife (now the National Board for Wildlife) set up the Task Force on Public Support for Wildlife Conservation. Headed by politician Madhavrao Scindia, the task force broke new ground by recommending the creation of ‘Special Areas for Ecodevelopment’. These were to be focus areas on the fringes of parks, where multiple use of forests and land would be allowed. The task force recommended that, in these areas, there would be greater inputs on a per capita basis for development based upon a firm conservation bias.¹⁴ The task force recognised that for the people living in the forested regions (fringes of protected areas) no other employment alternative existed. As people were completely dependent upon agriculture and cattle-raising on marginal lands, the task force recommended that eco-development should involve working on soil conservation, afforestation, forestry practices such as silviculture, improving dry farming techniques, micro-minor irrigation, pasture and fodder development and improved animal husbandry and energy alternatives.

The task force at the time had recognised that a number of line departments would need to be involved in work that was primarily a specialised form of sustainable rural development. But, it recommended that a nodal agency in the then department of environment be created to monitor work. The work at the district level, the task force recommended, should be implemented and coordinated by a body of officers drawn from different departments at that level.

Also, it asked that employment in both wildlife reserves and the Special Areas for Ecodevelopment be preferentially offered to local communities to use their expertise as well as create new vistas of livelihoods for them, based on forests and forested areas.

The 1983 task force also acknowledged this was

also the only way to conserve India’s forests and wildlife, and to keep people involved at all possible levels.

The experience of eco-development

The total cost of the India Ecodevelopment Project over seven years was Rs 288 crore, including the seven per cent (roughly, Rs 20 crore) contribution by people. The project, in turn, was expected to invest Rs 118.72 crore on people-oriented activities (see table: India eco-development project).

But what is interesting to note is the fact that the funds were not spent till very late in the project. This obviously affected the efficacy of the project.

It must be recognised that eco-development brought in as much money in six years for seven tiger reserves as Project Tiger had spent on all the 28 tiger reserves in three decades. The officials and the department obviously were incapable of spending such resources without resorting to quick-fix expenditures towards the end of the project.¹⁵

Implementation

Wherever the decision-making remained unilateral at the behest of the forest department, the attempts quickly failed. Wherever they were implemented in the right spirit, the schemes did pick up the economic baselines of the villages. So, in the case of Nagarhole national park in Karnataka, where large-scale discrepancies in disbursement were also investigated, people landed up with undesired assets they promptly disposed off for easy money. Stoves and inferior quality pots were distributed. People were trained to become nurses and drivers in places which had no hospitals or cars.¹⁶

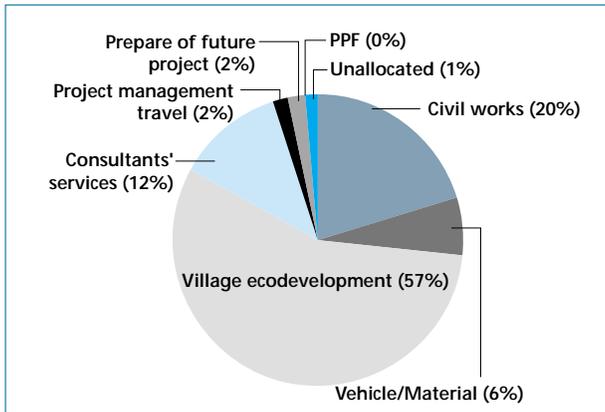
In Buxa tiger reserve, West Bengal, each eco-development committee member was allocated Rs 10,000. But on the forest department’s advice, all

INDIA ECODEVELOPMENT PROJECT
INVESTMENT COST (IDA + GEF + GOI), ACTUAL EXPENDITURE AND BUDGET (RS LAKH)

	Civil works	Vehicle/material	Village ecodev	Consultants' services	Proj mgt travel	Prep of future proj	PPF	Unallocated	Total
Buxa	849.01	139.60	1,610.99	271.84	76.81	-	7.41	-	2,955.66
Gir	415.23	131.20	2,317.56	383.02	34.45	41.64	-	-	3,323.10
Nagarahole	924.02	229.12	1,697.84	297.68	87.68	-	-	-	3,236.34
Palamau	113.67	90.12	835.94	61.81	13.10	10.00	-	-	1,124.64
Pench	430.05	108.89	1,607.82	162.02	29.02	39.73	-	-	2,377.53
Periyar	702.95	286.18	871.58	313.70	28.47	30.00	-	-	2,232.88
Ranthambhore	297.83	107.35	1,474.58	172.55	10.29	-	-	-	2,062.60
PTO	-	58.00	-	538.00	4.00	229.00	4.13	251.18	1,084.31
Total	3,732.76	1,150.46	10,416.31	2,200.62	283.82	350.37	11.54	251.18	18,397.06

Source: World Bank 2002, aide memoire, Annexure 3, budget and expenditures, November, mimeo

PERCENTAGE BREAK-UP OF FUNDS SPENT AND BUDGETED TILL 2003-04



Source: World Bank 2002, aid memoire, November 2003, Annexure 3, Budget and Expenditure, mimeo

PROJECT COST SUMMARY

	Total (US \$'000)	Percentage total base costs
Improved PA management	13,911.7	22
Village ecodevelopment	33,825.5	55
Develop effective and extensive support for ecodevelopment	4,713.5	8
Project management	5,276.8	9
Prepare future biodiversity projects	2,332.6	4
Reimbursement of PPF	2,000.0	3
Tota baseline costs	62,060.2	100
Physical contingencies	1,781.5	3
Price contingencies	3,158.3	—
Total project costs	67,000.0	108

Source: Anon 1996, Staff Appraisal Report, World Bank, Washington

the villages here decided to purchase community-level assets. The villages invested in tractors, pig and chicken farms, grain sheds and shredders. But in many villages, the assets came to naught, for they either created rifts or led to corrupt practices.

These villages suffered from critical defects in project planning and implementation, which created a new delivery mechanism built around the existing structures of the forest department. In general, ecodevelopment committees were to be set up after making villages aware about the ecodevelopment project. Non-governmental organisations were to create awareness and then frame micro-plans in which villages were on equal footing with the forest department. In Buxa, for instance, the first attempt at setting up ecodevelopment committees failed because the non-governmental organisations the department hired were new to this kind of

association. The department lost time: this shows up in the number of ecodevelopment committees created in each of the five years of the project. The project picked up only in the third and the fourth year, by which time it was about to close (see graph: *Forced to spend, ecodevelopment project splurges towards project closure*).

Lack of capacity to spend

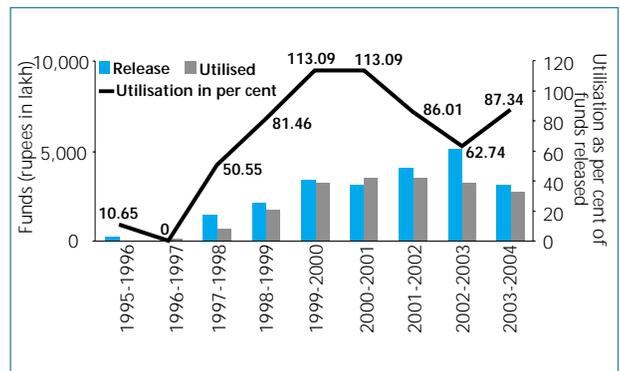
Other sites suffered in a similar manner. A World Bank *Issue Paper* of April 10, 2000 — internally prepared just before the official mid-term review — recorded that a mere 20 per cent of the funds had been disbursed, while 58 per cent of the entire project time had lapsed. As far as unutilised funds lying with state authorities was concerned, a mere 15 per cent of the funds had been used up. As a result, there was enormous pressure to utilise funds, which in turn led to a scramble to complete projects.¹⁷

For instance, in Ranthambhore, the total sanctioned amount at the beginning of the project was Rs 38.38 crore, more than the total money spent on the park in its 30-year history. But the park's authorities were unable to start the project, so the total allocation was reduced to Rs 20.08 crore, of which the park finally spent Rs 18.75 crore. The money was spent in a rush in the last five years of the project period of eight years, when biogas plants were made, checkdams constructed and families were distributed LPG cylinders to wean them away from firewood use.

Livelihoods versus small assets

The biggest debate that arose out of the India Ecodevelopment Project was what to invest in. On paper, everyone was consulted and micro-plans were prepared, but the people in many places were not even aware of the possibilities. The project had

FORCED TO SPEND, ECODEVELOPMENT PROJECT SPLURGES TOWARDS PROJECT CLOSURE



Source: Anon 2004, Project Tiger office, Union ministry of environment and forests, New Delhi, mimeo

suggested certain indicative activities (see table: *Indicative activities under IEDP*). Evaluations of the project have reported that the project focused on purchasing assets that would supposedly wean people away from the forests. The project did not realise that simply purchasing tools or machines not dependent directly on the forest for inputs did not mean people would take to them, especially if they could not afford to use them. There were cases of people receiving LPG gas connections they promptly sold off to the market.

Where the project did invest in basics, results showed up. Thus, biogas plants set up in Kalakad-Mundanthurai tiger reserve in Tamil Nadu helped reduce locals' dependence on firewood. But where biogas plants were built in water-scarce areas, the strategy failed. Though the forest department was unable to create markets for products they had helped people grow in Periyar tiger reserve in Kerala, they were able to reduce the burden of debt on people by paying off their loans. In Buxa tiger reserve in West Bengal, villagers who once fought with forest officials over crop depredation, began cooperating with the department once they saw crop compensations coming in relatively more timely.

The work boomeranged wherever the project worked in exclusion. In Ranthambhore, for instance, a wall was built to seclude villagers and prevent them from grazing livestock in the park. Animosity rose and friction led to violence. The wall was broken down at several places and on July 21, 2000, the forest guards even resorted to firing 17 rounds during a clash with 10 villagers of Uliana, who were found grazing a herd of some 150 buffaloes in the core area of the park. The conflicts only got deeper.¹⁸

Line departments vs forest department

The key weakness of the project was not what it did, but how it did it. The project created parallel institutions — the ecodevelopment committees — in the villages. It did not work with existing delivery mechanisms in the village, the *panchayats* and other line departments of programme delivery. This meant the forest department had to invest personnel to create a parallel structure for village development. Also, a traditionally antagonistic forest department had to rebuild its relationships with villagers. Where senior forest officers took the lead and spent time in the field, things were different. Kerala's Periyar tiger reserve and Pench tiger reserve in Madhya Pradesh under the India Ecodevelopment Project, and Tamil Nadu's Kalakad-Munduntharai tiger reserve under FREEP, are considered the better instances of ecodevelopment programmes.

Because of this, some experts believe that turning the forest department away from its main duty — protection — and involving it in what are

INDICATIVE ACTIVITIES UNDER IEDP

Crop protection measures	Construction of stone walls, energised fences etc
Fuelwood, fodder and joint forestry management	Small-scale village-based plots of plantations and fodder
Construction of water harvesting structures and irrigation systems	Micro-irrigation schemes, checkdams, tube wells,
Small-scale crop and agriculture activities	Improved planting stock, agronomic practices, credit and marketing to improve productivity
Small-scale farm-based and non-farm based alternative income generation	Bee keeping, sericulture, lac production, tailoring, improving livestock
Biomass substitution	Improved stoves, biogas plants, solar cookers

Source: Anon 1996, *India Ecodevelopment Project, Project Report 1996*, World Bank

standard rural development line department functions is not a good idea. Understaffed already, and untrained to manage people, the forest department should be left to do its core function. Otherwise, firstly, the forest suffers as the role of the protector changes character. Secondly, forest officials not trained in general to handle such situations find it difficult to implement projects. Conservation scientist Ullas Karanth, in his suggestions to the Tiger Task Force, says, "There is ample evidence that the original mission-focus of the forest department to protect tigers and their habitats single-mindedly (which was evident between 1970-1990) has been almost lost. And this is the single biggest cause of collapse of protection around most of India's wildlife areas and tiger reserves. One of the most critical needs now is to delink all the ongoing and proposed 'ecodevelopment projects' (which are essentially rural development activities) from the ambit of forest department and entrust it to other existing rural development agencies or create a specialised agency for this purpose. The forest departments should refocus their attention on their core task: protecting nature reserves."¹⁹

But there is also the counter-view that involving the forest department is essential as it builds the relationship of the people with the park. Such involvement helps train the department to rework its entire forestry strategy. Also, association between people and the department helps reduce antagonism. Very often, it has been seen that the goodwill generated by the department by creating community assets has been used to garner support from the people. This can only be done if the developmental activities flow through the department. It can help people realise that the benefits and developmental gains they are making, are due to the existence of

forests. A disconnect between the two could lead to development without any rewards being ploughed back to the forests.

The options for the future

Vishwas Sawarkar, member of the Expert Committee for Monitoring and Evaluation of Tiger Reserves, set up by the Union government, states it well: "It is... time now to think and reorder and as necessary combine our traditional and sectoral rural development programmes in at least the forested rural sector on the lines of the ecodevelopment programme. Ecodevelopment conforms to all objectives of the traditional rural development and much more in the sense that it does not believe in the popular adage 'one size fits all'; it does not import urban perceptions of development; it has the essential flexibility to mould itself to suit the crucial site specific needs; it is developed with full participation of people concerned."²⁰

The forests in the landscape

The problem is that the forests in the vicinity of settlements are degraded: this pushes the people towards the protected area. It is also clear that people are highly dependent on forests for meeting their subsistence needs. The lack of irrigation facilities results in low fodder productivity, which in turn puts pressure on existing common resources. The productivity of forests for foraging declines; people have to keep more and more livestock to survive. The pressure on the land increases, it degrades further.

In such a situation, what clearly needs to be done is to improve the productivity of forests and pasture lands in the vicinity of the reserves. If people live within a forest-dependent economy, then it is imperative to evolve policies for forest-development in these areas.

It has been estimated that the rural demand for fuelwood in 1996 was 152 million tonne and it will rise to 187 million tonne by 2006. As against this, the legal supply of fuelwood was a mere 46 million tonne, according to a 1995 study²¹. The case for timber is similar. The rural sector uptakes almost 70 per cent of the domestic consumption of timber but, as against a demand for 54.4 million cubic meters in 1996, the forests could only supply 12 million cubic metres.²² The current supply of fodder from all possible sources, including forests, pasture lands and agricultural fields, is estimated to be 434 million tonne as compared to an estimated demand of 992 million tonne in 1990.²³ The gap for all the three — fodder, timber and firewood — is ever widening and is leading to degradation of growing stock.

It is critical that the productivity of our forests must be increased. Currently, India's growing stock

of forest has a productivity at a dismally low level of 0.7 cubic metre per ha per year as against a global average of 2.1 cubic metre per ha per year.²⁴ It is clear that unless we can do this and generate more biomass to meet the needs of people, the pressure on existing forests outside and inside protected areas will grow.

According to the report, 287,769 sq km of land is classified as open forests. The total area of tiger reserves in the country is 37,760 sq km. In other words, an area which is over eight times bigger is potentially available for meeting fuel and fodder needs.²⁵

It is also clear that all tiger reserves are located in regions which are forested. But as explained earlier, these lands are also populated by the poorest in this country. The challenge then is to find ways of improving productivity of these lands, in situations of intense use by extremely poor people.

The practice of joint forest management

Joint forest management was initiated in the early 1990s to create reciprocal rights over forests between the forest department and people. Under the programme, people were given rights over usufruct — grass and minor forest produce — in return for protection on degraded forest land. In 2000, the guidelines for the programme were extended to cover forest land which was classified as dense forest (canopy cover of over 40 per cent). The programme was also institutionalised: forest development agencies were created in states as federations of the joint forest management committees.

According to the *Forests and Wildlife Statistics, India 2004* report of the Union ministry of environment and forests the programme covers more than 150,000 forest fringe villages and more than 2,500 forest villages.²⁶ But unfortunately, the gains of this programme are not being realised.

The problems are partly financial and partly institutional.

In part, the investment in afforestation is low; the initiative also remains poorly coordinated. The outlay for the National Afforestation Programme is over Rs 1,100 crore over the five years of the 10th Five Year Plan. In addition, there is an allocation for watershed programmes. Twenty per cent of rural development funds are expected to be spent on afforestation as well. The problem is the coordination required to ensure that all these funds are spent through the village joint forest management committees in forest land.²⁷

The financial problem is related in part to the institutional hassles that continue to trouble this scheme. The key problem with institutions created to manage joint forest management remains their inability to involve villagers in managing forests. The scheme is still locked into the paradigm of defining

Community reserves

A step was taken in this direction by creating two special categories of protected areas — community reserves and conservation reserves during the amendment to the Wildlife (Protection) Act, 1972 in 2003. But it has been pointed out by experts like Ashish Kothari of Kalpvriksh that the reserves meant to enshrine community-protected areas with legal teeth, do not practically work out at present because of lack of clarity on several counts.

The two protected areas were brought into force besides the categories of national parks and sanctuaries which have existed since the inception of the Act. The Act says:

36c. (1) The State Government may, where the community or an individual has volunteered to conserve wild life and its habitat, declare any private or community land not comprised within a National Park, sanctuary or a conservation reserve, as a community reserve, for protecting fauna, flora and traditional or cultural conservation values and practices.

The key idea behind this categorisation is that people should traditionally protect the area and the land should be either private land or community owned. The other new category is the conservation reserve. The amendment to the law lays down:

"36A. (1) The State Government may, after having consultations with the local communities, declare any area owned by the Government, particularly the areas adjacent to National Parks and sanctuaries and those areas which link one protected area with another, as a conservation reserve for protecting landscapes, seascapes, flora and fauna and their habitat.

The management of the community reserve gets complicated once any land is declared as one. After the issue of notification declaring the land, no

change in the land use pattern can be made within the community reserve, except with a permission of its community reserve management committee and thereafter, the approval of the same by the state government.

Critics like Kothari have pointed out that the fact that the existing parks and sanctuaries cannot be converted into these categories limits the potential of the category of protected area.²⁸ This could have helped reduce tensions in many parks where people's rights and control have been curtailed. Another critical failure of the new category, they point out, is that the law does not consider the fact that the people also conserve forests on government lands and those too should be turned into community reserves.

The management of these reserves under the amendments rests with a committee, which shall consist of five representatives nominated by the village *panchayat* (village council) or where such *panchayat* does not exist, of the members of the *gram sabha* (village assembly) and one representative of the state forest or wildlife department under whose jurisdiction the community reserve is located. This structuring is too rigid and limits the flexibility with which most community-preserved areas work, like the sacred groves across the world or the *van* and *lath panchayats* of Uttaranchal. Most of these survive because they have found innovative institutions to counter the day-to-day politics of development. These could get stifled if the straight-jacket regulations of the Act are superimposed.

The imposition of restrictions by the Supreme Court on removal of any products from forests has meant that no community which has practised a certain resource use regime, will now want to come under the ban by letting its forest be declared as a community or conservation reserve. *De facto*, the two categories now stand defunct. Drafted in the proper fashion they hold the potential to change how people collaborate with the government in conservation, while giving the government the lead on sustainable use regimes.

people's participation as 'you participate in my programme'. It has been unable to deepen the commitment of people to forest protection, because it is designed to still keep control over decision-making in the hands of the department, whereas the experience of forestry teaches that people need to be centrally involved in the management of forest land, in order to increase productivity.

There is yet another problem. The fact is that even after 15 years of joint forest management,

people sharing the benefits of the produce have been limited to a few states and few areas. It is a fact that state governments require funds for establishment costs. Over the past some years, forest revenues have gone down because of conservation initiatives, but establishment costs have continued to increase. The standing forests of the joint forest management areas are needed to pay for establishment costs. It is because of this, in most states, involved calculations to estimate the 'net' value of the standing timber that

will be shared with the villages are still being done. The problem here is that confidence in the programme erodes when people realise that after protected the lands in promise of benefits, they get nothing; people feel cheated.

Mohit Gera, senior forest officer, writes of such problems in Jammu and Kashmir: “One of the major impediments have been the cumbersome sharing mechanism and the lower percentage of share earmarked for the village forest committees (the nodal village agencies for joint forest management) Some of the other provisions such as constitution of committees at the range level, procedures provided for taking up community land and its development, and the lack of rules regarding utilisation of village funds have always been major obstacles to the success of the programme.”²⁹

The government now needs to look at how joint forest management and community forestry in fringe

forests can be integrated to work both for people as well as for wildlife. Joint forest management conceptually provides a perfect framework but has been maimed by several limitations. While in some states provisions have been made for legal agreements between forest agencies and communities, in most, collaboration remains *ad-hoc*, with no statutory guidelines. It works then on the principle of committed forest officials, who can use their influence for the advantage of people. But once they go, the scheme falters again.

Clearly, if the basic idea of joint forest management has been reciprocity, the only way it can work is to create a contract that is legally binding where people can then argue to get what the forest department has promised against them promising to do certain activities beneficial to the forests. Without the forests outside, the fate of the tigers cannot be secured.

Recommendations

1. The tiger’s habitat cannot be secured unless we secure the future of the millions who live on the fringe. Currently, there is little information about the numbers or their impact on the reserves, so that it can be used for the reserve’s management. These studies should preferably be carried out on a GIS-based platform and put out in the public domain along with all empirical data so that other institutions and researchers can then build on this information. It should be part of the work of the Project Tiger directorate to encourage and undertake research on people-wildlife interactions within and on the fringe of the reserves.
2. An important area of conflict between people and protected areas is the problem of compensation for damage caused to livestock, crop or life by animals. The scattered data that exists shows that the compensation paid today is negligible in many cases. And this happens when the forest department does not even pay for the opportunity cost of protection to the people. Naturally this issue very often leads to antagonism among people towards the tiger reserves and their administrations. It is imperative that states review the provisions and procedures for compensation for human life, livestock and crop damage. It has been seen that half the battle for the forest department in winning the hearts of the people lies in not only adequate compensation but in timeliness too. As compensation falls in the hands under the purview of the field directors the timely payment of compensation to people must be one of the criteria that the park management is measured for during the evaluation of the reserves and their ranking.
3. Compensation must be paid for crop damage as well. In addition, compensation must be paid to families who continue to live within the reserves.
4. There is no doubt that much more will need to be done in the land outside the tiger reserve. The question is how should this be done? It is here that planners must learn from the experience of the recently concluded ecodevelopment project in the seven reserves. The key learning from this project are;
 - a. The administrative machinery does not have the capacity to handle such large infusions of funds over a short period. In this case, these reserves received roughly Rs 20-

Rs 30 crore each, which is equivalent to the entire money that has been given to them as Central assistance since their inception.

b. The quantum of funds that are allocated on such project cannot be sustained after the project is completed. This leads to huge problems of expectations within the local communities, unless the project has been successful in creating self reliance and cyclic-type development.

c. The concept of the programme remains flawed, unless it can find ways to enjoin people to the protection of reserves or find alternatives sources for the forest and grazing resources they require.

The ecodevelopment project instead worked on the premise that it had to 'substitute' (not provide) forest produce. So, it distributed LPG cylinders to substitute firewood, it built biogas plants to substitute firewood and provided alternative employment opportunities outside the forest-dependent lifestyles of people. So it looked for options in tailoring and poultry.

This is because this project, like most governmental schemes, did not incorporate the forest-livestock economy of people and find ways of improving its productivity. It is for this reason, the LPG cylinders distributed under the project were sold; biogas plants could not work because people did not have livestock or water, critical to run the plants. The result is that even after huge funds have been invested, in most cases, the impact on the habitat is minimal.

In other words, if the project has to succeed, it must be built on the premise that it has to secure people's livelihoods in the forest-grazing-agriculture economy of their subsistence. This can only be done if the productivity of the forest and grazing lands is improved and there is investment in water facilities, to increase productivity.

The project can also succeed if it works to enjoin people's livelihoods with the protected park. In other words, it works to increase the sustainability of the use of resources within the park and also enjoins people in sharing the benefits that the park provides.

d. The project must also improve its delivery systems. The problem with ecodevelopment is that it does not work with the existing mechanisms of development in the village. It creates its own – committees and user groups – for programme management. This works well only where there is an existing capacity to negotiate with project authorities, not otherwise.

The Tiger Task Force understands that the government is currently working on the next phase of an externally aided ecodevelopment project. It is important the all the issues listed above are carefully considered and incorporated into the plan. The country cannot afford such expensive experiments, unless they are carefully crafted and skillfully executed.

5. What is clear also is that ecodevelopment, as an approach, remains too fragmented and expensive for long term change. The first phase of the project, which invested funds equivalent to the 30-year spending of Project Tiger in seven years over seven sites, was considered too little for all the villages in the fringe. The fact is that benefits will have to reach all the villages and therefore, strategies will have to be revised accordingly to ensure that this can be done.

6. The most important opportunity lies in targeting a revised joint forest management programme in the vicinity of the reserves. It is evident that forests in these areas, habitats of people and tigers, need to be regenerated. But it is also clear that the current joint forest management programme, with its forest development agencies, remains too narrow and

lacks the participation from people. If this programme can be revamped so that people living in the fringes can be given management decisions and rights over forest lands, it will improve the productivity of the resources as well. The answer within the reserve will lie in our abilities to rebuild the resources outside.

7. The only way to ensure that the forest department can garner the resources to invest in fringe villages is for the government to increase the per capita expenditure that it makes on the fringe of the tiger reserves. In fact, the government must look at investments in the tiger reserves in tandem with the money it should be spending on the fringe communities and the allocations should be made in accordance. Again, it must be emphasised these investments can turn productive if and only if they are made in tune with the natural resource regimes of the areas and not by investing in short-term assets based alternate livelihoods. It can also only work if people are involved in the management of the natural resources. The additional funds must be spent as a reciprocal arrangement with the local villagers — increased investment in their resources to build collaborative and protective fences around the reserves.

3.10 The tourism agenda

The Indian tiger is a tourism attraction. But tourism is both an opportunity and threat for the tiger. Tourism is an important economic activity. It is also an important educational activity. It can link tigers to a wider constituency and build conservation support for it. It can also bring monetary and employment benefits to local people and secure their interest in the tiger's future.

But done badly, it can lead to further stress on the tiger's habitat. It can destroy the surrounding area by overusing resources such as water and put municipal services like garbage disposal and sewage under stress. It can also lead to the alienation of local people, who see the benefits of this economic activity exported out of their region. The issue, then, is how tourism can be shaped so that it brings benefits to the tiger, its habitat and to the people who share this space.

Today, tiger reserves are important tourist destinations and the more prominent ones attract substantial numbers of visitors. Visitations to reserves are also as varied as tourism in general across the country — from backpackers to high-end tourists, serious bird-enthusiasts to neighborhood weekend visitors.

The Tiger Task Force, through the office of the Project Tiger, has compiled statistics from most tiger reserves to attain an overview of the existing tourism volume and the potential.

Information from 22 of the 28 tiger reserves

shows that a total of 1.29 million people visited the reserves in 2004-05. This is not including pilgrim visitors: many tiger reserves, such as Periyar in Kerala and Ranthambhore and Sariska in Rajasthan, have important shrines located within their boundaries (see table: *Top 10 tourist sites*).

From this information, it can be computed that on an average each tiger reserve receives 58,456 tourists in a year. But clearly, there are some that, because of better professional promotion or infrastructure, get many more tourists than others. In 2003-2004, Periyar received the highest number of tourists at 415,373; Satpura (Madhya Pradesh) received 162,785; and Ranthambhore, 111,375.

But even a naxalism-affected reserve like Palamau had more than 10,000 tourists. This goes to show the potential the reserves have if promoted well as eco-tourism destinations.¹

The revenues

It is difficult to compile the revenue earned by each park from its gate receipts.

The gate charges in most cases range between a meagre Rs 25 to Rs 50 at the most. The issue also is to see what the potential would be if the price to catch a glimpse of the tiger was increased. Clearly, the idea would not be to take the tiger out of the reach of common Indians, but it is also important to realise that people value the experience and will be prepared to pay more, if it benefits the tiger and people.

Therefore, if a simple extrapolation is made of the average for all the reserves, by calculating the gate entries fees at the current level of Rs 25 or an increased level of Rs 100, the potential revenue a tiger reserve earns increases from Rs 4 crore to Rs 16 crore.

What is known is that Periyar, with 415,373 tourists in 2004-2005 earned Rs 1.80 crore from its gate receipts and other tourist activities. In comparison, the total grant it receives from the Central government is roughly the same — Rs 2 crore annually. Ranthambhore received 96,000 visitors in 2003-2004, which increased to 111,375 by the next season of 2004-2005. In 2003-2004, its earnings were Rs 1.67 crore, which would have increased in the following year. Sariska, with roughly 50,000 visitors last year (2004-2005), earned Rs 28 lakh. Kanha, another important tourist destination, had 70,464 visitors that year (2004-2005), earning roughly Rs 52 lakh.²

TOP 10 TOURIST SITES

Reserve	Numbers of tourists (2004-05)	Revenue (Rs lakh)
Panna	36,404	
Sariska	49,451	28
Bandipur	51,986	
Sundarbans	60,000	
Kanha	70,464	52
Kalakad-Mundanthurai	70,807	
Corbett	95,220	
Ranthambhore	111,375	167*
Satpura	162,785	
Periyar	415,373	180

Source: Project Tiger directorate: *2003-2004

In other words, the revenue and the potential certainly exist. But the question is: does this money benefit the park? Or the local people?

Reinvesting tourism receipts

The problem is that, in most cases, all the gate receipts go to the state exchequer and not to the reserve. There is, in fact, little talk of investing back the funds generated from gate receipts to the reserve. The only state where this is done across all sanctuaries and national parks is Madhya Pradesh, where all gate receipts are necessarily reinvested in reserve development funds, staff welfare and local community needs.

Taking a lesson from this, Ranthambhore was the first to introduce a cess which was levied on each ticket so that at least part of the gate receipts could be reinvested into the park. Over the last few years, it was reported to the Task Force that a total of Rs 6 crore has been collected. But unfortunately, the state exchequer has taken the decision to consider this 'ecological cess' as part of the normal gate receipts, and so the money has gone to the state and not the park.²

The Periyar tiger reserve has learnt from Ranthambhore. Since November 2004, it has started charging an ecodevelopment surcharge on each entry ticket — at the rate of Rs 10 for Indians and Rs 100 for foreigners. The collected money is invested into the Periyar Foundation, an organisation registered under the Societies Registration Act. The park managers aim to use this money to continue work on ecodevelopment in the neighbouring villages, staff welfare and research activities.

In this way, in just one year (2002-2005) Periyar earned back Rs 42.47 lakh from the surcharge on entry tickets³.

Guidelines ask for low-key ventures

The flip side to all this is that tourism in tiger reserves needs to be extremely well managed to ensure that the direct impact on the habitats due to tourism is mitigated. The chain of command as well as management of tourism in tiger reserves has suffered from multiple governing institutions as well as confusion in policy and regulations so far. Project Tiger has brought out a set of guidelines to regulate wildlife tourism in tiger reserves. The document, with a list of dos and don'ts, has laid down the basic principles well.

Besides other things, it requires that:

- Each protected area must have its own tourism plan that should indicate the area open to tourism in the reserves.

- Tourism activities should not be allowed in the core of the national parks and the tiger reserves.
- There should be a ceiling on the number of visitors allowed to enter at any time in a given part of the reserve. The ceiling has to be decided by the field director of the park keeping in mind the carrying capacity of the habitat and the availability of facilities, transport and guides.
- Rates for use of cameras for photography inside the protected areas should be drawn up in a rational manner so that it does not discourage wildlife enthusiasts, but the use of camera for commercial photography should be rated much higher.
- All tourism structures that come up in the fringe of the protected areas or the periphery should blend in with the surroundings.
- Wildlife tourism should not get relegated to purely high-end exclusive tourism.

The limitation in this sphere is that these guidelines remain guidelines and are difficult to implement on the surrounding land, which remains outside the purview of the forest/park administration. The fact is also that much of the 'business' of wildlife tourism is organised, managed and run from outside the parks and sanctuaries over which the forest department has little or almost no control.

The National Wildlife Action Plan (2002-2016) says that "ecotourism must primarily involve and benefit local communities and the first benefits of tourism activities should flow to the local people". The plan goes on to say that these benefits should be "in the form of employment opportunities and support for *panchayat* programmes such as watershed restoration, afforestation, health schemes and others". There should be strict energy, water conservation and waste disposal guidelines for existing and new facilities, says the plan.⁴

Despite these guidelines and overall policy, the business of tourism in and around each protected area has been practised differently in different reserves.

The policy documents and guidelines have been in place for a while but they have, till date, worked in the absence of sound information on the size of the wildlife tourism business and the present fashion in which it operates.

Managing tourist activity

While tourism itself remains unchecked, so does the impact of tourism on the reserves. The most basic data that should be calculated for each park is the carrying capacity of the parks and the delineation zones where tourism is permitted and where it is banned. Project Tiger, in 2003, issued guidelines for calculating the

carrying capacity of a reserve. Carrying capacity is a quantitative parameter that takes into account the road length available to move on, the periods for which the park is open to tourists, the disturbance caused by traffic on the roads and the managerial capacity of the park and then calculates how much tourist traffic the park can bear without damage being caused.

Similar versions of the carrying capacity model can easily be computed for each park as the basic framework for managing numbers, vehicles and pressure of tourism. The Project Tiger directorate clearly states the following as a guide to regulating traffic:

- In place of open Gypsy cars and smaller vehicles, medium-sized buses, with a closed body and sliding windows, may be used for park excursions. This will minimise the risk of close encounters with wild animals, apart from reducing the number of vehicles inside the park at any point in time.
- A minimum mandatory distance of at least 500 metres should be maintained between two vehicles plying on the same road.
- Tourist vehicles, while spotting a tiger or any other wild animal, should maintain a minimum mandatory distance of 30 metres.
- The route guides should be more professionally trained and penalty should be imposed on visitors in case they violate park rules.
- Since a certain amount of risk is always involved in jungle excursions despite all precautions, a standardised 'Indemnity Bond' may also be prescribed, indemnifying the park authorities from litigation/arbitration which may arise on account of accidents suffered by tourists during park rounds.
- Under no circumstances should tourist excursions be allowed during the night.
- No tourist facilities should be created in the 'core zone' of a tiger reserve.⁵

Once this baseline is set, tourism requires regular impact monitoring to ensure that it does not impinge on the park and its habitat. This too, at present, is not undertaken in most reserves. The only thing most parks do is to demarcate tourist zones and regulate the number of entries (in some cases).

Outside the park

While the forest department is empowered to manage tourism inside the park boundaries, it is handicapped in managing the disturbance or problems caused by hotels or tourist businesses outside the park. As the department is not geared to run tourist facilities also, numerous big and small hotels have mushroomed at the periphery or vicinity

of the big parks, and many more are coming up. The land outside the park is owned by villagers or is revenue land, which is acquired by hotels and resorts to build at the park's edge.

There is no regulation currently to control the growth of these tourist facilities. The problem is as follows:

- a. The hotels and resorts operate without any building code of environmental standards. These combine to put pressure on the already stressed ecology — using water, disposing waste and garbage. In many cases the hotels have been built on grazing lands of villagers, which further puts stress on their livestock and, in turn, pressure on the resources of the reserves.
- b. The hotels and resorts do not contribute to the local economy, effectively doing little to take the pressure off the people's need to use the resources of the reserves. Even if some employment is provided, in most cases the largest benefit of revenues is exported out of the local environment. It does little for conservation, even though the business is based on conservation.
- c. The problem is that this furthers the sense of injustice and alienation of local people as they see rich tourists entering areas they are not allowed into. And they see rich hoteliers make money that they can't.
- d. There is no control on the number of hotels and resorts that are coming up around the reserves and, therefore, if the growth exceeds the carrying capacity of the reserve, there is pressure to open out the larger areas of the reserve for tourism or there is more pressure on the existing areas, which, in turn, is detrimental to wild animals. This is what is happening in Ranthambhore, for instance.

The analysis of the character and volume of tourism in Ranthambhore and Periyar tiger reserves presents two completely contrary models of wildlife and eco-tourism. A study of both helps to review the generic and specific problems and solutions that tourists bring to protected areas.

Ranthambhore Tiger Reserve

There is a lot to learn from Ranthambhore about how tourism can be a potentially viable economic activity; and how tourism, if managed badly, can be a potentially devastating activity for ecology and people. This is a reserve visitors throng to, from everywhere. The thrill is to see the tiger, often from a close distance. The data provided by the park authorities show that its visitors are increasing each

year, reaching 111,000 last season. The reserve has a total area of 1,300 sq km, with 20 per cent under the core area.

Ranthambhore, as any other park in India, charges entry fee and camera charges. The park management restricts the number of entries into the designated tourism zone. In September 2004, the regulation of activities relating to entry of tourists and vehicles was handed over to the state department of tourism and the Rajasthan Tourism Development Corporation. This was allegedly done because of the reported instances of corruption and mishandling by the forest department of this high-profile and lucrative tourist trade.

However, as the Wildlife (Protection) Act, 1972 restricts entry into a protected area without the permission of the chief wildlife warden or an authorised officer, the order issued by the state government (no F11(8) Forests/2001) says the entry will be subject to the permits granted by the forest department. The number of vehicles allowed entry is restricted to 35, which make two trips each day, carrying a maximum of 462 people in each journey. The booking of tourists and vehicles is managed by the tourist department. The routes that the tourist vehicle will take is handed out by the tourist department based on the information provided in advance by the park authorities. The tourist department has to ensure that the routes are allotted to vehicles in such a manner that there is no overcrowding or convergence on any one route, says this order. In other words, the regulation is designed for good management.⁶

Tourism inside the park

Several submissions were made to the Tiger Task Force during its visit to the Ranthambhore tiger reserve about the total mismanagement of tourist activity in the area, leading to corruption, nepotism and destructive impacts on the park itself. The park authorities and the staff of the tiger reserve, who met the Task Force, informed it of their problems in managing this trade, which was now not under their direct control. They explained that even though, technically, they still controlled the entry numbers of vehicles into the park, all other activities were out of bounds for them.

It is also evident that the rules of booking for a visit to the park have been made so convoluted in Ranthambhore that they are amenable to corruption and underhand dealings. The Task Force was told that numerous problems exist in the way bookings are handled, as a result of which even hoteliers suffer. For instance, under the rules, bookings for park visits need to be made in advance — at times the period of advance can stretch to as much as 60 days. All the vehicles going in are then designated fixed

routes to travel on. But it has now come to light that vehicles jump the queue or choose specific routes that have greater probability of sightings. A recent study by a local non-governmental organisation says that the routes are congested and overused. The fact is that tourist operators only want to traverse routes that have a higher probability of a tiger sighting.⁷ As a result, as it was reported to the Task Force, in the last season (2004-2005) vehicles literally converged for hours in areas where tigers were sighted, often creating artificial barricades and so restricting their movement for hours. A maximum number of vehicles used the few “tiger sighting routes”, their drivers throwing all rules out of the window.

Such poorly managed tourism is beginning to impact the reserve, say park authorities. They explain they are finding that the reserve’s tigers are moving out. This, they explain, is because of the intensive human pressure on the animal’s habitat. The Project Tiger directorate has also brought this issue to the attention of the government of Rajasthan.

It is difficult for the Task Force to verify this assertion but, clearly, the latest tiger estimation in Ranthambhore needs to be carefully evaluated in the light of this growing impact of human disturbance on the tiger’s habitat. Ranthambhore highlights whether the tourism department, instead of the forest department, should run the tourism business in the park. And what the management regimes and practices should be that will make tourism sustainable and not destructive.

Tourism outside the park

In Ranthambhore tourism is privately operated. There are only two state government-run tourist rest houses. The rest of the industry — hotels, vehicles, guides — are in the hands of private entities. The list of hotels collated by the park authorities shows that there are 33 hotels in Ranthambhore, of which 26 hotels are prominent. The clientele of these hotels is solely based on the reserve, as there is no other alternative tourism attraction point. All these are high-end premium hotels providing exclusive wildlife experience. Therefore their business is directly linked with the infrastructure management and character of tourism in the park.

The costliest hotel around the reserve is Aman-e-Khas, owned by a multinational hotel chain, with a room tariff of Rs 30,000 a night. The Oberoi chain’s Vanya Vilas, with 25 rooms and an average room rate of Rs 16,500, follows.⁸ Assuming a season of eight months, and using data park authorities provided — data related to the average room rate, occupancy levels — the annual turnover from the top elite 21 hotels is an estimated Rs 21.81 crore.⁹ This is clearly substantial and could be invested back into the park and people.

This is precisely what does not happen. The park does not even get the gate receipts. The local people also do not benefit. The result of such exclusive high-end tourism has been that a large number of other smaller entrepreneurs, as well as people in the neighbourhood and fringe of the park, feel alienated and believe that these hotels corner the only source of revenue the park generates. Revenue that, in the first place, should have been redistributed to the people who were affected by the creation of the park.

Building in eco-sensitive areas

In addition, many of the hotels and resorts have come up on land that is considered eco-sensitive — on land adjacent to the park boundary or buffered between the sanctuary and the national park. Many disputed land and hotel sites are owned by conservationists. This locational advantage (of some) has only fuelled the anger of local people, who again see this as unfair. This issue gets particularly aggravated and sensitive as conservation imperatives stop the movement of local people in the park, while the prime land outside the park is taken up by conservationists, rich hoteliers and foreign owners. This dichotomy leads to enhanced anger against the park and is detrimental to its interests.

The problem is that there are no clear restrictions on building hotels on what are considered eco-sensitive zones. In Ranthambhore it was tried and then abandoned. In December 2002, the secretary to the government of Rajasthan issued directives setting out criteria for the location of hotels around the park. It said that “construction activity near the park will be allowed beyond a distance of half a kilometre from the boundary of the park. All construction in the zone near the park will be banned and there will be a total freeze in extension of existing structures”. But within six months, this directive was withdrawn. The same official of the government issued orders saying that “all ongoing hotel projects which have been affected by the earlier order may be granted special relaxation for taking up construction within 500 metres of the Ranthambhore national park”. This, said the letter, was being given as a very very special case only¹⁰.

The fact is that it was widely reported in the local press that this permission was given for very special hotels, including the very exclusive Aman-e-Khas. Local people, who met the Tiger Task Force during its trip, were clearly convinced that this was done to benefit a few. Again, the problem is that the protection regime in the park affects many and so if the benefits do not accrue equally, it creates problems.

Does location matter?

It is also important to evolve criterion for the location

of the hotels and other construction activities, as this clearly creates a precedence for ecologically damaging activities. In Ranthambhore, a few hotels are located on land buffered between the Sawai Madhopur sanctuary and the main park. This is anomalous in view of the fact that, all over the country, ecologists today promote the idea that such buffer areas — which work as corridors for wild animals to move around in an already limited forest space — must not be altered, encroached upon or their land use changed. In fact, in a similar case in Karnataka’s Bandipur tiger reserve, the opposition of several experts has ensured the government does not allow a resort to come up in the famous Moyar gorge belt, which is a corridor for elephants.¹¹ These experts have submitted to the Task Force a need to regulate tourist and resort activities in these ecosensitive zones.¹²

There are no provisions which govern the construction of tourist complexes in and around protected areas. So, hoteliers are taking advantage of this lacuna.

In many cases the land a hotel has come up on is former grazing land. This change in land use only aggravates the grazing situation of the park. A poor grazier woman the Task Force met in Ranthambhore complained that not only had she lost her grazing land, but that the hotels were also draining groundwater. “We are better dead than alive,” she said. “The park has given us nothing but trouble.” This is a sad commentary on conservation.

Alternative models

As against the usual business model of regular tourism practiced in and around tiger reserves, some parks in India and abroad have experimented with minor modifications to look at community-based tourism, working either completely on its own or in tandem with large-sized tourism businesses to ensure equity and provide opportunities to entrepreneurs as well as local communities. There is a great advantage to these models for they can be used as important tools in engaging the people on the fringe of forests in activities related to forestry and therefore reduce their alienation attendant to the creation of parks and sanctuaries. There are several case studies of such models, now emerging in India and abroad.

Periyar Tiger Reserve

In Periyar tiger reserve in Kerala, park authorities have reduced poaching threats by converting ex-poachers and other regular trespassers into eco-tourism guides. Periyar’s success has been to create economies from the forest based on

developing the skills of people in tourism, park management and impact monitoring. The group ecodevelopment committees that have been created here work professionally and have been able to generate a regular monthly income from the park itself. There are four professional committees — the former-cinnamon bark collectors committee, Tribal Trekkers, the Tribal Heritage ecodevelopment committee and the Periyar Tiger Samrakshan Samiti. All four ecodevelopment committees are involved in ecotourism activities such as border hiking, jungle rafting and bamboo rafting.

The Tribal Trekkers ecodevelopment committee was constituted by recruiting young men from amongst the Mannas and the Paliyan tribes living in settlements of the fringes of the tiger reserve. The men, earlier involved in fishing, collecting honey, thatching grass and collecting firewood, were trained to guide tourists through a nature walk. From their traditional knowledge of terrain, flora, fauna sprang one of the most successful ecotourism enterprises at the tiger reserve. This committee was set up with a fund of Rs 3.5 lakh; it today has Rs 4,26,490 in its community development fund. It has given other ecodevelopment committees loans of Rs 2 lakh. It has given loans to its own members, to the tune of Rs 3,63,202, for medical and educational purposes.

The trekkers take back a monthly salary of Rs 3,800. From their funds, 10 per cent is contributed to park welfare, 5 per cent to park maintenance and 10 per cent to their own ecodevelopment committees. The rest goes to their community development fund, from which salaries are paid.

The impact of involving groups of people who earlier engaged in destructive activities with the park is obvious.

However, much like Ranthambhore, tourism in and around the park is high revenue as well. But in recent years, there has been a conscious effort to promote homestead tourism — so that people can ‘experience’ life in cardamom and tiger country. If Periyar can continue to innovate on these measures, it will sustain its success and local interests will be enjoined with the park.¹³

Tourism with equity

Tourism must therefore have a purpose, which promotes conservation and livelihood security. R Sukumar of the Centre for Ecological Sciences at Bangalore has been studying elephant ecology for years; and in his submission to the Task Force has noted with concern that “a new wave of luxury tourism now threatens to unleash across our

protected areas”. The problems are manifold. In many protected areas there has been relocation of tribals and cultivators from within to outside the parks. The virtual take-over of protected areas by luxury tourism would open fresh wounds in the yet-to-heal conflict between parks and people. The issue of profits from tourism being ploughed back into the local economy as well as park management also has to be seriously addressed, says Sukumar. In addition, there is a need to ensure that critical corridors and ecologically important areas are not used for tourist activities.¹⁴

At the same time the impacts of tourism in the tiger reserve must be studied carefully so that base line data on carrying capacity is used to monitor change. Thereafter periodic review studies of the different impacts of tourism must be carried out. Again, as these periodic monitoring either by experts or under their guidance shall require resources, it is essential that the park dedicate some of the revenue generated by tourism into the tourism impact monitoring mechanism.

Tourism has a large potential for involving people in the forests and it is also a way of paying back people the value of the ecological services the forests provide to the society. While other forms of payments to the community for protection of forests — joint forest management and other mechanisms — are also explored today across the world, the best form of payment for ecological security can only come from a rights-based approach. In this, people get preferential chances to earn money from an activity that not only generates enough revenue to keep them from being alienated, but also helps foster a relationship between the forests, the forest department and the people inside and along fringes.

The Pilgrim flood

Another facet to tourism in India’s tiger reserves today is the pilgrim tourist, visiting shrines inside protected areas. While this is a tradition in many reserves, under present circumstances pilgrimage has become a challenge for the park authorities in managing the deluge of devotees in reserves such as Sariska or Periyar.

Perched on a hill in the western division of the Periyar tiger reserve, surrounded by evergreen forests religiously called *poongavanam*, is Sabrimala, the shrine of the Hindu deity Lord Ayappa. The shrine draws five million pilgrims annually. Pilgrims fast for days; attired in black they take a holy dip at the river Pampa before trekking up to Sabrimala. The most propitious time to visit the shrine is during the *Makkaravalaku* season; its 60 days, from mid November to January, attract the bulk of the pilgrims. The passage of thousands of people through the

Innovating in Tourism by involving local communities: some successful examples

Annapurna Conservation Area Project, Nepal

Managed by the King Mahendra Trust for Nature Conservation, Annapurna Conservation Area in neighbouring Nepal has created a system whereby all elements of tourism are today taken care of by people living in the area. Ghazala Shahabuddin from the New Delhi-based Council for Social Development has studied this approach and says that the government has ensured that benefits accrue to local people — managing homesteads, trekking routes and eateries along trekking routes, people earn at each stage of the business.

The Annapurna Conservation Area comprises of spectacular landscape, that of the 8,000-metre plus Himalayan ranges of Annapurna and Dhaulagiri. The area is extremely biodiversity rich as it straddles a very large gradient. The programme, initiated in 1986, covers an area of 7,600 sq km spread over five districts. Fifty-five village development committees form the anchor of the programme. A total of 1,00,000 people live in the area and about 1,16,000 tourists visit the area annually. The area now has one of the most famous trekking routes in Nepal. The project has created Conservation and Management committees in each village to manage tourism.¹⁵

The area's management has ensured local people are able to create small tourist lodges to earn from tourists. Most lodges, equipped with solar hot showers and other facilities, are extensions of people's homes. When mineral water bottles, adding to litter, became a problem, villagers started 'safe drinking water stations' in every village along the route, using advanced technology for water cleaning. The revenue of this water sale goes back to the village.

In other words, the benefits of tourism go back to local communities and build a stake in the protection of the reserve. As a result, there is much less garbage and waste in the area. The cause of conservation is advanced. It is a lesson to learn from.

Costa Rica

In Costa Rica, nature is a tourism factory. Tourism was this small Central American country's top foreign exchange earner, till the computer giant Intel set up its microprocessing plant there. In 1995 in Costa Rica, the industry generated over US \$650 million per annum — 7.5 per cent of the country's GDP. Tourism has been built on the development of national parks — in 1996, of the 781,000 visitors from abroad, nearly 270,000 visited national parks. With this economic interest assured, as much as 31 per cent of the country is under the protected area system and now private individuals are finding that it pays to conserve biodiversity for tourists.

The tourism value chain is still in favour of the airlines and large and international operators. But nevertheless, a substantial proportion stays within the country and is shared. This has led to increased dependence and so a vested interest in the trade and, therefore, also an interest in protecting the environment. Interestingly, over 70 per cent of the hotels in the country have less than 20 rooms. This means that the small lodges near national parks do more than their bit to conserve the environmental resources around.

Ecotourism — built on remote and small-scale nature reserves — is an opportunity to provide local employment and local economic growth. In this

forest poses a huge challenge for the forest department of the tiger reserve. Pilgrims travel up to the Pampa river in vehicles. Hundreds of shops mushroom along the routes, tonnes of firewood are cut from the forest and the hills turn into a nightmare of plastic. During the season, villagers complain, the Pampa gets highly polluted.

Over the years, efforts have been made by the

Kerala government and the forest department to minimise impact. A sewage treatment plant has been set up, toilets have been made and buildings regulated. But the fact is that the impact remains because of the large numbers of pilgrims.

It is clear that while uncontrolled visitors to these pilgrim sites are bound to impact the forests, one must remember that these sites can also be used

country, everything — from butterfly farms which export live butterflies, to organic coffee farms, to rich and deep rainforests, to live volcano to river swamps — are all marketed and sold. Nature is truly a cottage industry here. And a profitable one too.¹⁶

Zimbabwe: Campfire project

The story of Zimbabwe's struggles with wildlife management mirrors India's challenges. Almost five million people live in arid and semi-arid communal lands surrounding the country's protected areas. Despite the dryness and difficult conditions, a wide range of wildlife is also found here. Today, 15 per cent of Zimbabwe is protected as conservation areas.¹⁷ Some animal species have prospered so much in the protected areas that they are causing serious damage to people's livestock and agriculture. Some species are also suffering genetic problems because of inbreeding.¹⁸

At the same time many people, just as in India, were evicted when the protected areas were created. They now live in the surrounding communal lands. They are no longer permitted to hunt the animals and harvest the plants now found inside protected areas, again just as in India

As a reaction to the problems arising out of the creation of these parks, CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) was started in the 1989 as a programme designed to assist rural development and conservation.¹⁹ It works with the people who live in these communal lands, supporting the use of wildlife as an important natural resource.

Five main activities help provide extra income to local communities²⁰:

- **Trophy hunting:** About 90 per cent of CAMPFIRE's

income comes from selling hunting concessions to professional hunters and safari operators working to set government quotas. Individual hunters pay high fees to shoot elephant (US \$12,000) and buffalo and are strictly monitored, accompanied by local, licensed professionals.²¹

- **Selling live animals:** This is a fairly recent development. Some areas with high wildlife populations sell live animals to national parks or game reserves.
- **Harvesting natural resources:** A number of natural resources such as crocodile eggs, caterpillars, river-sand and timber are harvested and sold by local communities. Skins and ivory can be sold from 'problem animals' (individual animals who persistently cause damage or threat and can legally be killed).
- **Tourism:** Most revenue from tourists has not gone to local communities. Five districts of Zimbabwe now benefit from tourism. Development of specialist areas such as culture tourism and bird watching are promoted with local people employed directly as guides or hired to run local facilities for tourists.
- **Selling wildlife meat:** Where there are many species that are used for meat, the country's National Parks Department supervises killing and selling of skins and meat.

Put together, these various activities have given the local population in Zimbabwe a source of livelihood which has today helped ensured that the country's dwindling elephant population has reached levels where it has ironically become a menace of overpopulation.

to tie people into a relationship with forests — as in the sacred groves tradition practiced in India.

To regulate pilgrim movement in the park, pilgrim sites must be maintained as sacred groves with an extremely strict code of conduct enforced by the park authorities in tandem with the shrine's management. To ensure the imposition of this code, again it is essential that pilgrims be charged a

nominal sum of money that is ploughed back into maintenance and monitoring of the pilgrim visitations.

In Periyar, a part of the route has been reserved for the ecodevelopment committees of local villages to operate. This has made people stakeholders in the conservation of the park and needs to be further promoted.

Recommendations

1. The regulation and management of tourism in tiger reserves must remain in the charge of the forest department. The Ranthambhore experience clearly shows that tourist interests, if allowed to take precedence over conservation, can be extremely detrimental to the park. If the park management does not have the capacities to manage tourism, efforts must be made to involve local communities and staff welfare associations in the running of affairs. These interested communities will bring benefits to the conservation efforts in the park for their interests are enjoined with its protection. Under no circumstances should there be any move to 'privatise' the park management for tourism activities.
2. The zone adjacent to the park — its fringe and high impact zone — must be reserved for homestead-based tourism run at a small scale by local communities. This zone should ideally extend up to three km from the outer periphery of a reserve's boundary. In case it is not possible to extend this zone up to three km, the reserve management must decide how far the zone should extend, after due consultation with the Project Tiger directorate.
3. All other resorts and hotels can only be allowed beyond this zone reserved for homestead tourism. This 'reservation' will promote alternative tourism and provide for opportunities for local communities to directly benefit from this economic activity.
4. The Union ministry of environment and forests must finalise an eco-tourism policy for tiger reserves that incorporates this land-use reservation into the Environment Protection Act, 1984.
5. Reserve managements must increase gate ticket prices by imposing an ecological cess, which must be ploughed back to each reserve. Ideally all gate money should go back to the reserve. But given the requirements of state governments, this may not be possible. In this case, the extra revenue collected as ecological cess should be given to the reserve, explicitly to be shared with local communities who continue to live within its boundaries and for staff benefits.
6. Hotels within a radius of 5 kilometres from the boundary of a reserve must contribute 30 per cent of their turnover to the reserve. This has to be a compulsory cess on the hotel industry, for this industry is drawing advantages out of investment made from public funds for the protection of reserves. The hotels can be allowed to claim 100 per cent income tax benefit for the same, as an incentive.
7. The tourism plan for each reserve must be developed and approved by the Project Tiger directorate. The plan must designate the tourism zones, clearly demarcate the zoning plan and be based on carrying capacity studies. The plans must be available in the public domain along with all tourism-regulating rules.
8. The reserve must ensure that all possible avenues of engaging local communities are exhausted before it resorts to using other resources as guides and for other employment and work opportunities.
9. The pilgrim sites inside the park must be designated as sacred groves with strict controls and regulations. All transit camps and places of stay for such pilgrimages inside the park must be minimised and severely restricted. The benefits of the pilgrimage activity must accrue to local communities. The temple boards must be persuaded to allow this to happen.

3.11 Ecological services agenda

Almost all tiger reserves are watersheds for major and minor streams and rivers. Without the reserves, water security will certainly be further compromised. But currently, this ecological service being rendered by the reserves is not rewarded. For instance:

- The dam in Pench tiger reserve provides water to the city of Nagpur in Maharashtra.
- The dam in Periyar tiger reserve in Kerala is used for towns and agriculture in the neighbouring state of Tamil Nadu.
- The town of Sawai Madhopur in Rajasthan gets its water through deep tube-wells at the edge of the Ranthambhore tiger reserve.
- The city of Tirunelveli in Tamil Nadu gets its water from the dam in the Kalakad-Mundanthurai tiger reserve.

But none of these cities, states or towns pays for the conservation of these watersheds. There is a cost to bear for their conservation though — the cost of conserving the forests that keep the watersheds alive. The *State of Forests Report 2003* has, for the first time, assessed the water bodies — rivers, streams, lakes, ponds and wetlands — located inside forest areas. It estimates that 17,396 sq km of water bodies exist within the forested areas of the country.¹ The role of forests in maintaining the hydrological cycle of the country is critical. In addition, there is the biodiversity value of forests.

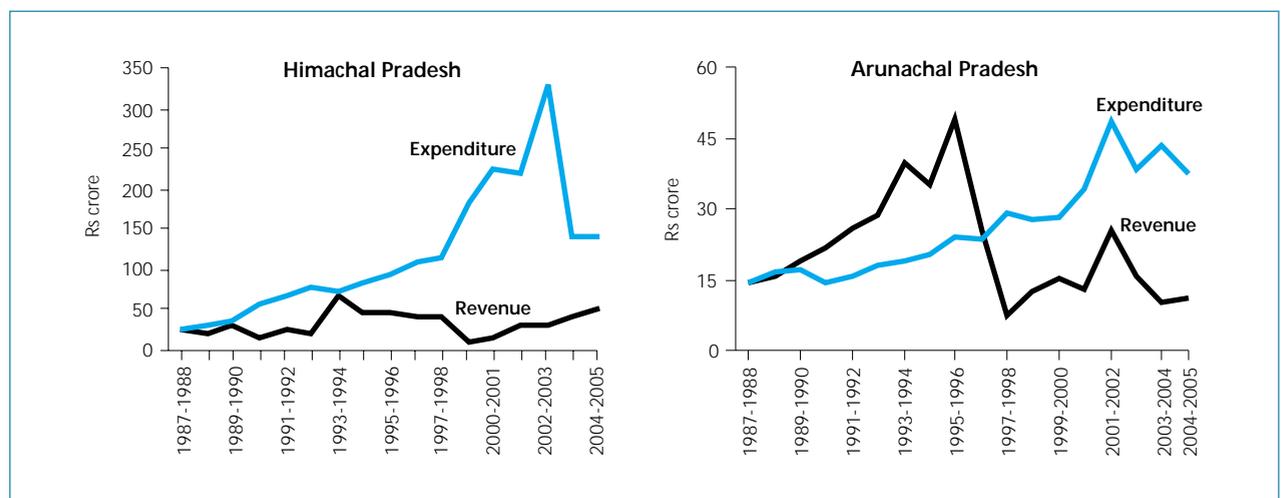
Currently, there is no mechanism to account for

these services which standing forests and protected areas provide to the country. It is today an imperative to ensure that these costs are internalised.

Therefore, we need to incorporate the principles of valuing forests for the tangible as well as intangible benefits these lands provide. This cost must be paid to the communities who live in and around these forest lands. They bear the cost of maintaining these watersheds. To maintain these forests demands the people who live in and around these forests forego the developmental fruits that the rest of the country enjoys at their cost. Therefore, they must be compensated for protecting these natural resources at the cost of their own economic and social development. This concept of an ecological tax — paid for water, recreation or other services that these reservoirs of biodiversity provide — is gaining ground across the world.

At present, there exists a provision to calculate the net present value (NPV) of forests, and pay an amount when they are diverted for non-forest purposes. But this is nothing but payment for destruction. In that sense, it is a negative approach of providing value to forests. This is not a payment to protect forests as forests and for keeping them inviolate. Also, the money goes to a central authority, not to the state that has diverted its forests. The money also does not go to the community that bears the cost of 'diversion'. There is no incentive to protect forests, as there is no value of standing forests.

CHANGING STATE EXPENDITURE ON FORESTRY AND REVENUE EARNED FROM THE SECTOR



Source: Ruksan Bose 2005, 'Too cut and dried', *Down To Earth*, Vol 14, No 5, July 31, 2005, p24

Ecological services valuations

Himachal Pradesh

A valuation of Himachal Pradesh's forests used a combination of methods: market prices or estimates for timber, fodder, fuelwood and non-timber forest produce which have markets; and the travel cost method to gauge the value of ecotourism. They revealed that the state's forests provide annual benefits exceeding Rs 1,00,000 crore.²

Bhopal (Madhya Pradesh)

The Kolar dam provides nearly 60 per cent of Bhopal's water. The dam receives water from the Kolar river, which originates from a thickly forested area 70 km upstream³. The 60-70 villages in this catchment area put significant biotic pressure on these forests: they are largely poor tribal communities dependent on the forests for their fuelwood, fodder and non-timber forest produce. To maintain watershed services in the long run, an incentive-based system was proposed to motivate communities in the catchment areas to protect the forests, which would be cheaper than other alternatives.

A study by Madhu Verma on the Bhoj wetlands used a combination of methods like direct valuation, contingent valuation, preventative or replacement cost and hedonic pricing to put a value on various benefits. Livelihood benefits were calculated using incomes or the market price of products. Bhopal currently makes no payments at all for watershed protection services it receives

from these forests. Yet it pays Rs 9.5 crore to supply highly subsidised drinking water, which could be saved if a fraction of the cost was spent on conservation activities in the catchment area⁴.

Costa Rica

In 1996, Costa Rica implemented a system of 'payments for environmental services' (PES). Through financial and legal mechanisms, local, national and global beneficiaries of forest services compensate those who protect them. Funds are allocated through the National Forestry Financial Fund, which works directly with people, and through NGOs; these funds compensate those who provide these services. Costa Rica's 1996 forestry law explicitly recognises four ecosystem services provided by forests: carbon fixation and sequestration, hydrological services, biodiversity protection and scenic beauty⁵.

Community management of Mayan Biosphere

Almost 3,88,000 hectare (ha) of the Mayan Biosphere, a 2-million ha reserve in Guatemala, has come under community managed concessions. The first community concession was awarded in the area in 1996. The concessions were created as a response to increased illegal logging and the development of new agricultural areas. The community forest management is verified for sustainability by independent parties, and reports indicate that the pressure on the reserve has decreased, biodiversity values have been maintained and extra income has been generated from the communities.⁶

Cost of conservation

In fact, the 'burden' of conservation has grown over the last few years. An analysis of the revenue and expenditure of the state forest sector shows that conservation is costing forest-dependent states enormously.

While the revenue generated by the states from forests have dwindled, expenditures have mounted. In the mid-1990s, for instance, Madhya Pradesh made money from its forest resources. Its revenue was higher than its expenditure in this sector. But by 2005, the situation completely reversed. Now the state spends more than it can earn. Today, Arunachal Pradesh's spending on forestry is as high as its revenue used to be in the mid-1990s; 80 per cent of the state is forested, but today it makes practically nothing from its vast forest wealth (See *graph: Changing state expenditure on forestry and revenue*

earned from the sector)

The situation is such that India, today, has become a major importer of wood — that is to say, from forests cut elsewhere. By 2001, India's export of forest-based products stood at Rs 4,459 crore; the major items were rubber and paper products. But imports were over a whopping Rs 12,000 crore — three times higher. That year, the country spent over Rs 2,000 crore simply on importing wood⁷.

The repercussions are at three levels. One, the country loses precious foreign exchange. Two, the country keeps its own millions of people deprived of economic development. And three, the costs of maintaining these forested areas are borne by state governments whose budgets are reduced and who have less and less money for development programmes.

Economic valuation of forests offers a methodology to quantitatively calculate the benefits that forests provide, and also helps elucidate who are

benefiting from the forest, and who are bearing the costs of conservation.

Not a 'one-size fits all' approach

Over 300 PES (payments for environmental services) systems have been inventoried in the world. Each model is distinct and appropriate for specific circumstances in order to calculate the costs and to pass them to the right owner. PES is applicable, but it is not a monolith. India's approach too needs to be appropriate and tailored to each forest and situation on the ground. The main peculiarity in India is that the poorest people in forests have no land rights. Since many PES systems link land use to the provision of services — payments are based on clear land rights — its application without a land rights

regime for those who protect forests could create more alienation.

Incentives do not have to be land-based, however, nor do they have to be cash payments: this has been demonstrated in the village of Sukhomajri in Haryana, where water rights were de-linked from land. The *pani panchayats* in Maharashtra also work this way. Such innovative approaches to expand rights, including rights to environmental benefits, are needed.

It is clear that conservation support in India will need innovative approaches. The fact is that we have to make conservation 'pay' so that the burden on the poor is reduced. It is they who live within the conservation areas; it is they who are deprived of development and livelihood opportunities.

Recommendations

The Tiger Task Force recommends that the Project Tiger directorate must take urgent initiative to begin a definite and time-bound programme for payment of ecological services to stakeholders.

To do so, it must work with the tiger reserves to carry out an evaluation of the ecosystem services that accrue to the nation from the reserves, and must formulate the mechanism for charging the city/area/districts that get water from the watersheds secured by this reserve, and sharing the revenue so earned between the reserve authorities and the people in and around the reserve in an equitable fashion.

04

Action plan for change

Key recommendations

Key recommendations

Since the inception of Project Tiger in the early 1970s, the country has consistently invested in the protection and conservation of the tiger. The Tiger Task Force report has reviewed the work done over these years; the crisis; and the challenges ahead, to recommend reform in the framework of action.

The report advocates that the following needs to be done urgently:

- a. Reinvigorate the institutions of governance.
- b. Strengthen efforts geared towards protection of the tiger, checking poaching, convicting wildlife criminals and breaking the international trade network.
- c. Expand the inviolate spaces for the tiger by minimising human pressure in these areas.
- d. Repair the relationships with the people who share the tiger's habitat by building strategies for coexistence.
- e. Regenerate the forest habitats in the fringes of the tiger's protective enclaves by investing in forest, water and grassland economies of the people.

Sariska

1. Sariska is an important reserve supporting the largest intact habitat of the tiger in the Aravalli ecosystem. The reserve is also the catchment for innumerable streams in this otherwise dry region. Urgent steps must be taken to restore the park and rehabilitate tigers in the reserve.
2. The state government must fix accountability for the events in Sariska. This is essential, for it will act as a deterrent to other officers in Rajasthan as well as in other parts of the country; what happened in Sariska is unacceptable.
3. The state government must take steps to improve the internal working of the park. It must also make a firm, time-bound, commitment to the Project Tiger directorate in this regard and draw up benchmarks for its performance review and assessment.
4. The relocation of villages within the key tiger habitat must be done with utmost care and with full consultation with affected villagers. Park authorities should realise that villagers living within the park are forest-dependent and, therefore, the land available for their relocation must be able to either meet their grazing needs, or there must be sufficient investment for them to switch over to land-based livelihoods.
5. Park authorities, working in cooperation with the Project Tiger directorate, must evolve a plan for the remaining villages that will continue to exist in the park because relocation is not possible or feasible for all.
6. A plan should be developed to further manage pilgrimage traffic; it must be ensured that the benefits of tourism are shared with affected villagers and the park.
7. Park authorities should work on an agreement with villagers living on the periphery (fringe) to increase investment in their lands, in return for their cooperation in protecting the reserve.
8. An institutional mechanism — a park-level management committee — should be constituted to monitor progress in habitat improvement and people's involvement.

Institutional mechanisms

1. Reorganise the Union ministry of environment and forests to create two separate departments: that of environment and that of forests and wildlife.
2. Revitalise the National Board for Wildlife. The prime minister could be requested to chair the steering committee of the Project Tiger for the coming few years.
3. The Project Tiger directorate should be converted into a Project Tiger Authority by giving it administrative autonomy. Project Tiger should report annually to the Indian Parliament so that political commitment to the project deepens.
4. To ensure that project states follow the guidelines and prescriptions laid down for the project, a system of having a 'Memorandum of Understanding' (MOU) with these states can be instituted. Any deviation or default from the MOU should be reported to the steering committee.
5. Considering the multifarious nature of work

handled by the director, Project Tiger, it is essential to strengthen the directorate with autonomy and personnel.

6. The director, Project Tiger, should be delegated powers to deal with states under Section (3) of the Wildlife (Protection) Act, 1972, especially for the enforcement of Project Tiger guidelines.
7. The role of director, Project Tiger, should not be confined to tiger reserves. Instead, it should extend to other crucial forest areas as well which have viable tiger populations.
8. A state steering committee for Project Tiger

should be created, with the chief minister of the tiger range state as its chair.

9. Management committees should be set up for each protected area. These committees will include local community representatives, NGOs and researchers.
10. Create a sub-cadre of wildlife specialists and professionals.
11. Independent audits of each reserve must be conducted annually; the information generated must be placed in the public domain.
12. Build collaborative networks with researchers to monitor change.

Protection

1. Each reserve must have a specific and detailed strategy for protection. The independent monitoring of the reserve must include an assessment of the enforcement mechanisms in place and the patrolling efforts of field staff, so that policy interventions can be designed.
3. A clear strategy for protection is needed in the northeastern reserves, where local people will be the only ones capable of traversing and protecting the area. There should also be a clear strategy for the reserves controlled by naxalites and other insurgent groups, where armed intervention by security forces might be the only option.
4. Further recruitment of staff — foresters as well as guards — should be reserved for local villagers. The criterion for recruitment should be amended so that it relaxes the formal educational qualifications needed for these positions and instead, values skills in jungle craft. In addition, there should be provision for in-service training for locally recruited staff.
5. Institutionalise training so that each reserve has skilled and committed personnel.
6. Disincentives and rewards based on independent

monitoring should be built into the system. The incentives must be withdrawn in reserves that score low on the rating chart. This should be done with complete transparency so that it is not seen as political or discriminatory. In fact, this move will be a test for the independence and rigour of the independent assessment as well.

7. Investments in basic facilities should be made for the frontline staff:
 - a. Housing camps in neighbouring district towns, usually where the project headquarter is based, for families so that the education of their children can be secured;
 - b. Free rations for guards living in the camps. This practice is followed by many protection forces and helps in their work.
8. A staff welfare fund can be created for each reserve, out of the income from tourism. This can be used to supplement medical and other benefits for the staff.
9. There must be an urgent review of the crisis in forestry services and steps that have been taken to address issues of training, personnel development, staff reviews and salaries.

International trade in wildlife products

1. Very proactive and strong measures are needed on the matter of international trade in wildlife and wildlife products. The Union ministry must work to shape the agenda at the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), to ensure that the global market for tiger products is investigated. The international community must be put under pressure to combat and destroy this trade.
2. A bilateral relationship must be built up with China to combat the trade in tiger parts. The environment minister should take the lead by discussing and developing this relationship with his Chinese counterpart, and this dialogue must be kept alive and ongoing. It is critical that India takes the leadership on this issue and does not leave it to global institutions which are proving inadequate in this regard.

Domestic wildlife crime

1. The wildlife crime bureau must be set up immediately, based on the modifications suggested in the report:
 - a. At the central level, a strong bureau is needed with a capacity to develop a country-wide database of wildlife crime to enable coordination, investigation and legal follow-up.
 - b. At the state level, there must be a node of the wildlife crime bureau with the capacity to both investigate and to follow up on the crime.
 - c. The Central Bureau of Investigation (CBI) must be given the responsibility to investigate organised wildlife crime and to take over charge of certain special cases, for instance, the Sansar Chand case.
 - d. Regional forensic facilities must be set up to investigate wildlife specimens and the evidence in wildlife crime.
 - e. The wildlife crime bureau must be made a statutory body under the Wildlife (Protection) Act, 1972 to make it effective and give it autonomy.
2. The Wildlife (Protection) Act, 1972 should be amended as suggested in the report, so that the provisions related to crime are tightened and made more stringent, particularly for designated critically endangered species. This will provide for deterrence for criminal actions against these species and result in speedier trials.

Innovative protection

1. Identify the major hunting tribes and communities in proximity to, or operating in, a reserve. Each park authority must work to develop plans to use the expertise of these hunters for protection as well as for gathering basic ecological information.
2. The independent monitoring of each park must evaluate the work done by the park management on working with its forest-dependent traditional hunting communities. The park management and Project Tiger must work on locale-specific approaches with these communities. These efforts should be supported and carefully monitored, so that the learning can be disseminated and can become practice.

The science

1. The Tiger Task Force has reviewed the revised methodology proposed by the Project Tiger directorate and the Wildlife Institute of India for estimating/monitoring tiger status and its habitat, and endorses the approach. It hopes that the national tiger estimation, which is to be conducted from November 2005, will be done using this evolved methodology.
2. The Project Tiger directorate must set up a scientific expert group immediately with expertise in relevant technical disciplines for overseeing the process. This group should work from the very inception of the process and assist in suggesting appropriate ways of analysing and interpreting the data.
3. All efforts should be made to encourage and facilitate intensive research and monitoring studies of source population of tigers using a variety of tools — photo-identification and monitoring, camera traps, radio-telemetry and DNA-based genetic studies in different landscape units.
4. The work in the field of molecular techniques for estimation needs to be supported. Encourage the Wildlife Institute of India and the Centre for Cellular and Molecular Biology (CCMB) to take on pilot programmes at a landscape level using this technique. The CCMB should be asked to provide inputs in the development of molecular techniques for identification of individual tigers.
5. The inclusive, open approach that we advocate depends crucially on free access to all information, except where very evident security concerns are involved. In modern times, this would be best ensured by posting all pertinent information on the Web, in English as well as in all Indian languages.

Research

1. Put in place institutional mechanisms that would streamline existing procedures for clearance and coordination of research and ensure better utilisation of the research output. To do this, panels should be set up at the state and national levels, chaired by the inspector general of forests (wildlife) or chief wildlife wardens, and including the secretary of the National Biodiversity Authority or the State Biodiversity Board and other experts in ecology, social sciences and biostatistics. These panels must serve as 'single window' clearing houses for all matters relating to wildlife research, so that they streamline current procedures, rather than create another layer of decision-making.
2. The process of designing and implementing the management plans for each tiger reserve needs to be reworked. The plans must be updated regularly, taking into consideration the scientific and socio-economic research that has been conducted; these plans should be put in the public domain and be used for the independent evaluation of the reserve.
3. The independent audit must be used to create a reputational advantage for the reserve.
 - a. The Project Tiger directorate should work to further improve its criterion and indicators for the rating. The criterion must be developed to benchmark the progress and problems in all critical areas and set targets for its improvement.
 - b. The rating should then be used for management decisions and for creating an informed and involved public opinion on the working of individual reserves.
 - c. It must be used to inform Parliament of the progress being made in tiger conservation and the challenges ahead.

Relocation

1. There should be an urgent and realistic review of the number of villages that actually need to be relocated from the reserves. The decision must be based on the fact that the villages that need to be relocated are made to do so because they are situated in the critical habitats — tiger natal areas and key conservation priority areas. There must be a criterion for the identification of these villages, so that it is clear which village is to be relocated and why.
2. There must be a tight schedule of one year to study settlements and list the ones to be relocated. This schedule must be strictly complied with.
3. Based on this list, the Project Tiger directorate should draw up a time-bound action plan to complete the process of relocation. The action plan for relocation must be completed in terms of its financial and land provisions before it is finalised and accepted.
4. During the formulation of this action plan, the responsible agency must keep in mind the experience of past relocation efforts to ensure that the process of relocation does not lead to further resource degradation or loss of livelihood of people.
5. The financial allocation for the relocation scheme must be revised and enhanced so that it can take into account the needs, particularly, of providing irrigated land and other facilities to ensure livelihood security.
6. The scheme must take into account the options for livelihood in the resettled village. It is important for planners to keep in view the fact that people who live within the reserves are forest-dependent communities, and survive within agro-silvo-pastoral economies. The relocation package must be designed to provide viable alternatives.
7. The classification of land after the families are relocated must be changed from forest to revenue land, which will allow the settlers advantages of development and other facilities.
8. Set up a task force at the Central level to monitor the quality of relocation and to ensure that there is careful coordination and follow-up in the relocation work.

Coexistence

1. People will continue to live in protected areas: policy must accept this. It is not possible to settle the rights and relocate all the families living in the reserves. The facts are clear: in the last 30 years, less than 10 per cent of the families in tiger reserves have been relocated.
2. If people live in protected areas, ways must be found to secure their use of resources and livelihoods. The current legal framework does not account for the use of resources by communities, because people are not expected to be in the national park at all, and in a limited way in the sanctuaries. The law provides that during the time the rights are settled and people live in protected areas, the state government has to provide alternative sources of fuel, fodder and other forest produce. In short, the rights of people cannot be expunged without providing alternatives.
3. In this situation, the selective interpretation of the Indian Wildlife (Protection) Act, 1972 which curtails the use of resources by people without taking into account the safeguards, has only led to greater unrest around our protected areas and has been detrimental to conservation.
4. Strategies for joint-collaborative-inclusive management of our protected areas are then essential, so that this “illegal” use is made legal and regulated.
5. All use need not be destructive. The question is how the use will be regulated or managed. In order for the resource use not to be destructive, the participation of local communities in decision-making and in management becomes essential. Regulation is best possible if all are parties to the decision.
6. It is important that this approach of inclusive protection is incorporated into conservation management urgently. For this, the following must be done:
 - a. Each tiger reserve (to begin with) must take into account the current needs of people who live within the reserve and evolve a plan for resource management and use. This strategy must be developed in consultation with local communities, researchers and local NGOs.
 - b. The strategy must include plans for careful monitoring and evaluation.
 - c. The Project Tiger directorate must have internal capacity and staff to be able to monitor and guide this process carefully. Every effort must be made to encourage innovation and experimentation.
 - d. Begin this process immediately. The plans for each reserve must be completed within one year and be available publicly.
7. The independent monitoring of tiger reserves must provide a high weightage for the work done by park managers in collaborative management. The improvement in relationship between people and parks must be a key criterion in the review. Each tiger reserve must be rated for this work and the best and worst identified for rewards and penalties.

The fringe

1. The tiger’s habitat cannot be secured unless we secure the future of the millions who live on the fringe. Currently, there is little information about the numbers or their impact on the reserves. Studies, preferably on a GIS-based platform, should be carried out to collect this information, which can be used for the reserve’s management. Place these studies and their results in the public domain along with all empirical data, so that other institutions and researchers can then build on this information. It should be a part of the work of the Project Tiger directorate to encourage and undertake research on people-wildlife interactions within and on the fringes of the reserves.
2. Timely payment of compensation for livestock death and human injury and death, which falls in the purview of the field directors, should be made one of the criteria that the park management is measured for during the evaluation of the reserves and their ranking.
3. Pay compensation for crop damage as well. In addition, compensation must be paid to families who continue to live within the reserves.
4. The Tiger Task Force understands that the government is currently working on the next phase of an externally aided ecodevelopment plan. It is important that all the issues listed in the report regarding the opportunities and failures of the first phase of the ecodevelopment project are carefully considered and incorporated into the plan. The country cannot afford such expensive experiments, unless they are carefully crafted and skillfully executed.
5. The joint forest management programme in the vicinity of the reserves must be revamped so that people living in the fringes can be given management decisions and rights over the

produce of forests; this will improve the productivity of the resources as well. The answer to the crisis within the reserve lies in our abilities to rebuild the resources outside.

6. The government must increase the per capita expenditure in the development of forests, grasslands and water on the fringes of the tiger reserves. For these investments to be productive, they must be made in tune with the natural
7. The additional funds for development must be spent as a reciprocal arrangement with local villagers — increased investment in their resources to build collaborative and protective fences around the reserves.

Tourism

1. The regulation and management of tourism in tiger reserves must remain in the charge of the forest department. The Ranthambhore experience clearly shows that tourist interests, if allowed to take precedence over those of conservation, can be extremely detrimental to a reserve. If the park management does not have the capacities to manage tourism, efforts must be made to involve local communities and staff welfare associations in the running of affairs. These interested communities will bring benefits to the conservation efforts in the park, for their own interests are enjoined with its protection.
2. The areas adjacent to the park — its fringe and high impact zone — must be reserved for homestead-based tourism run on a small scale by local communities. This zone should ideally extend up to three km from the outer periphery of a reserve's boundary. In case it is not possible to extend this zone up to three km, the reserve management must decide how far the zone should extend, after due consultation with the Project Tiger directorate.
3. All other resorts and hotels can only be allowed beyond this zone reserved for homestead tourism. This 'reservation' will promote alternative tourism and provide for opportunities for local communities to directly benefit from this economic activity.
4. The Union ministry of environment and forests must finalise an eco-tourism policy for tiger reserves that incorporates this land-use reservation into the Environment Protection Act, 1984.
5. Reserve managements must increase gate ticket prices by imposing an ecological cess, which should be ploughed back into each reserve — explicitly to be shared with local communities who continue to live within its boundaries and for staff benefits.
6. Hotels within a radius of five km from the boundary of a reserve must contribute 30 per cent of their turnover to the reserve. Make this a compulsory cess on the hotel industry, for this industry is drawing advantages out of investments made from public funds for the protection of reserves. The hotels can be allowed to claim 100 per cent income tax benefit for the same, as an incentive.
7. The tourism plan for each reserve must be developed and approved by the Project Tiger directorate. The plan must designate the tourism zones, clearly demarcate the zoning plan and be based on carrying capacity studies. The plans must be available in the public domain along with all tourism-regulating rules.
8. The reserve must ensure that all possible avenues of engaging local communities are exhausted before it resorts to using other resources as guides and for other employment and work opportunities.
9. Designate the pilgrimage sites inside the park as sacred groves with strict controls and regulations. All transit camps and places of stay for such pilgrimages inside the park must be minimised and severely restricted. The benefits of the pilgrimage activity must accrue to local communities. The temple boards should be persuaded to allow this to happen.

Ecological services

1. The Project Tiger directorate must take urgent initiative to begin a definite and time-bound programme of payment for ecological services to stakeholders. It must work with the tiger reserves to carry out an evaluation of the ecosystem services that accrue to the nation from the reserves, and must formulate the mechanism for charging the city/area/districts that get water from the watersheds secured by this reserve. The revenue so earned can be shared between the reserve authorities and the people in and around the reserve in an equitable fashion.

05

References

01. An assessment

1.1 Conserving the tiger

1. Indian Board for Wildlife, 1972, *Project Tiger: a planning proposal for preservation of tiger (Panthera tigris tigris) in India*, task force, Union ministry of agriculture, government of India, Delhi
2. Indian Board for Wildlife, 1983, *Eliciting public support for wildlife conservation — report of the task force*, Department of Environment, government of India, Delhi
3. Union ministry of environment and forests, 1993, *A review of Project Tiger*, government of India, Delhi
4. Union ministry of environment and forests, 1996, *Report of the high-powered committee to undertake a review of the Project Tiger; carry out evaluation and suggest ways and means to make Project Tiger more meaningful and result oriented*, government of India, Delhi
5. Union ministry of environment and forests, 1996, *Report of the high-powered committee to undertake a review of the Project Tiger; carry out evaluation and suggest ways and means to make Project Tiger more meaningful and result oriented*, government of India, Delhi
6. Worldwide Fund for Nature (WWF), 1996, *The Tiger Call*, New Delhi
7. Worldwide Fund for Nature (WWF), 1996, *Tiger Conservation Strategy and Action Plan*, New Delhi
8. Michael Day (undated), *The Big Cat Cover Up*, The Tiger Trust, UK
9. Debbie Banks and Dave Currey (undated), *The State of the Tiger: India's Tiger Crisis*, Environmental Investigation Agency, UK
10. Anon, 1996, 'The Indian tiger in mortal danger', leader comment in *The Guardian*, September 12, UK
11. Anon, 1996, 'Wrong roars', leader in *Down To Earth*, Vol 5 No 17, Society for Environmental Communication, New Delhi
12. Anon, 1999, 'Blues for the big cats', *Down To Earth*, Vol 7 No 24, Society for Environmental Communication, New Delhi
13. Valmik Thapar, 2002, 'The state of the Indian tiger', *Sanctuary Asia*, October, Mumbai
14. Union ministry of environment and forests, 2001, *Project Tiger Status Report*, government of India, Delhi
15. Project Tiger, 1973, guidelines for execution of the project by the states, Union ministry of agriculture, government of India, Delhi, *mimeo*
16. Ashish Kothari *et al* 1989, *Management of*

national parks and sanctuaries in India: a status report, Indian Institute of Public Administration, New Delhi

17. PEACE-ELDF-SAMRAKSHAN, 'Lessons learned from the ecodevelopment experience in India', *mimeo*

1.2 The Sariska shock

1. CBI, 2005, 'Disappearance of tigers from Sariska', Special Investigation Team report, New Delhi
2. WII, 2005, 'Assessment of status of tiger (*Panthera tigris*) in Sariska tiger reserve', Rajasthan, Wildlife Institute of India, Dehradun
3. Project Tiger, 2005, compiled from data submitted by state government, Delhi, *mimeo*
4. Anon, 2005, Sariska tiger reserve, information compiled for Tiger Task Force by field director, *mimeo*
5. Ghazala Shahabuddin, 2005, Recommendations on Sariska tiger reserve to the Tiger Task Force, May 31, Delhi, *mimeo*
6. V D Sharma, R G Soni and Rajendra Singh, 2005, suggestions to the Tiger Task Force, *mimeo*
7. Anon, 2005, Sariska tiger reserve, note given to the Tiger Task Force by field director, *mimeo*
8. Forest Survey of India, 2005, 'Status and change of assessment of forest cover in tiger reserves of India', report done for Project Tiger, draft, Dehradun
9. WII, 2005, Assessment of status of tiger (*Panthera tigris*) in Sariska tiger reserve, Rajasthan, Wildlife Institute of India, Dehradun
10. WII, 2005, Assessment of status of tiger (*Panthera tigris*) in Sariska tiger reserve, Rajasthan, Wildlife Institute of India, Dehradun

03. The way ahead

3.1 The institutional agenda

1. MOEF, 2000, an affidavit of Vishwanath Anand, secretary, ministry of environment and forests in response to writ petition number 1474/1998, Pinki Mishra vs Union of India, *mimeo*
2. MOEF, 2005, affidavit by Rajesh Gopal in response to order of Supreme Court of India, dated 12.12.2003, *mimeo*
3. Supreme Court 2005 order, Supreme Court of India, writ petition 47/1998, February 21, *mimeo*
4. Anon, 2005, Application by the *amicus curiae* for directions in the Supreme Court, in writ petition no 202 of 1995, in the matter of T N Godavarman versus Union of India and others, April, *mimeo*
5. Ruksan Bose, 2005, 'Too cut and dried', *Down To Earth*, Vol 14, No 5, 2005

3.3 The illegal trade agenda

1. EIA, 1996, *The Political Wilderness — India's Tiger Crisis*, Environmental Investigation Agency, London
2. EIA, 1996, *The Political Wilderness — India's Tiger Crisis*, Environmental Investigation Agency, London
3. EIA, 1996, *The Political Wilderness — India's Tiger Crisis*, Environmental Investigation Agency, London
4. WWF, 1996, *Tigers in the Wild*, Species Status Report, Gland
5. EIA, 1996, *The Political Wilderness — India's Tiger Crisis*, Environmental Investigation Agency, London
6. Anju Sharma, 1994, 'Last chance for the big cat', *Down To Earth*, Vol 12 No 24, Society for Environmental Communication, New Delhi
7. Kristin Nowell (undated), 'Far from a cure: the tiger trade revisited', WWF-TRAFFIC
8. EIA, 1999, *The State of the Tiger: India's Tiger Crisis*, UK
9. EIA, 2004, *The Tiger Skin Trail*, UK
10. Chris R Shepherd and Nolan Magnus, 2004, *Nowhere to hide; the trade in Sumatran tiger*, A TRAFFIC-Southeast Asia Report
11. Leigh A Henry, 2004, 'A tale of two cities: a comparative study of traditional Chinese medicine markets in San Francisco and New York city', TRAFFIC-North America, WWF, Washington DC
12. EIA, 2004, 'Urgent need for a specialised enforcement unit in India to deal with the growing illegal trade in tiger skins', press release, November 9
13. CITES, 2000, 'The CITES tiger high level political missions', doc 11.30 (rev 1) annex 2, *mimeo*
14. CITES, 2002, 'Interpretation and implementation of the convention; conservation of and trade in tigers', COP 12, doc 33, *mimeo*
15. CITES, 2004, 'Interpretation and implementation of the convention; conservation of and trade in tigers', COP 13, doc 28, *mimeo*
16. CITES, 2004, 'Notification to parties', December, *mimeo*
17. CITES, 2005, 'Notification to parties', March, *mimeo*
18. Willem Wijnstekers, 2004, letter to the Indian prime minister, CITES JMS/WWW, April 12, *mimeo*
19. CITES, 2005, Interpretation and implementation of the convention; illegal trade in tigers', document submitted by the US on behalf of the North America region, for the 53rd meeting of the standing committee, June 27 to July 1, Geneva SC 53 doc 17, *mimeo*
20. Anon, 2001, 'Thailand's tiger economy', EIA, London

3.3a Domestic enforcement agenda

1. B K Sharma, 2005, minutes of the Tiger Task Force consultations, CBI, Delhi, May 18, 2005, *mimeo*
2. Anon, 2005, 'Breakthrough in Ghaziabad and Khaga skin seizures', <http://www.21stcenturytiger.org/news/news.html>, as seen on May 31, 2005
3. EIA, 2004, *The Tiger Skin Trail*, EIA, London
4. MOEF, 1994, *Report of the Committee on Prevention of Illegal Trade in Wildlife and Wildlife Products*, ministry of environment and forests, New Delhi
5. MOEF, 2005, 'Expedite the setting up of the National Wildlife Crime Bureau in view of the actions by CITES', Agenda item No 14 for the National Board for Wildlife Meeting, March, New Delhi, *mimeo*
6. Project Tiger, 2005, Tiger poaching analysis of country level data, 1999-2003, Delhi, *mimeo*
7. WPSI tiger seizures as viewed on website www.wpsi-india.org
8. B K Sharma, 2004, 'Wildlife crime in India: myths and realities', in *Sanctuary Asia*, April, Mumbai

3.4 Innovative protection agenda

1. Bahar Dutt, 2003, 'The forgotten people: Bawarias of Rajasthan', proceedings of the public hearing, New Delhi, Muktidhara, Rajasthan
2. Ouk Kimsan, 2001, 'Community-based monitoring and conservation of tigers in Cambodia's most important tiger conservation units', Royal Government of Cambodia, Cambodia, December
3. Ouk Kimsan, 2001, 'Community-based monitoring and conservation of tigers in Cambodia's most important tiger conservation units', Royal Government of Cambodia, Cambodia, December
4. Ouk Kimsan, 2001, 'Community-based monitoring and conservation of tigers in Cambodia's most important tiger conservation units', Royal Government of Cambodia, Cambodia, December
5. Ouk Kimsan, 2001, 'Community-based monitoring and conservation of tigers in Cambodia's most important tiger conservation units', Royal Government of Cambodia, Cambodia, December
6. WWF-India, 1996, Tiger conservation strategy and action plan, New Delhi

7. Aparajita Datta, 2005, *Protecting with people: wildlife conservation in Arunachal Pradesh*, Nature Conservation Foundation, mimeo
8. Aparajita Datta, 2005, *Protecting with people: wildlife conservation in Arunachal Pradesh*, Nature Conservation Foundation, mimeo
9. Aparajita Datta, 2005, *Protecting with people: wildlife conservation in Arunachal Pradesh*, Nature Conservation Foundation, mimeo
10. Deepa Kozhisseri, 2005, 'Once poachers, now guards', *Down To Earth*, Vol 14 No 7, Society for Environmental Communications, New Delhi

3.5 The science agenda

1. Rajesh Gopal, 1992, *Fundamentals of Wildlife Management*, Justice Home, Allahabad
2. John Seidensticker, 2002, foreword in Ullas Karanth and James Nichols edited, *Monitoring Tigers and their Prey*, Centre for Wildlife Society, Bangalore
3. GOI, 1972, 'Project Tiger: a planning proposal for preservation of tiger in India', *task force report*, ministry of agriculture, New Delhi
4. Rajesh Gopal, 1992, *Fundamentals of Wildlife Management*, Justice Home, Allahabad
5. K Ullas Karanth, James D Nichols *et al* 2004, 'Tigers and their prey: predicting carnivore densities from prey abundance' in *PNAS*, April 6, Vol 101, No 14, 4854-4858
6. Project Tiger directorate, 2002, 'Tiger habitat and population evaluation system for the Indian sub-continent', mimeo
7. Anon, 2004, Research proposal submitted by S P Goyal, mimeo
8. Yan Chun Xu *et al* 2005, 'Individualisation of tigers by using microsatellites', *Forensic Science International*, 151 (2005) 45-51, Elsevier, Ireland

3.6 The research agenda

1. Nitin Sethi, 2005, 'Hunted', *Down To Earth*, Vol 13 No 22, Society for Environmental Communications, New Delhi
2. Raghunandan Chundawat, 2005, submission to the Tiger Task Force
3. R Sukumar and Ullas Karanth, 1998, draft guidelines for a national wildlife research policy, mimeo
4. V B Sawarkar, 2005, *Independent Monitoring of Tiger Reserves*, Wildlife Institute of India, mimeo
5. B S Bonal, 2005, deliberations with the Tiger Task Force, New Delhi

3.7 The relocation agenda

1. Indian Board for Wildlife, 1972, *Project Tiger: a planning proposal for preservation of tiger (Panthera tigris) in India*, task force, ministry of agriculture, government of India, Delhi
2. Principal chief conservator of forests, Bhadra wildlife sanctuary, 1993, *A note on the action taken to rehabilitate the people and livestock from Bhadra wildlife sanctuary*, mimeo.
3. Anon, 2005, data from Karnataka forest department to the Tiger Task Force (personal communication)
4. Project Tiger, 2005, Compendium of guidelines and circulars issued by director, Project Tiger, mimeo
5. Sunita Narain, 2003, 'A foreign vocabulary', *Down To Earth*, Vol 12 No 3, Society for Environmental Communications, New Delhi
6. V D Sharma, R G Soni and Rajendra Singh, 2005, suggestions to the Tiger Task Force, mimeo
7. Padmaparna Ghosh, 2005, 'Laid out and bare: the price of mindless relocation', *Down To Earth*, Vol 14 No 1, Society for Environmental Communications, New Delhi
8. Radhika Johari, 2003, *Maps of gods and memories of trees: blurring the boundaries of Sariska tiger reserve*, paper presented at the Canadian Anthropology Society, CASCA, May 7-11, Halifax, mimeo
9. V D Sharma, R G Soni and Rajendra Singh, 2005, suggestions to the Tiger Task Force, mimeo
10. A J T Johnsingh, K Sankar and Shomita Mukherjee, 1997, 'Saving prime tiger habitat in Sariska tiger reserve', *Cat News* 27, Autumn
11. Arpan Sharma, 2003, 'Displacement from wildlife protected areas: implications for conservation and livelihoods', *Social Change*, June-September, Vol 33, 2&3
12. Dionne Bunsha, 2005, 'Left high and dry', *Frontline*, Vol 22, Issue 11, May 21-June 03, Chennai
13. Principal chief conservator of forests, Bhadra wildlife sanctuary, 1993, *A note on the action taken to rehabilitate the people and livestock from Bhadra wildlife sanctuary*, mimeo.
14. Krithi K Karanth *et al* (undated), *Village size and forest disturbance in Bhadra wildlife sanctuary*, Western Ghats, India, mimeo
15. Government of Karnataka, 2002, 'Forgotten villages: the story of resettlement of villages from the Bhadra tiger reserve', deputy commissioner, Chikmagalur
16. Krithi K Karanth *et al* (undated) *Village size and forest disturbance in Bhadra Wildlife Sanctuary*, Western Ghats, India, mimeo

17. Ministry of environment and forests, 2002, National Wildlife Action Plan, government of India, Delhi

3.8 The coexistence agenda

1. H S Pabla, 1997, 'Man-wildlife conflict around protected areas', Vacham wildlife preservation, Vol VIII, No 2, April 1997, Centre for Human Settlements and Environment, Bhopal
2. Puja Sawhney, 2003, *People-park interaction: a case of Bandhavgarh national park*, Centre for Development Research, University of Bonn, Germany
3. Rucha Ghate, 2003, 'Global gains at local costs: imposing protected areas', department of economics, Nagpur university, *mimeo*
4. Puja Sawhney, 2003, *People-park interaction: a case of Bandhavgarh national park*, Centre for Development Research, University of Bonn, Germany
5. Manshi Asher, 2005, report of the public hearing at the Buxa tiger reserve, National Forum for Forest People and Forest Workers, April, *mimeo*
6. Shomona Khanna and Naveen T K, 2005, *Contested terrain: forest cases in the Supreme Court of India*, Society for Rural Urban and Tribal Initiative, April, New Delhi
7. V K Bahuguna, 2003, guidelines for diversion of forest land for non-forest purposes under FCA, letter to the chief secretary/administrator (all states), 20.10.2003, F No 2-1/2003-FC, FC division, MOEF, in *Handbook of FC Act 1980*, MOEF, New Delhi
8. Puja Sawhney, 2003, *People-park interaction: a case of Bandhavgarh national park*, Centre for Development Research, University of Bonn, Germany
9. Ashish Kothari *et al* 1989, *Management of national parks and sanctuaries in India: a status report*, Indian Institute of Public Administration, New Delhi
10. DCF, wildlife division, Chamarajanagar, 2004, official memorandum, no B/WL/CR-36/2002-03, Karnataka
11. V D Sharma, R G Soni and Rajendra Singh, 2005, suggestions to the Tiger Task Force, *mimeo*
12. Rucha Ghate, 2003, *Global gains at local costs: imposing protected areas*, department of economics, Nagpur university, *mimeo*
13. Rucha Ghate, 2005, submission to the Tiger Task Force, Nagpur, June, *mimeo*
14. Harini Nagendra, personal communication, nagendra@indiana.edu
15. Ghazala Shahabuddin and Soumya Prasad, 2004, 'Assessing ecological sustainability of non-timber forest produce extraction: the Indian scenario', *Conservation and Society* 2, 2, Sage publications, Delhi, Thousand Oaks, London
16. Sharad Lele, 2005, letter and suggestions to Tiger Task Force, by email July 4, Bangalore
17. J Mutebi, 'Co-managed protected areas: from conflict to collaboration, experience in Bwindi Impenetrable National Park, Uganda, CARE Uganda
18. UNEP World Conservation Monitoring Centre, Bwindi Impenetrable National Park, Uganda September 2003/July 22 2005, <http://www.unep-wcmc.org/sites/wh/bwindi.html>
19. R G Wild, J Mutebi, 'Conservation through community use of plant resources' CARE December 1996
20. R G Wild, J Mutebi, 'Conservation through community use of plant resources', CARE, December 1996
21. R G Wild, J Mutebi, 'Conservation through community use of plant resources', CARE December 1996
22. J Mutebi, 'Co-managed protected areas: from conflict to collaboration', experience in Bwindi Impenetrable National Park, Uganda, CARE, Uganda

3.9 The fringe agenda

1. Harini Nagendra *et al* 2005, 'People within parks — forest villages, land cover change and landscape fragmentation in the Tadoba-Andhari tiger reserve, India', *mimeo*
2. H S Pabla, 2005, 'Use it or lose it: the mantra for man-animal co-existence', *mimeo*
3. Nitin Sethi, 2004, 'The Bandipur-Brazil corridor', *Down To Earth*, Vol 13 No 11, Society for Environmental Communications, New Delhi
4. H S Pabla, 2005, 'Use it or lose it: the mantra for man-animal co-existence', *mimeo*
5. H S Pabla, 2005, 'Use it or lose it: the mantra for man-animal co-existence', *mimeo*
6. H S Pabla, 2005, 'Use it or lose it: the mantra for man-animal co-existence', *mimeo*
7. M D Madhusudan, 2003, 'Living amidst large wildlife: livestock and crop depredation by large mammals in the interior villages of Bhadra tiger reserve', south India, Springer
8. M D Madhusudan, 2003, 'Living amidst large wildlife: livestock and crop depredation by large mammals in the interior villages of Bhadra tiger reserve', south India, Springer
9. Anon, 1996, India Ecodevelopment Project, Project Report 1996, World Bank
10. Anon, 1996, India Ecodevelopment Project, Project Report 1996, World Bank

11. Anon, 1996, India Ecodevelopment Project, Project Report 1996, World Bank
12. Nitin Sethi, 2004, 'Officially bankrupt', *Down To Earth*, Vol 13, No 5, Society for Environmental Communications, New Delhi
13. Nitin Sethi, 2004, 'Officially bankrupt', *Down To Earth*, Vol 13, No 5, Society for Environmental Communications, New Delhi
14. Anon, 1983, 'Eliciting public support for wildlife conservation', Indian Board of Wildlife, Union government of India, Delhi
15. Nitin Sethi, 2004, 'Officially bankrupt', *Down To Earth*, Vol 13, No 5, Society for Environmental Communications, New Delhi
16. Nitin Sethi, 2004, 'Officially bankrupt', *Down To Earth*, Vol 13, No 5, Society for Environmental Communications, New Delhi
17. Nitin Sethi, 2004, 'Officially bankrupt', *Down To Earth*, Vol 13, No 5, Society for Environmental Communications, New Delhi
18. Anon, 2000, 'Bone of contention', *Down To Earth*, Vol 9, No 7, Society for Environmental Communications, New Delhi
19. K Ullas Karanth, 2005, *Comments and suggestions on some general issues of tiger conservation in india*, Centre for Wildlife Studies, Wildlife Conservation Society Bangalore
20. Vishwas Sawarkar, 2005, 'What will it take to secure in the long term the future of tigers in the forests of India — an appraisal', submitted to the Tiger Task Force, government of India
21. V K Bahuguna *et al* 2004, *Root to Canopy*, Winrock International India
22. V K Bahuguna *et al* 2004, *Root to Canopy*, Winrock International India
23. Mark Poffenberger and Betsy McGean, 1996, *Village Voices, Forest Choices*, Oxford University Press
24. V K Bahuguna *et al* 2004, *Root to Canopy*, Winrock International India
25. Anon, 2004, *Forest and Wildlife Statistics India 2004*, Union ministry of environment and forests, New Delhi
26. Anon, 2004, *Forest and Wildlife Statistics India 2004*, Union ministry of environment and forests, New Delhi
27. Ruksan Bose, 2005, 'Too cut and dried', *Down To Earth*, Vol 14, No 5, Society for Environmental Communications, New Delhi
28. Ashish Kothari, 2005, comments on the Wildlife (Protection) Amendment Bill, 2002, Kalpvriksh, Pune
29. Mohit Gera, 2004, 'Jammu and Kashmir', *Root to Canopy*, V K Bahuguna *et al* editors, Winrock International India

3.10 The tourism agenda

1. Project Tiger, 2005, 'Analysis of data received from states', *mimeo*
2. Anon, 2005, data from Rajasthan state forest department to Tiger Task Force, personal communication
3. Anon, 2005, data from Periyar Foundation to the Tiger Task Force, personal communication
4. MOEF, 2002, the National Wildlife Action Plan 2002-2016, government of India
5. Anon, 2004, compendium of guidelines issued by Project Tiger director, New Delhi
6. Government of Rajasthan, 2004, guidelines regarding regulation of tourists and vehicles in Ranthambhore national park, September 20, Jaipur
7. Dharmendra Khandal, 2004, 'Tourism management in the Ranthambhore national park: problems and solutions', September, Tiger Watch, Sawai Madhopur, *mimeo*
8. Anon, 2005, data received from Rajasthan state forest department to the Tiger Task Force, 2005
9. Anon, 2005, data received from Rajasthan state forest department to the Tiger Task Force, 2005
10. A K Garg, 2003, Order No F 11 (14) forest/01, government of Rajasthan, forest department, May 26, Jaipur
11. R Sukumar, 2005, brief note placed before the Tiger Task Force, at the meeting held at the CES, IISc, Bangalore, June 21, Centre for Ecological Sciences, Indian Institute of Science, *mimeo*
12. R Sukumar, 2005, brief note placed before the Tiger Task Force, at the meeting held at the CES, IISc, Bangalore, June 21, Centre for Ecological Sciences, Indian Institute of Science, *mimeo*
13. Deepa Kozhisseri, 2005, 'Once poacher, now guard', *Down To Earth*, Vol 14, No 6, Society for Environmental Communications, New Delhi
14. R Sukumar, 2005, brief note placed before the Tiger Task Force, at the meeting held at the CES, IISc, Bangalore, June 21, Centre for Ecological Sciences, Indian Institute of Science, *mimeo*
15. Ghazala Shahabuddin, 2005, 'When people take charge, sustainable tourism equals sustainable living', *mimeo*
16. Rustam Vania, 2002, 'The enterprise', *Down To Earth*, Vol 11, No 5, Society for Environmental Communications, New Delhi
17. <http://earthtrends.wri.org/text/biodiversity->

- protected/country-profile-205.html* as seen on July 24, 2005
18. http://www.globaleye.org.uk/archive/summer2k/focuson/mars_pt1.html, as seen on July 22, 2005
 19. Richard Hassler 1999, Overview of the social, ecological and economic achievements and challenges of Zimbabwe's CAMPFIRE programme, IIED
 20. <http://www.unsystem.org/ngls/documents/publications.en/voices.africa/number6/vfa6.08.htm>, as seen on July 22, 2005
 21. http://www.globaleye.org.uk/archive/summer2k/focuson/mars_pt1.html, as seen on July 22, 2005
- ### 3.11 Ecological services agenda
1. Anon, 2004, *State of Forest Report*, Forest Survey of India 2003, Dehradun
 2. Ruksan Bose, 2005, 'Too cut and dried', *Down To Earth*, Vol 14, No 5, Society for Environmental Communications, New Delhi
 3. Ruksan Bose, 2005, 'Too cut and dried', *Down To Earth*, Vol 14, No 5, Society for Environmental Communications, New Delhi
 4. Madhu Verma, 2001, 'Economic valuation of Bhoj wetlands for sustainable use', *mimeo*
 5. Ruksan Bose, 2005, 'Too cut and dried', *Down To Earth*, Vol 14, No 5, Society for Environmental Communications, New Delhi
 6. Augusta Molnar *et al* 2004, *Who conserves the world's forests? A new assessment of conservation and investment trends*, Forest Trends, Washington, USA
 7. Ruksan Bose, 2005, 'Too cut and dried', *Down To Earth*, Vol 14, No 5, Society for Environmental Communications, New Delhi

06

Annexures

- I. The composition and terms of reference of the Tiger Task Force
- II. Note of dissent by Valmik Thapar, member, Tiger Task Force
- III. Response of the chairperson, Tiger Task Force, to note of dissent
- IV. Expert consultations based on terms of reference of the Tiger Task Force
- V. Visits of the Tiger Task Force
- VI. Experts requested to comment on methodology of tiger estimation
- VII. Suggestions received on the terms of reference of Tiger Task Force
- VIII. Methodology for estimating and monitoring tiger status and habitat
- IX. Investing in institutions for change: strengthening the Project Tiger directorate
- X. A critique of cadre-building in the forestry sector and suggestions for human resource improvement
- XI. Amending the criminal provisions of the Wildlife (Protection) Act, 1972
- XII. Guideline on establishment of wildlife wings issued 1973-1981

ANNEXURE - I **The composition and terms of reference of the Tiger Task Force**

No 6 (4)/2005-PT
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT AND FORESTS
(PROJECT TIGER)

Annexe No. 5, Bikaner House
Shahjahan Road, New Delhi-11
Dated the 19th April, 2005.

NOTIFICATION

In pursuant to the decision taken during the second meeting of the National Board for Wildlife held on 17-3-2005, a Task Force for reviewing the management of Tiger Reserves has been constituted. The Members of the Task Force are as follows:

- | | |
|---|---------------|
| (1) Ms Sunita Narain, Director, Centre for Science and Environment. | - Chairperson |
| (2) Shri H S Panwar, Ex-Head, Project Tiger and Ex-Head, Wild Life Institute of India. | - Member |
| (3) Prof Madhav Gadgil, Environmental Historian and Member, National Board for Wildlife. | - Member |
| (4) Shri Valmik Thapar, Member, National Board for Wildlife. | - Member |
| (5) Shri Samar Singh, Ex-Secretary, Govt. of India and Member, National Board for Wildlife. | - Member |

The terms of reference of the Task Force are as follows:

1. Suggest measures to strengthen tiger conservation in the country.
2. Suggest measures to incentivise the local community in conservation of tigers.
3. Suggest measures to incentivise local forest staff posted in sanctuaries/national parks and ensure an effective HR plan for tiger conservation/wildlife managers.
4. Suggest measures to improve the methodology of tiger counting and forecasting.
5. Suggest methods of transparent professional audit of wildlife parks and placing data on tiger conservation in the public domain.
6. Suggest a new wildlife management paradigm that shares concerns of conservation with the public at large.
2. The Project Tiger Division of the Ministry of Environment & Forests would be facilitating the working of the Task Force and render all necessary help.
3. The Task Force should submit its report within three months from the date of this notification.
4. The sitting fees and travel cost would be reimbursed to the Members of the Task Force as per norms.

(DR. RAJESH GOPAL)
IGF & DIRECTOR, PROJECT TIGER

To

- (1) All Members of the Task Force.
- (2) P.M.O.
- (3) PS to MEF
- (4) PS to MOS (E&F)
- (5) PPS to Secretary (E&F)
- (6) PPS to DGF & SS
- (7) PPS to Addl. DGF (WL)

ANNEXURE-II Note of dissent

19, Kautilya Marg,
Chanakypuri,
New Delhi-110021
Dated: 27.07.2005

To

Ms Sunita Narain,
Chairperson,
Task Force for Reviewing the
Management of Tiger Reserves,
New Delhi

Subject : Dissent Note on the Report of the Task Force for Reviewing the Management of Tiger Reserves

I am enclosing my Note of Dissent on the report alongwith Annexure A to D. It may please be ensured that this Note of Dissent alongwith enclosures is recorded and incorporated in the final report. A soft copy on floppy is also enclosed.

Please acknowledge receipt.

VALMIK THAPAR
Member
Task Force for Reviewing the
Management of Tiger Reserves

NOTE OF DISSENT BY VALMIK THAPAR, MEMBER ON THE DRAFT REPORT OF THE TASK FORCE FOR REVIEWING THE MANAGEMENT OF TIGER RESERVES

- I. The long term survival of tigers will depend on the single most important factor namely inviolate protected areas. A certain minimum area has to be managed exclusively in its natural form for the tiger. The area may be 1%, 1% or 2% or more of the geographical area of this country depending on the political mandate to do so. Let the principle of this be applied in the interest of the tiger. After all it is these areas which provide the water, food and ecological security of the country. On the other hand the entire report is based on a totally different strategy namely that:

“There are two essential strategies here:

1. The habitat must be shared between the people and the tigers, so that both can coexist, as they must. The poverty of one, otherwise, will be the destruction of the other.”

(Page 4, Chapter 02 – A Paradigm Change – Making Conservation Work)

- II. The concept paper on “A Paradigm Change – “Making Conservation work” and the chapter on Co-existence of people raise serious issues that impact on the entire report. Let us not forget that the task force was mandated to suggest measures to save the tiger from vanishing off the face of India. It was a response to an ongoing tiger crisis. Unfortunately, in its eagerness to find ‘eternal solutions’ for all problems afflicting the country at one go, the Task Force appears to have lost this mission-focus and has gone adrift trying to find solutions to all the problems of inequity and social injustice that afflict India. In the process the interests of the tiger’s survival has been relegated and lost sight of.

- III. It is imperative to note that all the ‘potential tiger habitats in the protected areas of India, add up only to 100,000 sq. km. and populations where reproduction is taking place now occupy less than 20,000 sq. km. This is a relatively small fraction of India’s huge rural poor population is exposed to tigers. The premise that there are vast areas of India where tigers and people must be forced to co-exist through some innovative scheme of increased use of underutilized forest resources by involving the local people does not make any sense to tiger conservation especially when the human and cattle populations are constantly rising. The fact is each tiger must eat 50 cow-sized animals a year to survive, and if you put it amidst cows and people, the conflict will be eternal and perennial. Tigers continue to lose out as they did in Sariska (and over 95% of their former range in India). The premise of continued co-existence over vast landscapes where tigers thrive ecologically, as well people thrive economically, is an impractical dream, with which I totally disagree. Such dreaming cannot save the tiger in the real world. On the other hand such a scenario will be a “no win” situation for everyone and result in further declines and the eventual extinction of tiger populations. Alternatives where tigers have priority in identified protected reserves and people have priority outside them have to be explored fast and implemented expeditiously. There is no other way. The present concept of a ‘new’ coexistence is an utopian idea and impractical and will not work. This I am absolutely clear about.

Blaming strict nature reserves and conservation laws where tigers have priority, for all the poverty and inequity driven ills that plague our vast country is pointless polemics: These ills are consequences of the failure of development, economics and politics of the country and society as a whole and cannot be simple-mindedly blamed on conservationists.

- IV. In the chapter 5.8 “The Co-Existence Agenda”, it is stated that:

“Exacerbating tensions with protection

If this was not bad enough, recent events have made things even more unbearable for the people who live in these reserves.

In February 2000, the Amicus Curiae (in the omnibus forest case ongoing in the Supreme Court), had filed an application seeking The court in its order dated 14.2.2000 ordered that “in the meantime, we restrain the respondents from ordering the removal of dead, diseased, dying or wing-fallen trees, drift wood and grasses etc. from the national park or game sanctuary or forest.”

This order has led to a number of directions:

But matters (and confusion) did not end there.

On October 20, 2003, the Ministry of Environment and Forests wrote to all chief secretaries a letter detailing the guidelines for diversion of forest land for non forest purposes under the Forest Conservation Act 1980. ...

But even this was not enough.

On July 2, 2004, the Central Empowered Committee (CEC) set up the Supreme Court to assist it in the forest matters, wrote to all state governments

Impact on conservation

The combined result of these directions, orders and clarifications has been that all hell has broken loose in the protected areas. ...”

The report gives an impression that the Hon'ble Supreme Court's orders dated 14.2.2000, 3.4.2000, 10.5.2001, and February, 2002, application moved by the Amicus Curiae pursuant to which some of the above orders have been passed, guidelines issued by the MOEF and clarification dated 2.7.2004 issued by the CEC for implementation of the Hon'ble Supreme Court's order are unwarranted, misplaced and that these have been issued without application of mind. This view is totally unacceptable. I firmly believe that the Hon'ble Supreme Court's orders have been most invaluable in furthering the cause of conservation and the protection of wildlife habitat. The large scale destruction of the tiger habitat due to massive mining, tree felling, supply of bamboo to paper mills, diversion of protected area habitat for ill conceived projects, etc. have been controlled significantly something which would not have been possible but for the intervention by the Hon'ble Supreme Court.

- V. The concept paper simply ignores what sound science tells us about tiger conservation. It fails to note the deteriorating protection of the tiger reserve, and the need to put in place alternative, effective mechanisms to protect the core breeding populations of tigers in these protected areas. “A Paradigm for Change” should have included a complete revision in the process of protection and enforcement coupled with reform. Though this is suggested in other chapters its absence in the concept is perplexing. In the chapter on Co-existence with people the recommendation of relocating people will come into direct conflict with the recommendations on co-existence of people. In the end the recommendations would be a bundle of contradictions and the outcome will come to naught. The suggested measures because of the inherent contradictions will only cause further degradation of the tiger habitat and the tiger will be the end sufferer. After all why on earth would anyone want to leave a protected area when the co-existence package is so attractive? We are only too aware that there are criminal elements out there ready to kill the tigers and plunder their home under the cover of livelihood related uses given a chance. The report of the CBI about Sariska has confirmed this. Let us not overlook the fact that our mandate is about securing the future of the tiger and this can only be done in the framework of our laws. Let there be no doubt about our mandate.
- VI. Even after many rounds of discussions, the final chapters have changes that were never discussed. For instance few examples are:
- (i) the decision taken by the Task Force was that the Hon'ble Prime Minister should Chair the Steering Committee of Project Tiger. This was not “either or” with the National Board of Wildlife (Chapter – The Way Ahead);
 - (ii) it was agreed that the Wildlife Crime Bureau should be headed by a senior officer in the super time scale. Now added to this is “the person should report to the Additional Director General of Forests”. Can this make any sense? All it will do is to prevent his independent functioning in such sensitive investigative job. This is a typical bureaucratic approach to make the system ineffective (Chapter – Domestic Enforcement – 3.3(a));

(iii) regarding the State Empowered Committee of Rajasthan, I had clearly mentioned that the extension of the term of the Committee was to do with the census the Committee was carrying out. The Committee had taken a series of actions from its inception. Now the said paragraph states “...but has now extended its term by another three months which has delayed the urgent action needed” (page 7 of Chapter 2 – The Sariska Shock). This is factually incorrect and misleading;

(iv) there was a boxed section in the Chapter 3.5 “The Science Agenda” on how senior researchers and scientists have been hounded and harassed by officials in the Parks. This has now been totally deleted though it was earlier agreed to be retained.

VII. I am also quite shocked how the report has glossed over the role of the MOEF including the Project Tiger Directorate in recent years. In the report given by me in the first meeting itself on 29th April, 2005, I had clearly brought out the role of the Project Tiger in the debacle that took place in Sariska and the extinction of tigers in Keladevi Sanctuary. It was then pointed out by me that there was need to inquire into and fix the responsibility for the debacle. The vital issues raised in the above report find no mention in the final report without any apparent reasons. Since then more than 21 tigers have been found to be missing in Ranthambhore Tiger Reserve. This is a very serious issue. Again very little of this finds place in the report (ANNEXURE-D).

I had earlier sent to you (i) a draft report (now final) identifying specific problems of tiger conservation and giving specific solutions (ANNEXURE-A); (ii) an action plan for co-existence of people (ANNEXURE-B); and (iii) objection to Research and Study Chapter (ANNEXURE-C). I have also objected to the sub-cadre in wildlife and have instead proposed the alternative of creating a panel of suitable officers (Para 1(I to v) of Part II of my report (ANNEXURE-A). I have also urged a Central Forest and Wildlife Protection Force may be set up (Para 2(vi) of Part II) of my report (ANNEXURE-A).

Copies of the above are enclosed as ANNEXURE-A to ANNEXURE-C to this Note of Dissent. These together with ANNEXURE-D form part of my Dissent Note.

Before parting, I am constrained to observe that sadly much of the report has become focused on how to improve the life of people inside protected areas rather than protecting tigers inside them. This people focus should have been the job of another task force. The focus on the tiger has therefore blurred since the priorities have shifted. In a way this is tragic and if some of the recommendations are endorsed in policy they could have dangerous repercussions for the tiger.

(Valmik Thapar)
Member
Task Force for Reviewing the
Management of Tiger Reserves

Dated :27.07.2005

DISSENT NOTEANNEXURE-A**A PLAN OF ACTION TO ENSURE THE LONG TERM SURVIVAL OF TIGERS****INTRODUCTION**

1. The Sariska tiger crisis happened because (a) the Tiger Reserve was completely mismanaged thereby leaving the field open for poachers; (b) the actual number of tigers was much less than that reflected in the earlier census figures because the census was not participatory, transparent and scientific, the total count pugmark census methodology used since the 1970s has been proven inaccurate; and (c) excessive human and livestock disturbance right across the area.

2. The Sariska tiger crisis is symptomatic of most of India. In 2004-2005 local extinctions have taken place not only in Sariska Sanctuary but also in Kela Devi Sanctuary in Rajasthan. These two sanctuaries between them lost 24 tigers. There was also a sharp decline of 21 tigers in Ranthambhore Tiger Reserve. All the seven tigers in the Palpurkuno Sanctuary and all the six tigers in Rani Durgawati Sanctuary in Madhya Pradesh have been wiped out and are now locally extinct. The decline across the North East including Namdapha and Dampha Tiger Reserves coupled with the declines in places like Palamau Tiger Reserve, Valmiki Tiger Reserve, Dudhwa Tiger Reserve, Indrawati Tiger Reserve, Panna Tiger Reserve and Nagarjuna Sagar Tiger Reserve reflect the grim national scenario. The States have obviously not given the required priority to the issue of conservation and protection of tigers notwithstanding the existence of many reports, recommendations and the Wildlife Action Plan that are drawn up from time to time after involving experts at the national level. The non-implementation of the National Wildlife Action Plan (2002-2016) particularly stands out starkly in this regard.

3. The tremendous pressure on forests and the unsustainable levels of biomass removals by local people as well as by the forest department and rampant grazing have adversely affected the National Parks/sanctuaries/reserve forests. The State of the Forest Report, 2003, clearly brings out that the forests having more than 70 per cent density is only 51,285 sq. kms. (1.56 per cent of this country's geographic area). Further, an area of 26,245 sq. kms (0.75 per cent of country's geographic area) of dense forests

having more than 40 per cent density has been lost in just two years. Out of this area of 26,245 sq. kms of dense forests, a total of 23,140 sq. kms is in potentially rich tiger habitats and includes, among others, States like Assam, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Uttar Pradesh and Uttranchal. The trends revealed in this latest report are exceedingly grave and disturbing and, if not reversed, could have serious consequences for the tiger's forests. There would be 300,000 sq. kms of potential tiger habitat. Less than 10% contain breeding population.

4. The unregulated biotic pressure has resulted in a conflict of interests between the local population and the forest management with the real threat of large scale destruction of wildlife habitat looming on the horizon. Encroachments, delayed settlement of rights of the people and the diversion of forests for ill conceived projects have compounded the problems. In this background the populist approach of liberally regularizing encroachments and grant of pattas in forest areas and management interventions in the form of dry bamboo extraction, underplanting, etc. will both mean further fragmentation inviting irreversible ecological disaster. Ultimately the tiger itself will be on the brink of extinction.

5. Tiger populations breed well and grow rapidly in population in habitats without incompatible human uses. They cannot co-exist with people particularly in a situation where both human impacts and livestock grazing are continuously on the increase. In the Ranthambhore Tiger Reserve the tiger has gone locally extinct in Kela Devi Sanctuary and Sawai Mansingh Sanctuary in the year 2005. The reason for this is the presence of 52,510 goats, 10178 buffaloes, 4928 cows and even 37 camels. Not to talk of 40 villages and their ever increasing human population. One wonders whether this sanctuary has been declared to protect forest and wildlife or cattle? The long term survival of tigers will therefore depend on how secure and inviolate are the protected areas in which they live.

6. In the above background an attempt has been made to highlight the problems (Part I) under six heads as below :

- i) Forest Personnel;

- ii) Infrastructure;
- iii) Biotic Pressure on the Wildlife Habitat;
- iv) Policy and Enforcement Issues;
- v) Research, Science and Monitoring ; and
- vi) Funds Related Issues

7. Similarly, an attempt has also been made to provide possible solutions to the problems listed in the preceding para within the existing legal and administrative framework that exists in India. The solutions suggested (Part II) have been indicated under the following heads :

- i) Manage the Protected Area with Competent Officials so that Problems are Resolved ;
- ii) Sensitize the Centre and State Administration to the Needs of the Tiger;
- iii) Prevent Destruction of the Tiger's Habitat;
- iv) Strengthen Research and Training Across Tiger Habitats;
- v) Provide Timely Funds to all Specially Designated Tiger Areas;
- vi) Legal Support; and
- vii) International Cooperation.

8. The Plan of Action drawn up identifies the problems and provide solutions without becoming encyclopedic. The problems have to be tackled on a war footing to ensure that the solutions are faithfully implemented in the field in a time bound manner. The need of the hour is implementation.

9. Issues related to personnel matters need to be given a very high priority because the officials who manage the tiger's landscape, and the local people, have to be committed and dedicated and trained to

be effective. This also raises issues like how do you create a system to ensure that the best person is on the job and how do we make him fully effective in that job? Particularly given that the State Governments really make the final decisions in all personnel posting in reserves. How do we attempt this?

10. Similarly, to minimize human disturbance how do you involve the forest management and the local inhabitants? Ultimately both the forest management and the local people have to develop a sense of pride and satisfaction in what they are doing if the forests and wildlife are to be conserved and protected. Today the area in which tigers live undisturbed is grossly inadequate and therefore the long term survival of the tiger hangs in the balance.

11. There has to be close coordination and dovetailing of the activities initiated by the National Level Committee headed by the Prime Minister, the State Level Committee headed by the Chief Minister and the National Advisory Committee on Research so that they all move and act in tandem and become receptive mechanisms for change.

12. It is with all these factors in mind that this plan of action has been spelt out in a simple and straight forward way without too much detail which wherever further required has been left to the appropriate expert administrative and research committees. This Plan of Action has been so structured so as to ensure that the existing delicate balance of responsibility and power between the Centre and the State is not disturbed.

PART I

THE PROBLEMS

1. FOREST PERSONNEL

- i) Lack of professionally trained, committed, competent and physically fit Field Directors and other officials.
- ii) The Forest Department's mindset is that of an owner not a custodian.
- iii) There is no system of selective appointments to the sensitive posts at various levels in the PAS/Tiger Reserves. (Instead many are treated as punishment postings).
- iv) Vacant posts numbering nearly 5000 in PAS/Tiger Reserves.
- v) The average age of forest guards is above 50 years.
- vi) No effective system of specialized training (induction stage, in service etc.)
- vii) Transfer policy – no fixed tenure. Irrational transfers on extraneous considerations.
- viii) Lack of incentives including special pay, housing, etc.
- ix) Insufficient promotion avenues –forest guards remain stagnant for years.
- x) Poor service conditions for front line staff in terms of provisions for ration, special pay, family accommodation, working hours, schooling, medical facilities, compensatory leave, life and other

- insurance policies etc.
- xi) Physical fitness programme – No training or drill centres on site.
- xii) Lack of effective disciplinary action system against the delinquent officials. Punishment should be swift and act as a deterrent.
- xiii) Lack of priority for deployment of armed police in time of crisis/to sensitive area.

II. INFRASTRUCTURE

- i) Forest Officials are not empowered to use fire arms for protection of Government property/forest produce/wildlife except in Karnataka/Tamil Nadu.
- ii) Inadequate as well as out dated fire arms exist with the officials and wherever available no proper training programme/facilities exist.
- iii) Lack of uniform, shoes, patrolling kit for the staff.
- iv) No/inadequate wireless hand-sets for communication.
- v) Inadequate mobility (motorcycles, jeeps, trucks, boats, etc.).
- vi) Inadequate forest chowkies/posts, anti poaching camps, patrol camps and staff quarters.
- vii) Poor service and maintenance of vehicles, wireless, chowkies/checkposts, buildings, equipments, etc.

III. BIOTIC PRESSURE ON THE WILDLIFE HABITAT

- i) Settlement of acquisition rights under Wild Life (Protection) Act, 1972 pending for decades in PAS.
- ii) No effective steps taken to prevent and remove encroachments.
- iii) Very poor progress of relocation of villages located inside the National Park/sanctuary.
- iv) Inadequate compensation for the loss of life and property including crops resulting in anger and deliberate damage both to wildlife and habitat.
- v) Habitat fragmentation due to ill conceived projects/schemes which have adverse impact on PAS.
- vi) Absence of adequate wildlife corridors connecting one PA/Tiger Reserve with another.
- vii) Conflict of PA with local community (within as well as in peripheral villages).
- viii) Rampant legal/illegal mining continues.

- ix) Unregulated and poor tourism management.
- x) Excessive/illegal grazing and removal of fuelwood, MFP, etc. continues at unsustainable levels.
- xi) Presence of roads (State and other roads) with heavy traffic passing through PAS.
- xii) Poor management of tigers outside PAs/tiger reserves.

IV. POLICY AND ENFORCEMENT ISSUES

- i) Lack of will at higher echelons of political and administrative set up at both Centre and State levels (committees hardly meet, decisions kept pending, whatever decision taken remains unimplemented, posts not filled, dual charge, powers of transfer/posting misused, etc.).
- ii) Ineffective role of the MOEF in convening meetings of committees, decision taking delayed, poor follow up action on decisions taken, appointments etc. Endless recommendations of expert committees gathering dust in MOEF for years e.g. Subramanayam Committee.
- iii) Lack of a grasp of human and ecological concerns in wildlife conservation resulting in poor policy.
- iv) National Wildlife Action Plan (2002-2016) only on paper. Completely ignored and remains unimplemented.
- v) Lack of professionally trained wildlife officials leading to poor enforcement of forest and wildlife laws which is a critical component in the protection work.
- vi) Lack of coordination between Centre and State in the implementation of policies, laws, guidelines and directives.
- vii) Lack of coordination amongst the various agencies/departments.
- viii) National Wildlife Crime Bureau is yet to be set up even though decision to create it was taken eight years ago.
- ix) Ineffective intelligence collection and networking at local level, state level, national level and international level, and absent or ineffective in most States.

V. RESEARCH, SCIENCE AND MONITORING

- i) No wildlife management manual – the Protected Area manager has no guidelines to refer to and no clear prescription to follow which leads to taking ad hoc decisions.
- ii) Absence/poor quality of Management Plan for Protected Area. Wherever they

- exist the prescriptions are poorly implemented due to lack of funds or expertise.
- iii) Poor scientific input in management and monitoring of PAs.
 - iv) Unscientific estimation of tiger population – Grossly inflated because of defective methodology. Also lacks transparency.
 - v) Size of the breeding tiger population depends on good protection/adequate preybase, less disturbance and adequate water availability.
 - vi) Independent scientific researchers discouraged, even harassed.
 - vii) Poor management of the area (habitat, animals, people tourism etc.). Should include independent ecological audit and monitoring.

VI. FUNDS RELATED ISSUES

- i) Grossly inadequate allocation – (State plan, Central Plan).
- ii) Diversion of Central assistance – in absence of proper funding mechanism.
- iii) Earmarking of funds necessary so that it is not diverted for non-forestry/non-wildlife activities.
- iv) Delay in disbursement and utilization of funds – Late release of funds results in it either being misutilised or remaining unutilized because it is not possible to use it before the financial year ends on the 31st March of that particular year.
- v) Inadequate delegation of financial powers – purchases etc.
- vi) No funds for intelligence gathering.

PART II

SOLUTIONS

I. MANAGE THE PROTECTED AREA WITH COMPETENT OFFICIALS SO THAT PROBLEMS ARE RESOLVED

- i) Prepare a panel of officials who have evinced keen interest in wildlife – at the level of Field Director (Conservator of Forests)/ Deputy Conservator of Forest level), A.C.F. and RFO – Make a small beginning – say with 10 Field Directors, 25 ACFS, 50-100 RFOs and then increase the numbers.
- ii) The panel to be drawn up by the Ministry of Environment & Forests in consultation with independent experts and State Governments. The detailed procedure and standards for this purpose to be laid down by the National Committee headed by the Prime Minister (refer para II (i)).
- iii) The empanelled officers may be considered for posting in any of the premier PAs within his home cadre and in other States (on State to State deputation basis).
- iv) In addition to forest officers, the panel may include non-government experts and willing officers from other services on deputation. Lateral induction may also be resorted to.
- v) Extensive training on a continuous basis to empanelled officials.
- vi) Security of tenure to be ensured – officials

to be shifted before completion of tenure only in exceptional cases with reasons to be recorded and communicated along with transfer orders.

- vii) Like some of the specialised government agencies the tenure may be extendable in deserving cases – no cap need be fixed.
- viii) Eligibility for in situ promotion to ensure continuity.
- ix) Special pay and facilities for officials posted in the field.
- x) Mechanism for swiftly fixing accountability and responsibility against lax/corrupt/defaulting officials.

II. SENSITISE THE CENTRE AND STATE ADMINISTRATION TO THE NEEDS OF THE TIGER

- i) A National Tiger Management Committee, at the Central level, under the Chairmanship of the Prime Minister with representatives of the Ministries of Environment and Forests, Home, Finance, Tribal Welfare, Rural Development and the Planning Commission as well as independent experts as members should be constituted to provide policy input and inject innovative reforms in the system. The said Committee, wherever required, may intervene to provide the requisite political and administrative inputs and

- support at the Central/State level. The Central Committee will regularly interact with the State Committee chaired by the Chief Minister.
- ii) A High Powered Committee under the Chairmanship of the Chief Minister with the Forest Minister, Chief Secretary, Secretaries looking after Departments of Forests, Home, Finance and Planning, Principal Chief Conservator of Forest and Chief Wildlife Warden as members to be constituted immediately for taking decision for filling up vacant posts, imparting training to the front line staff, providing incentives to the officials, improving service conditions and facilities and the deploying of armed police in sensitive areas in times of crisis. This Committee will also deal with other administrative issues such as empowering the use of fire arms, providing uniforms, patrolling equipment, wireless networks, vehicles, and the allocation and release of adequate funds for wildlife conservation with adequate delegation of financial powers, etc.
 - iii) To accord priority and focus on the conservation and protection issues, a separate department for Forest and Wildlife should immediately be carved out within the Ministry of Environment and Forests. It may be mentioned that during the meeting of the National Board of Wildlife held on 17.3.2005 under the Chairmanship of the Prime Minister, there was a general consensus for a separate Department for Forest and Wildlife.
 - iv) Immediate implementation of the National Wildlife Action Plan (2002-2016). Funds to be earmarked for the implementation of this Plan.
 - v) The Wildlife Crime Bureau should immediately be made effective preferably before 1st September, 2005, and even after it is set up the CBI should continue to play a lead role.
 - vi) A Central Forest and Wildlife Protection Force should be constituted by drawing officials on deputation from Police, CRPF, CISF, ITBP, etc. – This fully equipped and trained force can be deployed at short notice to any trouble spot.
 - vii) The officials posted in PAS should not be used for election or any other non-protection work. Similarly the vehicles belonging to the PA shall not be diverted for any work relating to election or other duties.
 - viii) Projects like eco-development etc. should not be handled by the Forest Department whose sole job must be focused on protection.
 - ix) The environmental impact of all commercial and developmental projects proposed to be undertaken in and around the tiger's habitat needs to be thoroughly scrutinized by experts before being cleared.
 - x) The impact of externally aided projects in the field of wildlife conservation and protection has by and large been negative and therefore should be discouraged.
- ### III. PREVENT DESTRUCTION OF THE TIGER'S HABITAT
- i) Settlement/acquisition of rights in the PAS under the provisions of the Wild Life (Protection) Act, 1972 should be undertaken on priority.
 - ii) A time bound programme for the relocation of villages from within the protected areas should be prepared and implemented at the earliest. The rehabilitation plan should ensure that the compensation package is the best possible, liberal and attractive so that it leads to a better quality of life. As far as possible the relocation process should be outsourced with the Forest Department playing only a catalytical role.
 - iii) Since the above matter is of critical importance, the State Committee under the Chairmanship of the Chief Minister should regularly review the all round progress. The funds for this purpose may be made available by the MOEF, Ministry of Tribal Affairs, Ministry of Rural Development and the State Governments. Other sources like the Compensatory Afforestation Fund may also be tapped.
 - iv) Prevention and eviction of encroachments should be given emphasis.
 - v) The villagers in and around the PAs should be effectively involved in conservation and protection of the area. Some of the suggested measures are :
 - a) creation of village patrols where local villagers are trained, given monthly remuneration and like home guards can be effectively deployed. A specially designed course may be drawn up for their training;
 - b) use of local villagers for water and

- soil conservation, fire protection, as tourist guides and interpreters and in any other P.A. based activity. Suitable training courses for these activities may be drawn up;
 - c) networking local people in intelligence gathering against timber mafia and poachers;
 - d) build up close rapport with forest staff and local anti-poaching patrols (to use their traditional knowledge of the area) to track poachers;
 - e) impart training for their involvement in scientific research (special courses that are site specific to the ongoing research can be conducted);
 - f) the revenue from tourism collected by the Park Authorities may be used for the establishment of a Village Trust Fund for engaging the local population in the protection of the PA – to be administered by the village elders. Some of this revenue could also go towards staff welfare;
 - g) the local population may play an effective role in conservation and protection of the area by establishing Management Boards/Committees for the PA consisting of representatives of the villages, Park officials and locally based conservation NGOs and scientists. This Management Board/Committee may meet every three months in order to encourage a transparent and participatory approach towards management and thereafter will regularly send its recommendations to the State Level Committee;
 - h) rehabilitation of hunting tribes, traditional poachers living in and around PAs should be done on a priority basis (as was done in Periyar). One way of rehabilitating them is by involving them in anti-poaching works which gives rich dividend. They could also be resettled away from forest areas and then given alternatives for their livelihood. This would need to be closely monitored;
 - vi) Specific prescriptions for tiger protection should be incorporated in the Working Plans in respect of identified tiger rich habitats in forests outside the protected areas.
 - vii) Priority needs to be accorded for identification and protection of wildlife corridors for the movement of tigers/wildlife from one PA/habitat to another.
 - viii) Imposing a cess on hotels and tour operators who depend on the PA for their business. The cess will be determined by the State Committee under the Chairmanship of the Chief Minister. The cess can be used for the welfare of the local population such as schooling, medicine, etc.
 - ix) efforts should be made to provide alternate routes to the existing roads/National/State Highways passing through the PAs which are playing havoc with the tiger and wildlife.
 - xi) Mining (new leases as well as renewal cases), hotels and resorts and other activities which have a negative impact on the habitat and wildlife should not be permitted within the safety zone (say one km. from the boundary).
 - xi) Protected Areas affected by insurgency/naxalites and which have good forests and tiger habitats require special attention through special measures. – Both Central and State Committees will deal with this issue.
 - xii) Under no circumstances mining, agriculture, regularization of encroachment and other activities which lead to fragmentation/destruction of the habitat should be permitted.
- Many of the above activities can be prohibited/regulated under the existing provisions of the Wild Life (Protection) Act, 1972 and also by issuing of notification under the Environment (Protection) Act by the MOEF.

IV. STRENGTHEN RESEARCH AND TRAINING ACROSS TIGER HABITATS

- i) A Wildlife Management Manual/Code should be prepared in a time bound manner by the MOEF with the assistance of the Wildlife Institute of India. It should be ensured that every PA is managed as per the prescriptions of the Management Plan for that particular P.A. The Manual would be akin to a handbook that provides detailed information for the better management of the P.A.

- ii) An important component of the Management will be a detailed prescription for tourism, managing it and ensuring both respect for the tiger and the visitor.
- iii) A National Level Research Advisory Committee with independent experts and institutional members may be constituted to give inputs/frame guidelines from time to time regarding: (this should be an autonomous body free from government shackles so that they render independent and objective advise fearlessly)
 - a) tiger census methodology (to be decided after a complete review by all scientists associated with this especially because of the serious limitations of the total counts in the pug mark methodology);
 - b) research, monitoring and ecological audit; and
 - c) issue of transparent guidelines for Research Projects including redressal of grievances expeditiously.
- iv) Revamp the course and curriculum at the IGNTA which imparts training to IFS probationers and also organize special refresher courses for the serving IFS officers.
- v) A full fledged Centre for Wildlife Studies consisting of (a) forest officials and other experts on deputation to the Indira Gandhi National Forest Academy; (b) visiting faculty consisting of reputed national level experts; and (c) experts from the Wildlife Institute of India, etc. should be established in the Indira Gandhi National Academy of Administration.
- vi) The Centre for Wildlife Studies in coordination with the MOEF should be made responsible for the preparation of the curriculum and imparting training for the IFS probationers, conducting refresher courses and specialized studies/research., etc.
- vii) This Centre may also be used for providing specialized refresher courses/training programme for other officials (from Forest Department as well as other Departments).
- viii) A detailed annual presentation can be made to NBWL/Prime Minister's Committee by the National Advisory Board of Research in order to apprise him each year regarding the prevailing state of affairs.

V. PROVIDE TIMELY FUNDS TO ALL SPECIALLY DESIGNATED TIGER AREAS

The Central assistance, instead of being routed through the normal State Government machinery, should be released directly to the field staff on the existing pattern of release of funds by the MOEF through the Forest Development Agency (FDA). This will not only ensure timely release and utilization of funds but responsibility and accountability can also be easily fixed for non-utilization and misuse of funds. A system of concurrent financial audit as well as ecological audit should be put in place

VI. LEGAL SUPPORT

- i) Legal cells headed by experienced legal officers should be set up in each State for imparting training to officers/staff in investigative skills, collection of evidenced, preparation of charge sheets/complaints etc.
- ii) The Legal Cell will vigorously and closely pursue and monitor serious cases of poaching etc. They shall in such cases appoint special counsels/senior lawyers so that cases are taken to their logical end without delay.
- iii) Regional Forensic Laboratories to be established and recognized under the provisions of Code of Criminal Procedure. The opinion/reports of these laboratories are accepted as evidence in the Courts.
- iv) Provide prompt and effective legal support to officers/staff facing harassment on account of false retaliatory cases filed against them.
- v) Should also expedite cases (departmental or criminal) against officials by pursuing them vigorously.

VII. INTERNATIONAL COOPERATION

In some areas, India's tiger habitats are contiguous across national boundaries with Nepal, Bhutan, Bangladesh and Myanmar. These transboundary issues need to be taken up at bilateral level as also at SAARC meetings so that a joint/special task force could be set up for better protection and management of these areas. This will greatly help the present population of tigers that move to and fro across international borders.

DISSENT NOTE

ANNEXURE-B

RECOMMENDATIONS OF THE TASK FORCE REGARDING COEXISTENCE OF PEOPLE IN THE PROTECTED AREAS – DRAFT PREPARED BY VALMIK THAPAR

BASIC CONSERVATION STRATEGY

- i) The areas falling within the National Parks should be made inviolate. People living in these areas should be relocated and their rights acquired under the WLPA. If any village is not found of strategic importance within the National Park the boundary of the park should be altered to exclude such village. The excluded village may be included in the adjoining sanctuary, if any. Needless to say that rehabilitation package should be the best available and attractive.
- ii) Relocation from the sanctuary should be restricted to the minimum possible taking into account the conservation value of the area i.e. the relocation should be restricted to the area which are absolutely vital for the protection of tigers and are to be treated as “core area” for tiger conservation.
- iii) A detailed time bound plan for relocation of villages identified should be prepared and funds required should be made available at the earliest.
- iv) It should be made clear that the existing provisions of the W.L. (P) Act. allows the right holders to carry out their legitimate activities such as agriculture, grazing, etc.
- v) Pursuant to Hon’ble Supreme Court’s order dated 14.2.2000 in IA No. 548, no harvesting/removal of forest produce including minor forest produce is permissible from national parks/sanctuaries.
- vi) It may be clarified that the WLPA allows making of alternate arrangements for making available fuel, fodder, and other forest produce to the existing right holders (Section 18-A(2)). Section 29 of WLPA provide that any forest produce required from the sanctuaries should be distributed for meeting the personal bona fide needs of the people living in and around the sanctuaries (and not for any commercial purpose).
- vii) In view of above legal provisions, the MOEF may move the Hon’ble Supreme Court for

- modification of its order dated 14.2.2000 to enable the legal right holders to enjoy the benefits in the sanctuary and in the areas where final notifications have not been issued. The CEC has filed its report dated 4th November, 2004, which is under consideration of the Hon’ble Supreme Court. The MOEF may intervene in the said I.A. and modification of the said order.
- viii) A number of sanctuaries have been notified which include non-strategic areas of very low conservation value with many villages. A time bound exercise of rationalizing the boundaries of such sanctuaries should be undertaken by the MOEF in consultation with the States. This process will result in the exclusion of many areas. This will be of great help in mitigating the sufferings of a large number of people.
- ix) Even in non-strategic areas of the sanctuaries, if the villagers volunteer to shift out, such shifting should be facilitated.
- x) The villages from the sanctuaries may be allowed to be shifted into reserve forest/protected forest/unclassed forest without payment of compensatory Afforestation, NPV, etc. For this purpose a simplified procedure for granting approval under the F.C. Act should be formulated.
- xi) For the villagers which remain inside the sanctuary, innovative interventions within the framework of the law and the Supreme Court’s order should be introduced to ensure that the bona fide livelihood needs of the local people are taken care of. These may include :
 - a) preference in employment in various government departments;
 - b) engagement in water and soil conservation and other forest management measures;
 - c) involvement in village protection force;
 - d) passing on part of cess collected from nearby hotels;
 - e) employment in private sector hotels

and in other developmental projects around the park;

- f) tourist guides, trackers, intelligence gatherers, etc.

The above list is indicative and not exhaustive. The management plan should include a detailed prescription for involving the local population in the park management, mitigating man-animal conflict with a view to improve their quality of life.

The existing provisions of the Wild Life

(Protection) Act, 1972 provides for meeting all the concerns and requirements of the local people. The only issue is its effective implementation, therefore, there is no need for any review/revision of the Act.

The MOEF's directions are in consonance and in compliance of Hon'ble Supreme Court's orders and therefore cannot/should not be withdrawn. It may be mentioned that the Hon'ble Supreme Court in Pradip Krishen v/s UOI (AIR 1996 SC 2040)+ has specifically directed to complete settlement proceedings expeditiously.

DISSENT NOTE

ANNEXURE -C

OBJECTION BY MR. VALMIK THAPAR – MEMBER TIGER TASK FORCE ON RESEARCH AND SCIENCE TO BE INCORPORATED IN THE REPORT

Mr. Valmik Thapar Member of the Task Force has submitted the following note of dissent in relation to the recommendations on approaches to be adopted for monitoring tiger populations in the future.

The past history of Project Tiger is strewn with failures to reform the monitoring system due to a lack of attention to detail and ignoring of inputs from scientists seriously engaged with tiger conservation issues.

Since then the proposed scheme has been thoroughly examined and critiqued by leading carnivore ecologists who have specialized in population survey methodologies for decades at the specific request of the Task Force. These inputs have come from Dr. Ullhas Karanth, Dr. Raghu Chundawath, Dr. M. D. Madhusudan, Dr. AJT Johnsingh, Dr. SP Goel, Dr. Yoganand (the last three are from the Wildlife Institute of India). All these analysts, have endorsed the broad idea of Project Tiger taking up countrywide distribution surveys of tiger under a new sampling-based paradigm (instead of total count censuses). But they all have pointed out several flaws in the

proposed scheme. Their critique covers the issue of the very design of the surveys in proposed stages, practical problems in implementing many of the survey methods in field conditions, problems of analysis as well as with the demonstrated example from Satpura-Maikal Pilot Project which actually has not implemented the occupancy estimation approach. Given this Valmik Thapar strongly believes that a technical panel of experts proposed by the Task Force should examine all these aspects of the proposed methodology before it is implemented in order to resolve the problems that are admitted to exist with this protocol. This should be done within a time frame of just 3 months. Such a process will ensure the removal of any flaws and errors which may be present and prevent costly expenditures from taking place before the method has been vetted. This safeguard will be vital to this new step we are taking.

Therefore Valmik Thapar disagrees with the view that the protocol regarding tiger estimation should be implemented immediately and even before the technical panel has a chance to examine and improve it.

DISSENT NOTE

ANNEXURE- D

SPECIAL NOTE

**From: Valmik Thapar
Member – TIGER TASK FORCE (TTF)**

**To: The Chairman and all other Members,
for the meeting of the Task Force on 29th April, 2005.**

Date: 28th April, 2005

The Tiger Task Force (TTF) was born from a crisis that resulted in the extinction of the tigers in Sariska and Kela Devi Sanctuaries. The Prime Minister described the state of affairs as the worst crisis of wildlife since the inception of the Project Tiger.

OBJECTIVE

The objective of this note is to spell out short term and long term measures that will help save wild tigers. I presume that is the objective of the TTF.

SHORT TERM MEASURES

- (1) Deployment of additional Home Guards and Armed Police in different tiger reserves across India which are facing serious problems. This is an essential preventive measure pre-monsoon 2005.
 - (a) Manas Tiger Reserve, Assam
 - (b) Namdapha Tiger Reserve, Arunachal Pradesh
 - (c) Simlipal Tiger Reserve, Orissa
 - (d) Valmiki Tiger Reserve, Bihar
 - (e) Palamau Tiger Reserve, Jharkhand
 - (f) Nagarjuna Tiger Reserve, Andhra Pradesh
 - (g) Indravati Tiger Reserve, Chattisgarh
 - (h) Panna Tiger Reserve, Madhya Pradesh
 - (i) Pench Tiger Reserve, Madhya Pradesh
 - (j) Tadoba Tiger Reserve, Maharashtra
 - (k) Dudhwa Tiger Reserve, Uttar Pradesh
- (2) Ranthambhore and Sariska Tiger Reserve are not on this list as the Government of Rajasthan have already taken essential steps of deploying more than 300 Home Guards and armed Police on the periphery as a precaution against armed intruders. All regular raids are being conducted against possible poachers and unwanted elements. A full infrastructure of vehicles has

also been provided for patrolling (details of this can be made available from the State as an example of what can be done as a preventive step for other States to follow).

DISSEMINATE ALL INFORMATION. This is vital as a case study so that everyone realises what happened and can learn a lesson from it to prevent repeats. This case study should be sent across India as an example of what can happen.

WHAT HAPPENED?

Let's not forget as far as Sariska is concerned the Director of the Reserve provided an early warning in his census report on 25th May, 2004. It remained unheeded to by the Chief Wildlife Warden of Rajasthan and **he only communicated it or part of it on August 17th, 2004 to the Directorate of Project Tiger who did not react till February 2005 after each tiger had been wiped out. I quote below from it.**

On 25-4-2004 the Field Director of Sariska reported to the Chief Wildlife Warden of Rajasthan and stated **“on the basis of the available evidence and on ocular analysis of the pugmarks and movement of tigers the team reached a rough estimate that the number of tigers were between 16 and 18.....Since this estimate is quite different from that of last year's census and could lead to controversy.....Experts should be called to carry out examination of the evidence.”**

However, the Chief Wildlife Warden ignored this letter and on the 17th August, 2004 sent a letter to the Director, Project Tiger stating for Sariska Tiger Reserve has 16-18 tigers. There is then an 'asterix' on this that says: **“Due to bad weather most of the Pugmark Impression Pads were damaged and it obstructed effective trekking and collection of evidence.”**

Why did Project Tiger in Delhi not reject the census and order a new one?

- (3) It is also understood that a Tiger Assessment Report was submitted by the Wildlife Institute of

India after a 10 day site visit with two senior biologists and eight Ph.D. students. **They also found no evidence of tigers and shockingly found a wild boar stumbling round dragging a tiger trap in its legs. This was March and you can imagine how many steel traps were spread across the heart of this tiger reserve.**

- (4) It is understood that the **CBI report on Sariska talks of:**
- a) **Grossly inflated census figures over 10 years related to the maximum sustainable population – 80% margin of error.**
 - b) **75% of staff are untrained and unsuitable for extensive on foot responsibilities.**
 - c) **More than 3000 hectares of the tiger reserve is encroached.**
 - d) **Complete lack of monitoring and astonishment regarding the fact that NO intelligence was gathered on poachers – glaring failure of intelligence by forest staff.**
 - e) **No effort to effectively patrol or maintain communication with villagers.**

We must examine this example – it must be reflective of several areas in India. If these factors are true for other areas there is little chance of saving tigers. **Also examine why the CBI was able to find all this in 2 days and Project Tiger ‘not at all’.** This will be the only way to understand the root of the problem that afflicts our tiger reserves. We need to send the Sariska case history to all our Project Tiger reserves and other protected areas so that such a debacle is never repeated.

If the CBI can get into Predator-Prey density ratios, statistics and census analysis what stopped Project Tiger doing this in earlier years?

- (5) We also need to study the Kela Devi example where in 600 odd sq. kms of this sanctuary (a part of Ranthambhore Tiger Reserve) **in February 2005 there were written records stating that for moths there were no signs of any tigers. In fact in February this was communicated to the Field Director of Ranthambhore Tiger Reserve.**

Yet when the Additional D.G. (Wildlife) and the Director, Project Tiger went to Ranthambhore Tiger Reserve for a site visit immediately after Sariska (23rd February, 2005) what did they write in their site visit report?
They wrote:

”The alleged disappearance of 18 tigers from Ranthambhore Tiger Reserve is misleading and not true. There is a daily monitoring system in place wherein details of tigers utilizing different parts of the habitat within the reserve are recorded.”

The idea of daily monitoring of tigers without radio collars in an absurdity. While on the 23rd February, 2005 Director, Project Tiger was making these comments on a site visit to Ranthambhore Tiger Reserve the Deputy Director, Project Tiger, Sawai Madhopur (buffer) had on the 3rd February, 2005 (20 days earlier) sent a letter to the Field Director saying that in a large component of Ranthambhore Tiger Reserve – which is Kela Devi Sanctuary – there was no evidence of tigers, pugmarks or faecal matter. On 16th March, 2005 he again sent a letter to Field Director stating that after intensive patrolling he could not find anything and finally the Field Director sent a letter to chief Wildlife Warden on 31st March, 2005 saying that the tigers in Kela Devi were down from 6 to 0. Local extinction.

- (b) **“The Project Tiger Directorate receives updating periodically from tiger reserves on important events / happenings, as well as mortality of wild animals due to poaching / natural deaths, complemented by factual information gathered during frequent field visits of MOEF officials. Therefore, there is no collapse of any warning system.”**

“The alleged decline of tiger counts across the country is only a speculation at this stage by NGOs and media.” Is this why the Deputy Director’s letters of 3rd February and 16th March, 2005 were not acted on? Or is it because there was no knowledge of them? Both are terrible examples of monitoring or early warning mechanisms!

It is obvious that from both the examples of Sariska and Ranthambhore that one part of Project tiger (the field) did not know what the other part of Project Tiger (Delhi) was doing or vice versa. There is obviously no daily monitoring, let alone communication of it to Project Tiger, Delhi. Project Tiger (Delhi) appears to live in the dark about most matters.

Analyse both these examples. They must be symptomatic of reserves across India. We need to find ways to prevent such horrific events.

- (6) We must also look at the role of activist NGO’s both in Sariska and Kela Devi. In Sariska Rajendra

Singh's Tarun Bharat Sangh was deeply involved with wildlife matters. They had in the late 1990's held a *Bagh Bachavo Yata* and have stated that they had sent some warning of the crisis of 2004 to the forest department. In Kela Devi another NGO had played a role in preventing livestock from outer areas to come in and it was a much quoted example of people's participation in wildlife protection. Arun Jindal from the Society for Sustainable Development based in Karauli had for years been supporting a process of participation. So had Rajendra Singh. Let's learn from their failures – since the tiger has gone from both areas.

the media regarding threats of poaching, illegal woodcutting by timber mafias and encroachment on forest land by commercial groups including mining mafias.

- (7) Co-opting as a special invitee the head of the investigation in Sariska Shri B.K. Sharma from the CBI and asking him to make a presentation both on Sariska and other areas in terms of poaching and illegal trade.
- (8) Provide a mandate to the CBI to continue investigations into poaching, illegal trade etc. all over India and this will be an immediate deterrent to the accelerating activities of poachers. This will have to be recommended by the Prime Minister.
- (9) Immediate educational awareness campaign in
- (10) All relevant reports, CBI, WII, Project Tiger assessments and evaluations, earlier reports i.e. Wildlife Crime Bureau, Subramanyam Committee, affidavits of MOEF to the Supreme Court, Supreme Court orders to be provided for the reference of the Committee immediately. The CBI report will be essential reading for every Park Director across India.
- (11) Activate all State Wildlife Advisory Boards to convene meetings since these institutions need to be alerted to the gravity of the problem and thereby take necessary steps to diffuse the problems. These boards are also like early warning systems that can help to detect other problems.
- (12) Immediate implementation of the new Wildlife Crime Prevention and Control Bureau as endorsed by the National Board of Wildlife on the 17th March, 2005 meeting. This is immediately needed to prevent the illegal trade in tiger derivatives and minimise the activities of poachers.

Extracts from

REPORT (UNCORRECTED) OF THE DEPARTMENT –RELATED PARLIAMENTARY STANDING COMMITTEE ON SCIENCE & TECHNOLOGY, ENVIRONMENT & FORESTS

(139th & 146th Reports)

**PRESENTED TO THE RAJYA SABHA ON THE 25TH APRIL, 2005
(LAID ON THE TABLE OF THE LOK SABHA ON THE 25TH APRIL, 2005)**

“The Committee expresses its serious concern over the sudden disappearance of the Tigers from Sariska Tiger Reserve. The Committee feels that the negligence of Forest staff coupled with the large scale poaching has cost the country dear. Conditions in most of the national parks are more or less same, posing a clear danger to protected animal species. Poaching is not a new phenomenon but the poachers are now more advanced with latest weapons and very powerful communication network, making the lackadaisically managed tiger reserves easy picking. In contrast, forest guards are usually equipped with a wooden stick and most of the times without any means of communication. Taking note of this alarming situation, the Committee is of considered opinion that a Special Task Force at the central or state level with the involvement of Para-military

forces must be constituted to combat the menace of poaching of wildlife.

Moreover, the Ministry should also involve the villagers living in and around National Parks / Tiger reserves to prevent the poaching as they are aware of the tentative movement of the poachers but because of poachers' threats or any other compulsion, they refrain from coming out openly to help the forest Department to catch the poachers. The Committee strongly recommends that all vacant positions should be filled immediately and at no time any tiger reserve in the country should be left with the junior officers.”

“The Committee notes the reply of the Ministry and is strongly of the opinion that Ministry's efforts have in no way improved the state of “project tiger” and management of tiger parks in the

country as sadly reflected in the increased incidence of poaching of tigers and disappearance of a section of wild cats from strategic areas in the country. The Ministry needs to undertake complete review of its programmes and plug the loopholes, where necessary to implement them effectively.”

“The Committee feels that the Ministry has not taken much action in pursuance of its recommendation for protecting and developing wildlife parks. The Ministry has informed only about Tigers and their habitats. Nothing has been mentioned about other animals like elephant, lion, rhino, etc. Even achievements of the programmes under “Project Tiger” have come under scrutiny as evident from recent news reports that tigers have disappeared from the Sariska and Ranthambhore Tiger Reserves. The Committee feels that for proper development and protection of the wildlife parks, emphasis should be given on anti-poaching camps, mobile squads, capacity building of frontline staff in intelligence gathering, detection and successful prosecution of cases and providing necessary infrastructure to them.”

“The Committee is of the view that quoting statutory provisions is not the proper action expected from the Ministry. What is more important is proper and holistic implementation / enforcement of these provisions. These provisions / guidelines themselves cannot act as a deterrent. With the support of these

provisions, Ministry should evolve a mechanism to implement its plans / steps emphatically.”

“The Committee observes that despite various schemes of the Ministry, effective patrolling of wildlife is almost missing as is evident from rampant poaching. In the recent past, the Committee during its study visits to some Tiger Reserves / Wildlife Sanctuaries was anguished to see the forest rangers equipped with a wooden stick and roaming on feet whereas poachers, in contrast, are believed to be equipped with latest communication network, modern weapons and vehicles. In view thereof, any financial assistance for the wildlife protection which was made has not been successfully utilised in the past. The Committee reiterates that interested NGOs should be encouraged to provide latest transport and communication facilities to the staff responsible for the protection of wildlife parks. The Committee is also of the opinion that a “Special Task Force” must be constituted to combat the menace of poaching of wildlife.”

“The Committee feels that by merely including endangered species of animals in Schedule I of the Wildlife (Protection) Act, 1972, may not be enough. The Ministry should also take some stringent measures along with enforcing the provisions of the Act for their survival. The Committee would have appreciated if the Ministry had come forward with a comprehensive plan of action for preserving the aforesaid species.”

LONG TERM MEASURES

- (1) Discussions on creating a dedicated Ministry for Forests and Wildlife by bifurcating the present Ministry of Environment and Forests.
- (2) Creating a dedicated and specially trained National Park Service meant to govern and administer 100 of the best protected areas in India. This service must allow inter-state transfers.
- (3) Opening fresh recruitment for all forest staff on a priority basis just like the Police and Army, and fill up all vacancies.
- (4) Extra allocation of finances by Planning Commission for the forest and wildlife sector especially in the area of protection. A meeting will be essential with Deputy Chairman of Planning Commission.
- (5) A meeting between the Prime Minister and all chief Ministers regarding the crisis of the tiger and other wildlife – Members of Parliament to be present – slide presentation to be made. We must realise that saving the tiger and forest is a state subject and therefore Chief Ministers will have to be inspired to act.
- (6) Encouraging the role of scientific research and its recommendations in the management of our wilderness.
- (7) Encouraging the protection of our wilderness areas by local communities / tribals / forest dwellers who can be fully trained in special schools for this purpose and for other requirements of forests and wildlife management i.e. eco-tourism etc. Even if 10 people each are trained in one Park and the programme started in 20 Parks within 6 months we will have 200 people engaged in protection. And this figure can be tripled over the years.
- (8) Creating a Manual or Code of Conduct and Procedure for all protected area managers that becomes their ‘Bible’ to follow in the field and

includes systems for early warning and detection of problems etc.

- (9) A review of the entire structure of Project Tiger with a view to overhaul it and create a Project Tiger Division in MOEF that is streamlined, efficient and effective especially in a crisis situation. There must be a way to have better communication from the field to Project Tiger (Delhi) so that Kela Devi's and Sariskas' don't happen.**
- (10) Financial allocations and disbursement of money – how to create a rapid flow and prevent non-utilisation of funds etc.
- (11) Corridor connectivity from one tiger area to another is also vital for the prevention of habitat fragmentation and vital existing corridors must be identified for protection.

WHY DO TIGERS DIE AT THE HANDS OF POACHERS OR OTHERS?

- (a) for revenge against livestock kills;
- (b) by accident as poachers try for ungulates;
- (c) by intent and for commerce be it skin or bones;
- (d) or orchestrated by mining mafias or those who want to denotify protected areas and destroy habitats.

The above note spells out that if the climate of Sariska or Ranthambhore prevails then there could be a wipe out of tigers across India. To prevent their death by poachers or others we need early implementation of both short term and long term measures – This is the only way forward.

Valmik Thapar

ANNEXURE-III Response of the chairperson, Tiger Task Force, to note of dissent

■ SUNITA NARAIN

30.07.2005

Valmik Thapar
Member, Tiger Task Force
19 Kautilya Marg
Chanakyapuri 110021

Dear Mr Thapar,

This is with reference to your note of dissent on the report of the Tiger Task Force. It is extremely unfortunate you have decided to take this step, as I do believe we have worked hard to put together a report that will assist conservation of tigers in India.

As I have explained to you, my effort as chairperson has been to listen to and incorporate the views of many concerned people across the country. We have received submissions from and met over 200 different experts, officials and villagers in the past three months. The initial draft report, which you have, includes references to these conversations and research findings, as it is essential that informed knowledge drives the process of conservation in the country.

As I have discussed, I find one key problem with tiger conservation is that the constituency in favour of the tiger has become extremely exclusivist. Therefore, even as threats to the tiger have multiplied, there is limited support for its protection. The response of a few conservationists has been to keep the group small, as they believe that everyone else is against the tiger. The problem is compounded by the fact that some conservationists have direct interests in tiger protection — through businesses in hotels, filming, land or conservation and this has only lead to even greater alienation of all against the tiger, which they believe is being protected for the sake of a few.

I even told you I was extremely concerned at the level of anger I saw among people in Ranthambhore — from villagers to small hotel owners to guards and others. Not only was it their complaint that they had got nothing from the park, but they were bitter that others — prominent conservationists — were misusing their position to circumvent rules for their own interests. This sense of injustice has created a huge constituency against the park and I strongly believe this is bad for conservation.

My effort, then, over the past few months has been geared to making this constituency in favour of tiger protection much more broadbased and inclusive. It is for this reason that the draft report has detailed these positions, for I believe that public support will be crucial to further the cause of tiger conservation.

We have, of course included your note of dissent in the report, but let me take the opportunity to explain many of the issues you have raised. I do believe that we must work to understand each other so that differences, over time, can be resolved.

1. You have quoted from the draft chapter, which looks at the approach to make conservation work. According to you, this “coexistence” that the report talks about is just not possible and it will devastate the tiger.

The fact is that you have selectively quoted from the chapter, when you are clear that the approach that we are advocating in the report is very different — it is much more nuanced

and much more complicated.

The report makes clear that there are separate and equally urgent strategies as far as the tiger protection is concerned:

a. We must make areas inviolate for tigers, as you and your colleagues have suggested. But the report only qualifies this, saying that making areas inviolate for tigers will require more than strong statements. For the first time, we have collected data on the numbers of villages that have been relocated from the reserves and how many remain to be relocated.

The facts are devastating. Only 80 villages have been relocated from tiger reserves till date. There are roughly 1,500 villages that still exist within the reserves. Even the ones that been relocated have often come back because relocation was shoddily done, or have turned deeply antagonist to the tiger. This was clearly evident in Ranthambhore on our visit. This, I know, is a tiger reserve you know well.

Therefore, this task force has, for the first time, put these facts on the table. It has argued that there needs to be urgent, speedy and sensitive relocation of these families. It has also argued that the funds for relocation must be enhanced so that people can be resettled without exacerbating conservation problems.

The Task Force has calculated that Rs 665 crore will be required for this relocation, using even the existing meagre budget norms. Please do note that till date the country has spent Rs 14 crore on most relocation efforts and Rs 173 crore on Central assistance for tiger conservation in the past 30 years.

b. The report has argued that if people continue to live within the protected reserves (after the process of relocation is complete and all cannot be relocated by any chance), then ways have to be found in which we can buy peace with communities. It is here that we have suggested that different methods can be used — from preferential shares in tourism to collaborative management involving communities who will share benefits and so safeguard the tiger. The report states unequivocally that the current tension within the parks is leading to disastrous consequences for the tiger and conservation.

2. You have quoted from the draft chapter on coexistence on the problems you have concerning the analysis on the directions issued by the Central Empowered Committee (CEC).

I do realise that you are a member of CEC, and therefore, our analysis of the legal provisions as against the interpretation of CEC is not easy for you to accept. I had, as promised, read all the material on the CEC position and have incorporated it in the chapter. But I still find that the facts bring out a different position.

The issue is if the 2003 amendment of the Wildlife (Protection) Act, 1972 which gives powers to disallow the collection of minor forest produce, grass and other subsistence needs of communities can be enforced without taking recourse to the safeguards also provided in the same amendment, that make it incumbent on governments to provide alternative fuel, fodder and other forest produce in these cases.

The report argues:

a. That the Ministry of Environment and Forests and CEC should have also ensured that the alternatives were provided, if the rights were expunged.

b. That not doing so has meant that the anger of local communities against the protected areas of India has intensified.

3. The decision was to ask the prime minister to chair the steering committee not to leave it as an either/or option on revitalising the National Board for Wildlife.

The idea to request the Prime Minister to chair the steering committee came from Mr

Samar Singh. We all agreed to it. However, it is clear that it is the prerogative of the Prime Minister to decide and we cannot direct him to do so. It is for this reason that Mr Samar Singh and I decided to reformulate this recommendation. But the intention is clear and I cannot see any reason for your disagreement on this matter.

4. Wildlife Crime Bureau should be headed by senior officer in super time scale. But according to you, the person should not report to the additional director general of forests.

Again, your raising this completely baffles me. The fact is that the person has to report within the given hierarchy. It was agreed that the crime bureau would be within the MOEF and, therefore, the officer reports to the senior-most official in wildlife issues. Clearly, we could not formulate this in a way that the officer would continue to report to someone in CBI or home ministry, unless the bureau was located there. We did not take any such common decision.

5. On the extending of the term of the state empowered committee of Rajasthan.

The point in the report is that the government of Rajasthan has not taken adequate action as far as the episode in Sariska is concerned. It is in this context that the report mentions that the extension of the term of the state committee (I know you are a member) has only led to further delays as crucial decisions are pending. I cannot see how this is factually incorrect or misleading.

6. On dropping the box by Raghu Chundawat on the harassment of scientists.

The box is very much included. It is not in the science chapter but in the research chapter.

7. On glossing over the role of MoEF and Project Tiger directorate in the Sariska and other debacles.

Again, everyone who knows me even a little should know that I do not ‘gloss’ over the role of government. What I have simply done is to look at the facts and the circumstances to conclude that the key failure came from the state government’s mismanagement (and continued) mismanagement of the park in Sariska.

What we did discuss is why the systemic failure took place so that the Project Tiger directorate was unable to intervene and did not even have the information from the state. It is this that led us to recommend the need to convert Project Tiger into an authority and to vest the officer in charge (whoever it may be) with legal powers to facilitate working with states.

You repeatedly allege the report has a ‘people focus’ and not a ‘tiger focus’. I do not know how to respond to this, because then you clearly do not even begin to understand the challenge of tiger conservation in the country today, as we see it and have detailed in the report. Indeed, it is unfortunate you were consistently busy during the entire term of the Task Force, because of which your interaction with all of us was limited. If we had seen more of you, I am sure a better common understanding would have emerged.

I will publish this response in the report, along with your note of dissent. I have always believed dialogue is more powerful than dissent.

With regards

Yours cordially

Sunita Narain

ANNEXURE - IV **Expert consultations based on terms of reference of the Tiger Task Force**

The Tiger Task Force had invited a wide range of experts from different fields for consultation to learn from their experiences and insights, and to develop strategies for the future based on these learnings. They were also asked to provide any papers that they have written and, if possible, give written submissions on the different aspects that the Task Force has been asked to examine. All reports of the consultations will be available on the website: www.projecttiger.nic.in

The Task Force had held these consultations at New Delhi, Nagpur and Bangalore.

New Delhi consultation, May 18, 2005: on conservation of the tiger, problems of poaching and enforcement

1. B K Sharma, deputy director (admn), Central Bureau of Investigation (CBI), Block No 3, 4th Floor, CGO Complex, Lodhi Road, New Delhi 110 003
2. Belinda Wright, executive director, Wildlife Protection Society of India, M-52, Greater Kailash Part I, New Delhi 110 048
3. Ashok Kumar, senior advisor and trustee, Wildlife Trust of India, C644, First Floor, New Friends colony, New Delhi 110065
4. Amlan Dutta, assistant programme officer, Wildlife Trust of India, C-644, First Floor, New Friends Colony, New Delhi 110065
5. Manoj Mishra, Peace Institute, 178-F, Pocket-IV, Mayur Vihar, Phase I, New Delhi 110 091
6. P K Sen, director, Tiger and Wildlife Programme, WWF 172B, Lodi Estate, New Delhi 110003
7. Madhu Sarin, environment journalist, 48, Sector 4, Chandigarh 160 001
8. A K Mukerjee, former director general of forests, I-1625, Chittaranjan Park, New Delhi 110 019
9. B S Bonal, director, National Zoological Park, Mathura Road, New Delhi
10. Harsh Vardhan, honorary general secretary, Tourism and Wildlife Society of India, C-158A, Dayanand Marg, Tilak Nagar, Jaipur 302 004, Rajasthan

New Delhi consultation, May 19, 2005: methodology of tiger counting, forecasting, professional audits of wildlife, research guidelines and access to information

1. Ullas Karanth, director, Wildlife Conservation Society-India Program, 823, 13th Cross, 7th Block West, Jayanagar, Bangalore 560 082, Karnataka
2. Raghu S Chundawat, Wildlife Institute of India, Post Bag No 18, Chandrabani, Dehradun 248 001, Uttaranchal
3. Y V Jhala, head, Department of Animal Ecology and Conservation Biology, Wildlife Institute of India, Post Bag No 18, Chandrabani, Dehradun 248 001, Uttaranchal
4. Qamar Qureshi, faculty, Wildlife Institute of India, Post Bag No 18, Chandrabani, Dehradun 248 001, Uttaranchal
5. Ravi Chellam, programme officer, United Nations Development Programme, 55, Lodi Estate, P O Box 3059, New Delhi 110 003
6. Vasant Saberwal, programme officer, Department of Environment and Development, Ford Foundation, 55 Lodi Estate, New Delhi 110 003
7. Asad R Rahmani, director, Bombay Natural History Society, Hornbill House Dr Salim Ali Chowk, Shaheed Bhagat Singh Road, Mumbai 400 023, Maharashtra
8. A J T Johnsingh, head, Wildlife Institute of India, Post Bag No 18, Chandrabani, Dehradun 248 001, Uttaranchal

9. Surendra Prakash Goyal, scientist, Wildlife Institute of India, Post Bag No 18, Chandrabani, Dehradun 248 001, Uttaranchal

The Task Force also met John Sellers, senior enforcement officer, CITES, and Debbie Bank, senior campaigner, Environmental Investigation Agency, 62/63 Upper street, London N10NY

Nagpur consultation, June 12, 2005: on issues connected to local communities and tiger conservation

1. Ashish Kothari, coordinator, Kalpavriksh - Environment Action Group, Apt. 5 Shree Datta Krupa, 908 Deccan Gymkhana, Pune 411 004, Maharashtra
2. Bittu Sehgal, editor, *Sanctuary* magazine, 146, Pragati Industrial Estate, N M Joshi Marg, Mumbai, Maharashtra
3. Mohan Hirabai Hiralal, Vrikshamitra, Shende Plot, Ramnagar, Chandrapur 442 401, Maharashtra
4. Shailendra J Chaudhuri, 38 Manish Nagar, Nagpur, Maharashtra
5. Motiram, Hosangabad, Madhya Pradesh
6. Ashish Goswami, People for Animals, Gopuri, Wardha 442 001, Maharashtra
7. Manojit Saha, *Deccan Herald*, 303, Tulsiamich, Nariman Point, Mumbai, Maharashtra
8. Bhurelal Gandhi, coordinator, Tawa Matsya Sangh, Kesla, Hosangabad, Madhya Pradesh
9. Sunil, village and PO Kesala, Hosangabad, Madhya Pradesh
10. Milind Pariwakam, Centre for Wildlife Studies, Bangalore, Karnataka
11. Devaji Navalu Topha, Adivasi Mitra, gram sabha, village Lekha Mendha, Post Heti, Tehsil Dhanora, Gadchiroli 442 606, Maharashtra
12. Sulabha Chakravarty, coordinator, Green Hope, 46, Om Sai Building, Anant Nagar, Nagpur 440013, Maharashtra
13. Anuradha Paul, executive editor, Green Hope; executive secretary, VED Council, 50, Anand Palace, Dhantoli, Nagpur 440012, Maharashtra
14. Prafulla Bhamburkar, WWF-India, 6, Venkatesh Nagar, Khamla Road, Nagpur 25, Maharashtra
15. Uday Patel, honorary wildlife warden, D-71/1, Urjanagar, Chandigarh
16. Satish Gogulwar, convenor, Maharashtra State Participatory Forest Management Network, Kurkheda, Gadchiroli 441 209, Maharashtra
17. Rahul Bais, Amhi Amachya Arogyasathi, c/o Ramesh Alome's house, Plot No 21, near Sanjuba School, Surve Layout, Nagpur 440014, Maharashtra
18. Shanker Patil, president, Adivasi Gram Vikas, Paryatak Margdarshak Aur Vanyajeev Sanrakshan Samiti, PO Moharli, Taluka Bhadrawati, Chandrapur, Maharashtra
19. Vinod Jambhule, Tiger Research and Conservation Trust, CTPS Urjanagar, E-233/6 Chandrapur, Maharashtra
20. Pandurang Shrirame, PO Moharli, Taluka Bhadrawati, Chandrapur, Maharashtra
21. Shilpa P Hande, Plot No. 4, Nagbhoomi Society, Chhatrapati Nagar, Nagpur, Maharashtra
22. Mohan, Rashtriya Van Shramjeevi Manch, 501, Lakshmi Apartments, Ravi Nagar Chowk, Nagpur 440 033, Maharashtra
23. Ravishankar Bhure, Rashtriya Van Shramjeevi Manch, 9, Postal Audit Colony, Ramapratap Nagar, Nagpur 440022, Maharashtra
24. Archana Singh, *Lokmath Samachar*, Pandit Jawaharlal Marg, Nagpur 440010, Maharashtra
25. Debi Goenka, Bombay Environmental Action Group, Kalbadevi Municipal School, # 54, 2nd Floor, Mumbai 400 002, Maharashtra
26. Poonam Dhanwatey, Tiger Research and Conservation Trust, Plot No 59-60, Shivneri, Ramdaspath, Nagpur 440 010, Maharashtra
27. Harshawardhan Dhanwatey, Tiger Research and Conservation Trust, Plot No 59-60, Shivneri, Ramdaspath, Nagpur 440 010, Maharashtra
28. Vijay Ghugey, Nature Science Club, 138, Kalpataru, Mahalaxminagar No 2, Manewada Road,

- Nagpur 440 024, Maharashtra
29. Rucha Ghate, SHODH: The Institute for Research and Development, 50, Puranik Layout, Bharat Nagar, Nagpur 440033, Maharashtra
 30. Gokuldas Shankar, Gedam, At. Botezari, Post Moharli, Taluka Bhadrawati, Chandrapur, Maharashtra
 31. Mahadev B. Kumre, At Botezari, PO Moharli, Taluk Bhadrawati, Chandrapur, Maharashtra
 32. Kanhu Shinde, At Botezari, PO Moharli, Taluk Bhadrawati, Chandrapur, Maharashtra
 33. Devrao V. Kannake, At Botezari, PO Moharli, Taluk Bhadrawati, Chandrapur, Maharashtra
 34. Vilas Shanker Kannake, At Botezari, PO Moharli, Taluk Bhadrawati, Chandrapur, Maharashtra
 35. Murali Manohar Rahi, Main Road Gondiya, Gondiya, Maharashtra
 36. Kundan Hate, vice president, Satpura Foundation, 86, Shivneri Appartments, Kanfadenagar, Ring Road, Nagpur 440015, Maharashtra
 37. Raj Kumar Khodecha, National Environment and Wildlife Society, Gondia, Maharashtra
 38. P V Joseph, National Environment and Wildlife Society, Gondia, Maharashtra
 39. Sunita Shukla, SRISHTI, 103, Mount Road, behind Hotel Upvan, Sadar, Nagpur 440 001, Maharashtra
 40. Raju Kasambe, 64, Vidya Vihar Colony, Pratap Nagar, Nagpur 440 022, Maharashtra
 41. Prakash Amte, Lokbiradari Prkalp, Hemalkasa, PO Bhamragad, Gadchiroli 442 710, Maharashtra
 42. Gopalrao Thosar, Vasundhara, 66, Ganesh Colony, Pratap Nagar, Nagpur 440 022, Maharashtra
 43. Kishore Rithe, Nisarg Sanrakshan Sanstha, Pratishtha, Bharat Nagar, Akoli Road, Near Sainagar Jawal, Amravati 444 607, Maharashtra
 44. Dilip Gode, secretary, Vidarbha Nature Conservation Society, Tidke Ashram, Ganeshpeth, Nagpur 440 018, Maharashtra
 45. Shripad Suklikar, president, Vidarbha Nature Conservation Society, Tidke Ashram, Ganeshpeth, Nagpur, Maharashtra
 46. Kusum Karnik, environmentalist, Bhimashankar Prkalp, At and PO Manchar, Manchar 410 503, Maharashtra
 47. V Chandra, Rashtriya Van Shramjeevi Manch, 5/87 Bharatnagar, Nagpur, Maharashtra
 48. Kaustubh Pandharipande, Samvedana, Professor's Colony, Karanja (Lad), Washim 444 105, Maharashtra
 49. Ramu Bhagwat, *The Times of India*
 50. Mahesh Upadev, *Saamana*, Mumbai, Maharashtra
 51. Rohini Kant Matey, *The Hitavada*, Wardha Road, PO Box No 201, Nagpur, Maharashtra

Bangalore consultation, June 21, 2005: on the measures to improve the methodology of tiger counting and forecasting; suggest methods of transparent professional audit of wildlife parks; and placing data on tiger conservation in the public domain

1. Anil Gore, professor of statistics, department of statistics, Pune University, Ganshkhind, Pune 411 007, Maharashtra
2. P S Roy, deputy director, National Remote Sensing Agency, Balanagar, Hyderabad 500 037, Andhra Pradesh
3. Pushpa M Bhargava, ANVESHNA, Furqan Cottage, 12-13-100, Lane # 1, Street # 3, Tarnaka Hyderabad 500 017, Andhra Pradesh
4. Kartik Shankar, fellow, Ashoka Trust for Research in Ecology and the Environment (ATREE), No 659, 5th A Main Road, Hebbal, Bangalore 560 024, Karnataka
5. Sumati V, student, wcs, Bangalore, Karnataka
6. Shomita Mukherjee, Centre for Wildlife Studies, Bangalore, Karnataka
7. Anindya Sinha, National Institute of Advanced Study, Indian Institute of Science campus, Bangalore, Karnataka
8. M D Madhusudan, wildlife ecologist and trustee, Nature Conservation Foundation, 3076/5 IV Cross, Gokulam Park, Mysore, Karnataka

9. Soumya Prasad, Indian Institute of Science, Bangalore 560 012, Karnataka
10. Aparajita Datta, senior scientist, Nature Conservation Foundation, 3076/5, IV Cross, Gokulam Park, Mysore 570 002, Karnataka
11. D V Girish, Nature Conservation Guild, Chickmagalur, Karnataka
12. Praveen Bhargav, managing trustee, Wildlife First, No.1235, 1st Floor, 26th A Main, 32nd G Cross, 4th T Block, Jayanagar, Bangalore 560 041, Karnataka
13. K M Chinappa, Centre for Ecological Research and Conservation, 076/5 IV Cross Gokulam Park, Mysore 570 002, Karnataka
14. Krishna Narain, Wildlife Watch, Bangalore, Karnataka
15. G Vishwanath Reddy, conservator of forests, 27/A Vanashree, Gokulam Main Road, V Mohalla, Mysore 570 002, Karnataka
16. K N Murthy, Watershed Development Department, Vana Vikas Building, Malleswar, Bangalore, Karnataka
17. R Sukumar, chairperson, Centre for Ecological Sciences, Indian Institute of Science, Bangalore 560 012, Karnataka
18. N Samba Kumar, Centre for Wildlife Studies, Bangalore, Karnataka
19. Harshwardhan Dhanwatey, Tiger Research and Conservation Trust, Nagpur, Maharashtra
20. M C Vinay Kumar, 18Y 52nd B Cross, 3rd Block, Rajajinagar, Bangalore, Karnataka
21. S Dhananjaya, Karnataka Forest Department
22. B Venkatesh, Karnataka Forest Department, Bandipur
23. K A Subramaniam, National Centre for Biological Sciences, UAS-GKVK Campus Bellary Road, Bangalore 560 065, Karnataka
24. Mahesh Rangarajan, independent researcher, 24 Samachar Apartments, Mayur Vihar Phase-I Extension, Delhi 110 091
25. Jagadish Krishnaswamy, Ashoka Trust for Research in Ecology and the Environment, No 659, 5th A Main Road, Hebbal, Bangalore 560 024, Karnataka
26. Milind Watve, Department of Microbiology, Babahasaheb Garware College, Karve Road, Pune, Maharashtra
27. M K Surappa, honorary secretary, Karnataka State Council for Science and Technology, Bangalore 7, Karnataka
28. Shivanna, secretary, Karnataka Biodiversity Board, Ground Floor, Vanavikas, 18th Cross Malleshwaram, Bangalore 3, Karnataka
29. C Srinivasan, field director, Bandipur
30. P Anur Reddy, conservator forests (wildlife), Karnataka
31. A K Verma, chief wildlife warden, Karnataka
32. Jagmohan Sharma, Karnataka Forest Department
33. D Yatish Kumar, Karnataka Forest Department
34. Col C P Muthanna (retd), Coorg Wildlife Society

ANNEXURE-V The visits by Tiger Task Force

The Task Force members have undertaken field visits to a few tiger reserves in the country to understand the management and the present status of these reserves. The members also visited the Wildlife Institute of India to discuss with the officials the methodology of tiger estimation and habitat monitoring. The visits were as follows:

1. Periyar Tiger Reserve, Thekkaddy and Sabarimala, Kerala
2. Pench Tiger Reserve, Maharashtra
3. Pench Tiger Reserve, Madhya Pradesh
4. Kanha Tiger Reserve, Madhya Pradesh
5. Sariska Tiger Reserve, Rajasthan
6. Ranthambhore Tiger Reserve, Rajasthan

ANNEXURE-VI **Experts requested to comment on methodology of tiger estimation**

The proposal from the Project Tiger directorate and the Wildlife Institute of India to review and change the methodology for assessing tiger habitat and to estimate the numbers was sent to many experts for their comments. The names of the experts are given below:

1. Aparajita Datta, senior scientist, Nature Conservation Foundation, 3076/5, IV Cross, Gokulam Park, Mysore 570 002, Karnataka
2. S P Goyal, scientist, Wildlife Institute of India, Post Bag No 18, Chandrabani, Dehradun 248 001, Uttaranchal **(comments received)**
3. Anil P Gore, professor of statistics, department of statistics, Pune University, Ganeshkhind, Pune 411 007, Maharashtra **(comments received)**
4. A J T Johnsingh, dean, faculty of wildlife sciences, Wildlife Institute of India, Post Bag No 18, Chandrabani, Dehradun 248 001 **(comments received)**
5. Jagdish Krishnaswamy, fellow, Ashoka Trust for Research in Ecology and the Environment , No 659, 5th A Main Road, Hebbal, Bangalore 560 024, Karnataka
6. Sharad Lele, coordinator and senior fellow, Centre for Interdisciplinary Studies in Environment and Development, ISEC Campus, Nagarabhavi, Bangalore 560 072, Karnataka
7. Kartik Shankar, fellow, and Mohammed Irfan Ullah, fellow, Ashoka Trust for Research in Ecology and the Environment, No 659, 5th A Main Road, Hebbal, Bangalore 560 024, Karnataka **(comments received)**
8. Ullas Karanth, director, Wildlife Conservation Society-India Program, 823, 13th Cross, 7th Block West, Jayanagar, Bangalore 560 082, Karnataka **(comments received)**
9. P S Roy, deputy director, National Remote Sensing Agency, Hyderabad.500 037, Andhra Pradesh **(comments received)**
10. M D Madhusudan, wildlife ecologist and trustee, Nature Conservation Foundation, 3076/5 IV Cross, Gokulam Park, Mysore, Karnataka
11. T R Shankar Raman, wildlife scientist, Nature Conservation Foundation, 3076/5 IV Cross, Gokulam Park, Mysore 570 002, Karnataka
12. R Sukumar, chairperson, Centre for Ecological Sciences, Indian Institute of Science, Bangalore 560 012, Karnataka
13. R S Chundawat, Wildlife Institute of India, Post Bag No 18, Chandrabani, Dehradun 248 001 **(comments received)**
14. B L Deekshatulu, ISRO visiting professor, University of Hyderabad, 10-3-123/3/1, East Maredpally, Secunderabad-500 026
15. Ravi Chellam, programme officer, United Nations Development Programme, 55, Lodi Estate, PO Box 3059, New Delhi 11000
16. Asad R Rahmani, director, Bombay Natural History Society, Hornbill House, Dr Salim Ali Chowk, Shaheed Bhagat Singh Road, Mumbai 400 023, Maharashtra

ANNEXURE-VII Suggestions received on the terms of reference of Tiger Task Force

The Task Force had written to a number of experts and activists requesting them to send their ideas and suggestions, based on the terms of reference. Many people had also written voluntarily to the Task Force giving their suggestions and ideas. The Task Force is grateful to them for sending their ideas and recommendations, contributing to our understanding of issues.

1. Praveen Bhargav, managing trustee, Wildlife First, No 1235, 1st Floor, 26th A Main, 32nd G Cross, 4th T Block, Jayanagar, Bangalore 560 041, Karnataka
2. S S Bist, director (PE) and IGF, ministry of environment and forests, Room No 126, Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi 110 003
3. Aparajita Datta, senior scientist, Nature Conservation Foundation, 3076/5, IV Cross, Gokulam Park, Mysore 570 002, Karnataka
4. Rucha Ghate, SHODH: The Institute for Research and Development, 50, Puranik Layout, Bharat Nagar, Nagpur 440 033, Maharashtra
5. Anil P Gore, professor of statistics, department of statistics, Pune University, Ganeshkhind, Pune 411 007, Maharashtra
6. Radhika Johri, department of anthropology, York University, 2054 Vari Hall, 4700 Keele Street, Toronto, Ontario, Canada M3J 1P3
7. Krithi K Karanth, doctoral student, Terborgh Lab Levine Science Research Center, PO Box 90328, Nicholas School of Environment, Duke University, Durham NC 27708
8. Jagdish Krishnaswamy, Ashoka Trust for Research in Ecology and the Environment, No 659, 5th A Main Road, Hebbal, Bangalore 560 024, Karnataka
9. Kusum Karnik/Anand Kapoor, environmentalists, Science of Conservation, Bhimashankar Prakalp, At and PO Manchar, Manchar 410 503, Maharashtra
10. Sharad Lele, coordinator and senior fellow, Centre for Interdisciplinary Studies in Environment and Development, ISEC Campus, Nagarabhavi, Bangalore 560 072, Karnataka
11. Kamal Naidu, chief conservator of forests, government of Andhra Pradesh, CCF Office, Hyderabad, Andhra Pradesh
12. V B Sawarkar, director, Wildlife Institute of India, Post Bag No 18, Chandrabani, Dehradun 248 001, Uttaranchal
13. V D Sharma, former PCCF & CWLW, Rajasthan
14. Tykee Malhotra, managing trustee, Sanskara Development Trust, F-328, Lado Sarai, Mehrauli, New Delhi 110 030
15. V B Mathur, professor and head, department of protected area network, Wildlife Management and Conservation Education, Wildlife Institute of India, Post Bag No 18, Chandrabani, Dehradun 248 001, Uttaranchal
16. Ashish Kothari/Pankaj Sekhsaria, Kalpavriksh – Environment Action Group, Apt 5, Shree Datta Krupa, 908, Decan Gymkhana, Pune 411 004, Maharashtra
17. Fateh Singh Rathore, vice chairperson, Tiger Watch, Ranthambhore, Rajasthan
18. Madhu Sarin, environment journalist, 48, Sector 4, Chandigarh 160 001, Punjab
19. Krishna Narain, Wildlife Watch, *wildlife_watch@vsnl.com*
20. Qamar Qureshi, faculty, Wildlife Institute of India, Post Bag No 18, Chandrabani, Dehradun 248 001, Uttaranchal
21. Sanjeeva Pandey, director, Great Himalayan National Park, Shamshi, Kullu 175 126, Himachal Pradesh
22. Vinod Kumar Damodar, honorary animal welfare officer, Animal Welfare Board of India, 'Breeze', 5/2750-A, Behind Officers Club, Thiruthiyad, Calicut 673 004, Kerala

23. M C Vinay Kumar, 18Y, 52nd B Cross, 3rd Block, Rajajinagar, Bangalore, Karnataka
24. Charudutt Mishra, executive trustee, Nature Conservation Foundation, 3076/5 IV Cross Gokulam Park, Mysore 570 002, Karnataka
25. S C Dey, former director of wildlife conservation and secretary general, Global Tiger Forum, A-269, 2nd Floor, Defence colony, New Delhi 110024
26. Debbie Banks, senior campaigner, Environmental Investigation Agency, 62-63 Upper Street, London, N10NY
27. S K Ramalinge Gowde, president, IFS Association, Room No 538, Block B, Paryavaran Bhawan, CGO Complex, Lodi Road, New Delhi 110 003
28. B S Thengdi, DyCF, Land Records, Nagpur, Maharashtra
29. A K Mukerji, former director general of forests, I-1625, Chittaranjan Park, New Delhi 110019
30. Vaishaish Uppal/Raman Mehta/Shekhar Singh, D-4, Gulmohar Park, New Delhi
31. P S Roy, deputy director, National Remote Sensing Agency, Balanagar, Hyderabad 500 037, Andhra Pradesh
32. Lalji Singh, director, Centre for Cellular and Molecular Biology, Uppal Road, Hyderabad 500 007, Andhra Pradesh
33. Harini Nagendra, Asia research coordinator, Center for the Study of Institutions, Population and Environmental Change, Indiana University, and Fellow, Ashoka Trust for Research in Ecology and the Environment, Bangalore, Karnataka
34. Arun Agnihotri, *bichhubooti@yahoo.com*
35. Shomita Mukherjee, Centre for Wildlife Studies, Bangalore
36. S Chandola, addl PCCF and CWLW, Uttaranchal
37. K Yoganand, PhD scholar, Wildlife Institute of India, Dehradun 248 001
38. Mohammed Irfan Ullah, fellow (scientist), Ashoka Trust for Research in Ecology and the Environment, 659, 5th A Main Road, Hebbal, Bangalore 560 024, Karnataka
39. Mahesh Rangarajan, independent researcher, 24 Samachar Apartments, Mayur Vihar Phase-I Extension, Delhi 110 009
40. Harsh Vardhan, honorary general secretary, Tourism and Wildlife Society of India, C-158A, Dayanand Marg, Tilak Nagar, Jaipur 302 004, Rajasthan
41. Bransdon S Corrie, chief conservator of forests (WL), Thiruvananthapuram
42. Anjana Gosain, honorary secretary, Tiger Trust, 206, Rakeshdeep, 11 Commercial Complex, Gulmohar Enclave, New Delhi 110 049
43. Archana Singh, *Lokmath Samachar*, Pandit Jawaharlal Marg, Nagpur 440010, Maharashtra
44. Arpan Sharma/Asmita, Samrakshan Trust, E-314, Anandlok, Mayur Vihar Phase – I, New Delhi-91.
45. Anil Garg, near PO Khadi Bhandar, Kothi Bazar, Betul 460 001, Madhya Pradesh
46. Vivek R Sinha, 764, 100 Feet Road, HAL IInd Stage, Indiranagar, Bangalore 560 038.
47. Anita S Areckal, deputy conservator of forests, Mangalore Forest Division, Mangalore, Karnataka
48. Ashok Kumar, senior advisor and trustee, Wildlife Trust of India, C-644, First Floor, New Friends Colony, New Delhi 110 065
49. Raghunandan Singh Chundawat, Wildlife Institute of India, Post Bag No 18, Chandrabani, Dehradun 248001, Uttaranchal
50. Vijay Soni, angler, environmentalist, Indian Fish and Wildlife Conservancy, 43, Golf Links, New Delhi 110 003
51. Dr S Shivaji, scientist (deputy director), Centre for Cellular and Molecular Biology (CCMB), Uppal Road, Hyderabad 500 007.
52. Dr M Janikaraman, 6060 Village Bend Street, Apt # 310, Dallas TX 75206, USA
53. Avdhash Kaushal, RLEK, 68/1, Suryalok colony, Rajpur Road, Dehradun, Uttaranchal.
54. Meenal Shrivastava, professor, international relations, Wits University 2050, Johannesburg, Wits, South Africa
55. S K Tiwari, wildlife photographer, naturalist, *kaysat@sancharnet.in*
56. Ramma Handoo, B-12, Maharani Bagh, New Delhi 110 065
57. S M Jain, consultant, forestry, 7-B, Talwandi, Pvt Sector, Commerce College Road, Kota 324 005, Rajasthan

58. Rakesh Shukla, research officer, Kanha tiger reserve, New Kanha Colony, near Mandla Forest Range, Civil Lines, Mandla 681 661, Madhya Pradesh
59. A N Prasad, field director, Palamau tiger reserve, government of Jharkhand, Daltonganj 822 101, Jharkhand
60. S M Satheesan, B-16/5, AAI Colony, Sahar Road, Andheri East, Mumbai 400 099, Maharashtra
61. Bittu Sehgal, editor, *Sanctuary Magazine*, 602 Maker Chamber V, Nariman Point, Mumbai 400 021, Maharashtra
62. K Ullas Karanth, director, Wildlife Conservation Society-India Program, Centre for Wildlife Studies, 823, 13th Cross Road, Jayanagar, 7th Block (West), Bangalore-560 082, Karnataka
63. M K Saran, *innovativeimpex@vsnl.com*
64. Brian Child, chairperson, SASUSG
65. Kaushlendra Singh, *aviansociety@rediffmail.com*
66. A J T Johnsingh, head, Faculty of Wildlife Biology, Wildlife Institute of India, Post Bag No.18, Chandrabani, Dehradun 248 001, Uttaranchal
67. Y V Jhala, head, Animal Ecology and Conservation Biology Department, Wildlife Institute of India, Post Bag No.18, Chandrabani, Dehradun 248001, Uttaranchal
68. Kartik Shanker, fellow, Ashoka Trust for Research in Ecology and the Environment, 659, 5th A Main Road, Hebbal, Bangalore 560024, Karnataka
69. Nirvana Bodhisattva, chairperson, Nirvanavan Foundation, Director CHILDLINE Alwar, Mahila Thana Campus, Moti Dungri, Alwar, Rajasthan
70. Ghazala Shahabuddin, research associate, Environmental Studies Group, Council for Social Development, 53, Lodi Estate, New Delhi-110003
71. Barun Mitra, director, Liberty Institute, Julian Simon Centre, C-2/13, Sahyadri Apartments, Plot No.5, Sector-12, Dwarka New Delhi 110045
72. Shekar Dattatri, Plot 40, Door No.11, 3rd East Street, Thiruvanniyur, Chennai 600041, Tamil Nadu,
73. Sanjay Thakre, Email: *sptwardha04@yahoo.co.in*
74. Navneet Maheshwari, Email: *navneet@rediffmail.com*
75. Subhadra Urmila Majumdar, E-mail: *msurmila@hotmail.com*
76. Vijay Verma, Patur, Turner Road, PO Clement Town, Dehradun 248002, Uttaranchal
77. S S Murthy, Mission Compound, Napier Town, Jabalpur 482001, Madhya Pradesh,
78. A S Negi, Email: *raj70bisht@yahoo.co.in*
79. Ujjal Kumar Sarma, E-mail: *uks_wildlife@yahoo.co.in*
80. Ajith Kumar, Wildlife Conservation-India Programme, 294, 5th main, Canara Bank layout, Bangalore 560097, Karnataka
81. M D Madhusudan, Wildlife Ecologist and Trustee, Nature Conservation Foundation, 3076/5, IV Cross, Gokulam Park, Mysore 570002, Karnataka,
82. Shantanu Guha Ray, producer & head, Cricket Show and Special, ESPN Star Sports, 22, Pushpa Vihar Commercial Complex, New Delhi .
83. H S Jamadagni, professor and chairperson, Centre for Electronics Design and Technology, Indian Institute of Science, Bangalore 560012, Karnataka and Dr A. Pittet, Chief Project Advisor
84. Manoj Misra, Peace Institute, 178-F, Pocket IV, Mayur Vihar, Phase – I, New Delhi – 110 091,
85. T R Shankar Raman, wildlife scientist, Nature Conservation Foundation, 3076/5, IV Cross, Gokulam Park, Mysore 570002, Karnataka
86. Punit Lalbhai, project associate, CEE Tiger Conservation CELL
87. Ratna Kapur, Email: *rkcfllr@gmail.com*
88. S P Goyal, scientist, Wildlife Institute of India, Post Bag No.18, Chandrabani, Dehradun – 248 001, Uttaranchal,
89. Jarnail Singh, conservator of forests & field director, Pench National Park, Near Government Printing Press, Civil Lines, Nagpur, Maharashtra
90. Hitesh Malhotra IFS, Addl. PCCF (WL) and CWLW, Govt. of AP, R & D Circle, Opp. RBI Building, Aranya Bhavan, Saifabad, Hyderabad 500004, Andhra Pradesh

91. J C Daniel, honorary secretary, Bombay Natural History Society, Hornbill House, Dr Salim Ali Chowk, Shaheed Bhagat Singh Road, Mumbai 400023, Maharashtra
92. Janaki Lenin, Draco Films, PO Box 21, Chengalpattu 603001, Tamil Nadu
93. A R Maslekar, B-15, Amar Heights, Aundh Road, Khadki- Pune - 411 020
94. Karamjeet Singh, Email: kjsingh.geo@yahoo.com
95. Manojit Saha, manojitsaha@deccanherald.co.in
96. V P Singh, chairperson, Empowered Committee on Forests & Wildlife Management - 2005, Van Bhawan, Vaniki Path, Tilak Marg, C-Scheme, Jaipur 302005
97. Ramanuj Choudhary, chief conservator of forests (Working Plans), Office of the Chief Conservator of Forests (Working Plans), Nagpur-440001
98. K Chanchal Singh, convener, Kota Regional Chapter, INTACH, 71, Lodhi Estate, New Delhi-110003
99. Parul Rishi, Faculty of Personnel Management & Organisational Behaviour, Indian Institute of Forest Management, Nehru Nagar, Bhopal-462003.
100. Bijan Ghosh, advocate, Supreme Court of India, 341 New Chamber Block, Supreme Court Buildings, New Delhi 110001
101. Jayan P A, Jayanpa@rediffmail.com
102. Kartick Satyanarayan, co-founder, chairperson, Wildlife S.O.S, D-210, Defence colony, New Delhi 110024
103. Sanjay Upadhyay, Enviro Legal Defence Firm, 278, Sector 15-A, NOIDA 201301
104. Prakash Gole, director, Ecological Society, B/2 Jayanti Apartments, Senapati Bapat Road, Near Ratna Memorial Hospital, Pune 411016
105. R K Singh, Wildlife Trust of India, New Delhi
106. Ravi Singh, secretary general and CEO, WWF-India Secretariat, Pirojsha Godrej National Conservation Centre, 172 B, Lodhi Estate, New Delhi 110003
107. Satya Priya Sinha, consultant and project coordinator, sos Rhino Project, Wildlife Institute of India, Chandrabani, Dehradun 248001
108. Vijay Ghugey, Nature Science Club, 138, Kalpataru, Mahalaxmi Nagar, No 2, Manewada Road, Nagpur 440024
109. Gopal Thosar, honorary president, Vasundhara, 66, Ganesh Colony, Police Chowki, Pratapnagar, Nagpur 440022
110. S N Sukliker, president and Dilip Gode, secretary, Vidarbha Nature Conservation Society, Tidke Ashram, Ganespeth, Nagpur 440018
111. Kundan Hate, vice president, Satpuda Foundation 86, Shivneri Apartment, Kanfade Nagar, Ring Road, Nagpur 440015
112. Saharsh Agarwal, Camp Umariya, Umariya district, Madhy Pradesh 484661
113. Pasi Joseph, Murali Rahi, Rajkumar Khodecha, National Environment and Wildlife Society, Gondia, Maharashtra
114. R Annamalai, field director and conservator of forest, Tamilnadu Forest Department, Project Tiger, NGO 'A' colony, Tirunelveli 627007
115. S S Chitwadgi, chartered forester, Bharat Forestry Consultancy, 156/A, Indrapuri, Bhopal 462021
116. S H Patil, conservator of forests and field director, Tadoba-Andhari tiger reserve Chandrapur

ANNEXURE-VIII Methodology for estimating and monitoring tiger status and habitat

- Y V JHALA, faculty, Wildlife Institute of India
- QAMAR QURESHI, faculty, Wildlife Institute of India
- RAJESH GOPAL, director, Project Tiger

The only form of tiger population monitoring undertaken in the country is a total count (census) of the country-wide tiger population every four years and within tiger reserves every one-two years. The census is based on intensive monitoring of tigers within areas, identifying individual tigers by visual inspection of the pugmark tracings/plaster casts, mapping tiger distribution at the local scale and inferring total numbers from the above information (Choudhury 1970, Panwar 1979, Sawarkar 1987 and Singh 1999). This methodology has come under severe criticism (Karanth et al, 2003). The major limitations of the above technique are that

1. it relies on subjective (expert knowledge) identification of tigers based on their pugmarks;
2. the pugmarks of a tiger are likely to vary with substrate, tracings/casts and the tiger's gait;
3. it is not possible to obtain pugmarks of tigers from all tiger occupied landscapes, and
4. the method attempts a total count of all tigers (Karanth et al, 2003).

An alternative proposed by tiger biologists is to use individually identified tigers by camera traps in a capture-recapture statistical framework to estimate tiger densities (Karanth 1995 and 1998, Karanth and Nichols 1998, 2000 and 2002, Karanth et al 2004, Per Wegge et al 2004 and Pollock et al 1990). The method has been useful in determining tiger densities in small areas, within tiger reserves having high to medium density tiger populations. The method has a high potential for monitoring source population and smaller sample areas within tiger occupied landscapes. However, due to the technical nature of the technique, high cost, security issues of the equipment and low performance in low density tiger populations this method has its limitations for a country-wide application for monitoring tigers (Carbone et al 2001, Karanth 1995 and 1998, Karanth and Nichols 1998, 2000 and 2002, Karanth et al 2004 and Kawanishi and Sunquist 2004).

The other two potential methods that can be used in smaller sample areas for monitoring source tiger populations are the individual identification of tigers from digital images of their pugmarks (Sharma et al,

in press) and tiger DNA profiles obtained from scats and other non-invasive techniques (Broquet and Petit 2004, Prugh et al 2005 and Xu et al 2005).

Here, we propose an alternative technique based on a four-stage approach:

Stage I: Spatial mapping and monitoring of tigers, prey and habitat

This stage consists of mapping

- (a) tiger presence and relative abundance (Karanth and Nichols 2002);
- (b) tiger prey presence and relative abundance and
- (c) habitat quality and anthropogenic pressures at a high spatial resolution of 15-20 km².

We consider a forest beat (an administrative unit, 15-20 sq km in size, delineated primarily on natural boundaries) as the unit for sampling. Since each beat is allocated to a beat guard for patrolling and protection, the boundaries of a beat are well recognised by forest staff. The sampling would be systematically distributed in all beats of tiger occupied forests (tiger reserves, revenue and reserve forests). Thus, in effect, the entire landscape where tigers are likely to occur is sampled (beats are not stratified or randomly sampled, but all beats are sampled as large humanpower is available for sampling). In forest areas, where beat boundaries are not delineated (< 20 per cent of tiger occupied forests in the country) – such as the northeast – 15-20 sq km sampling units will be identified on the basis of natural boundaries (ridges, drainage, etc). The detailed methodological approach for sampling carnivore signs, ungulate encounter rates, pellet/dung counts, habitat and anthropogenic pressures are presented in the 'Field Guide' (Jhala and Qureshi 2004).

The target data are extremely easy to collect and require no high level of technical skills or equipment. It is crucial that the forest department staff is primarily responsible for the data collection due to the sheer magnitude of the task involved. Furthermore, the involvement of the forest department staff instills ownership and accountability of this agency which is primarily responsible for the protection and management of wildlife resources. The forest

department staff will be trained in the data collection protocol and tested for consistency.

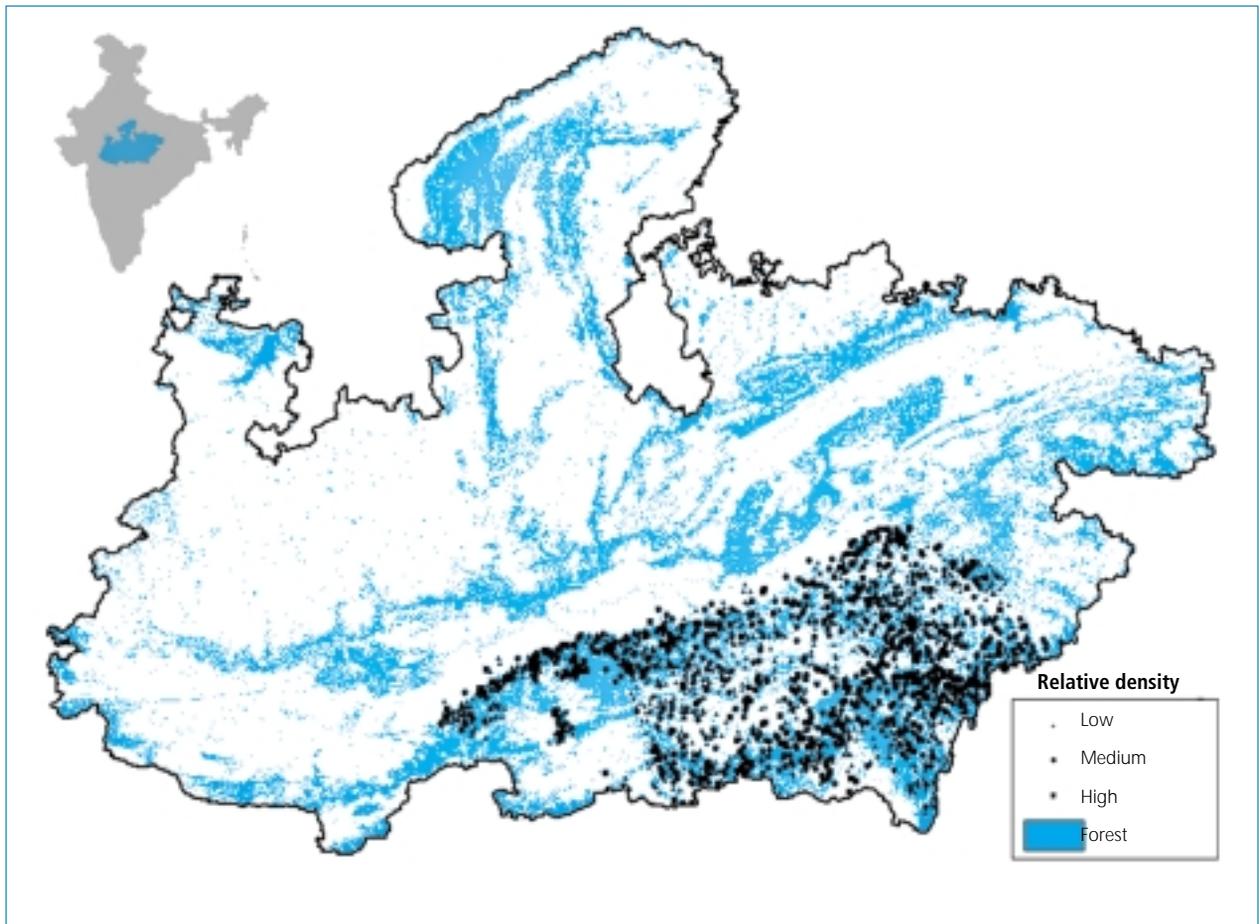
The spatial data generated will be scientifically robust, and amenable for statistical analysis and inference. Since several replicate surveys will be undertaken in each beat, we shall be able to model tiger occupancy, detection probability of tiger signs, and relative sign density at a high spatial resolution (stratified on the basis of ecological characteristics, range or a superimposed grid of varying scale) using the approach of MacKenzie *et al* (2002), Royale and Nicholes (2003) and Royle (2004). Since the data will be analysed in a GIS domain, several spatial and attribute data like human density, livestock density, road network, topographical features, forest type and cover, meteorological data, poaching pressures and landscape characteristics will be used as covariates to model tiger occupancy and relative abundance in a landscape and individual forest patches. Time-series analysis of the data at a larger spatial resolution is likely to have sufficient precision for monitoring spatial occupancy of tigers in association with changes in tiger prey, habitat quality and anthropogenic pressures.

We have tried to address the issue of reporting inflated numbers by laying emphasis on animal signs instead of numbers. Furthermore, the resolution of the data generated will be reduced to four-five categories (high, medium, low and absent). Several corroborating variables like prey encounter rates, pellet group counts and habitat condition will help in ensuring quality data; discrepancies in reporting will be easy to pinpoint. There would be an audit mechanism in place to scrutinise the data collection, compilation and analysis. National and international experts would act as observers while officers in-charge will ensure adherence to the prescribed protocol and transparency of protocol implementation.

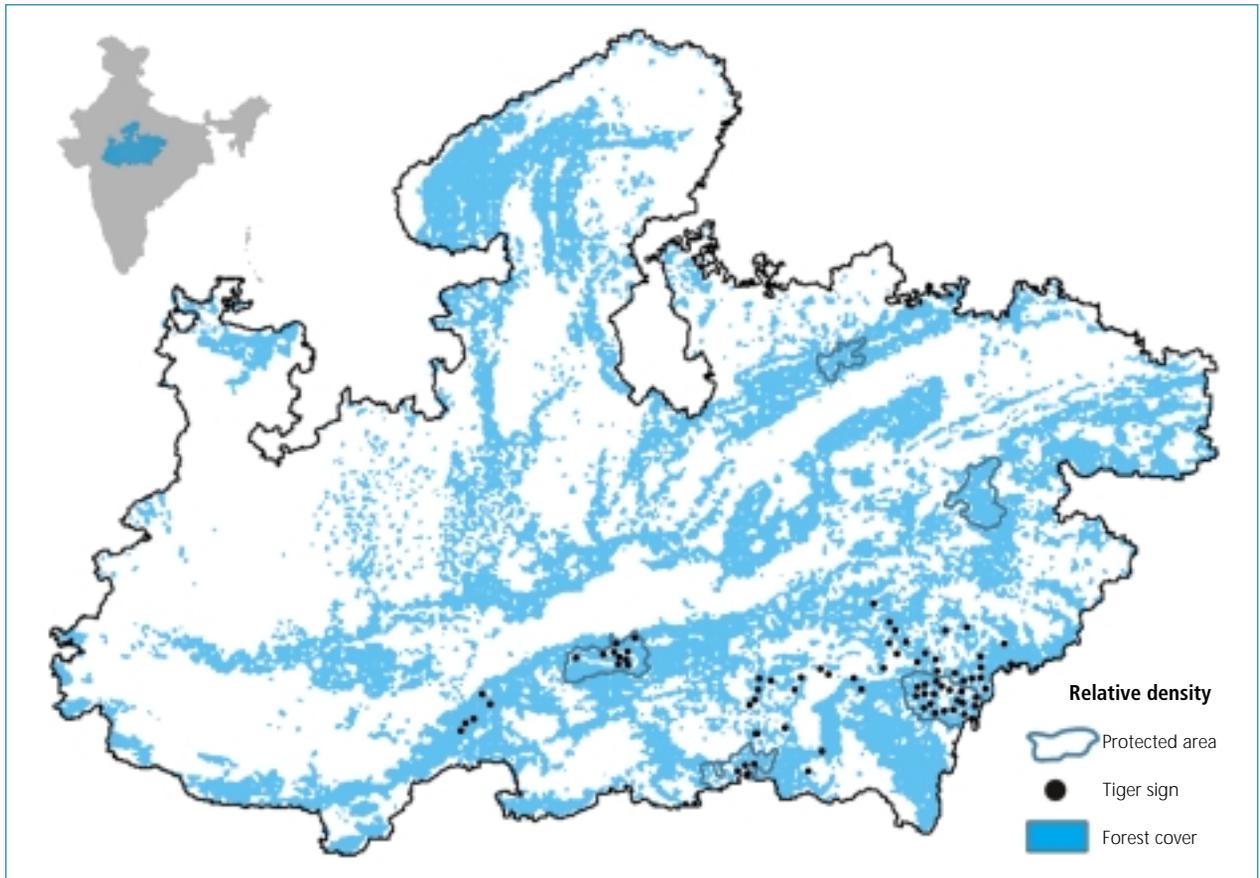
The system, once institutionalised and implemented, will not only serve to monitor tiger populations but will also monitor the status of other biodiversity resources of all tiger occupied landscapes, truly exemplifying the role of the tiger as a flagship. It will serve as an effective tool for decision makers, managers and conservationists alike and will help guide and plan land use policy at a landscape level.

We have tested the logistics of implementation of the above methodology in the Satpura-Maikal

Map 1: DISTRIBUTION OF UNGULATE TIGER PREY IN THE SATPURA-MAIKAL LANDSCAPE



Map 2a: TIGER SIGN PRESENCE WITHIN THE SATPURA-MAIKAL LANDSCAPE



landscape (about 48,000 sq km) in Madhya Pradesh covering 3,150 beats in 178 forest ranges and mapped tiger and ungulate abundance. Tiger presence was recorded in 290 beats with 78 beats having high, 57 having medium and 155 having low abundance of tiger signs. Ungulate tiger prey was recorded in 1,678 beats. Spatial distribution of these is shown in Figures 1, 2a and 2b. The analysis of this data is in progress.

Stage II: Spatial and attribute data

The spatial and aspatial data that are likely to influence tiger occupancy of a landscape will be used for modeling in a GIS domain. The vegetation map, terrain model, night light satellite data, drainage, transportation network, forest cover, climate data, Normalised Difference Vegetation Index, livestock abundance, human density, socio-economic parameters, etc will be used for modeling habitat condition and tiger occupancy. Beat-wise vegetation sampling will be done to generate broad vegetation map. IRS (KISS3 and AWiFS), LANDSAT and AVHRR satellite data will be used. Part of this component will be done in collaboration with Forest Survey of India. This modeling will help in determining

current spatial distribution of tigers, potential habitats, threats to crucial linkages between occupied landscapes and conservation planning.

Stage III: Estimating the population of tigers and its prey

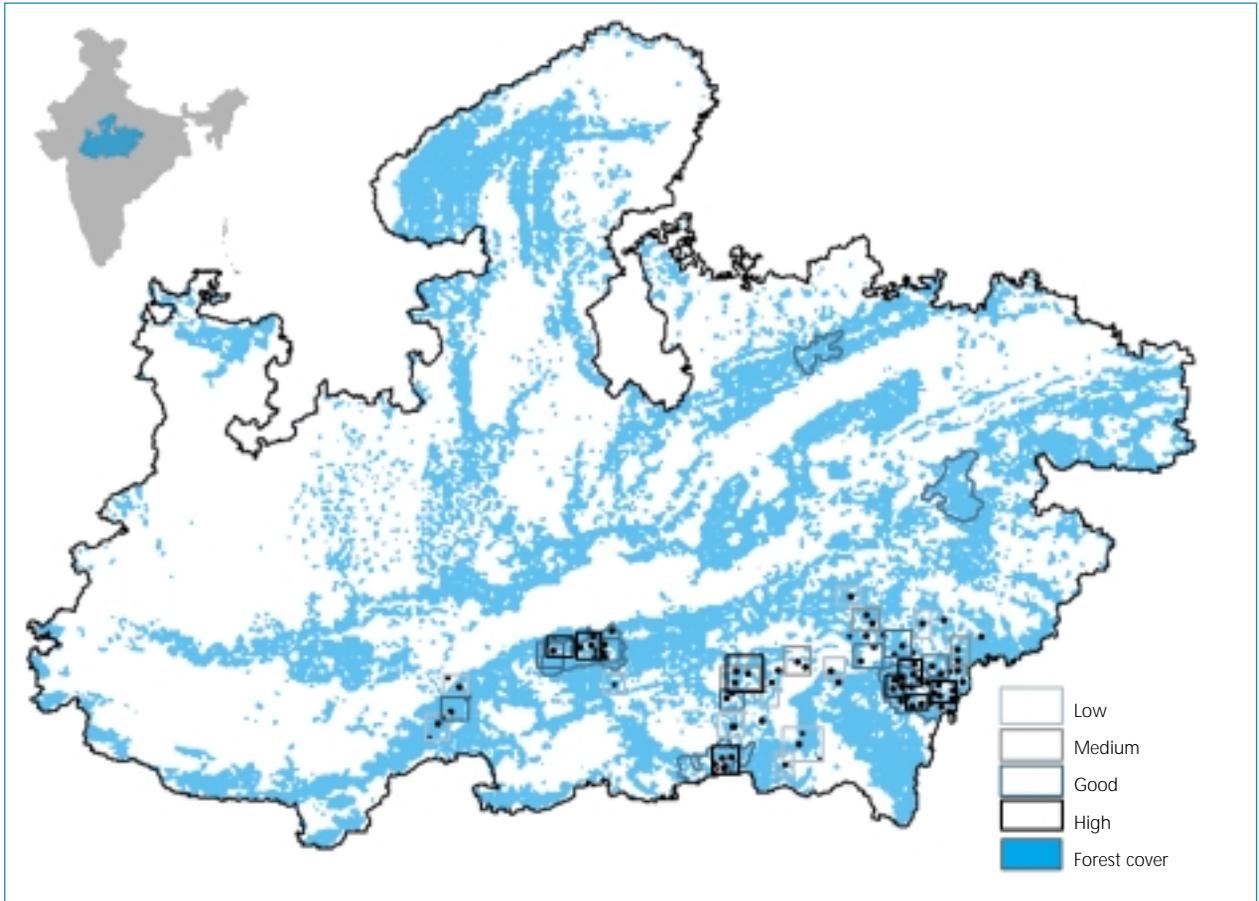
Stage 3 of the proposed methodology answers the question of how many tigers and ungulates are there. Teams of researchers will be deployed in each landscape complex for estimating tiger density and ungulate densities within stratified sampling units.

Tiger numbers

We propose to stratify a Tiger Conservation Unit (TCU) into tiger sign abundance classes of high, medium, low and no tiger sign at the beat and larger spatial resolution (range 100 sq km). In each of these strata, within a landscape (TCU), we propose to estimate actual tiger density in three-five replicates of sufficient size (50-200 sq km).

All known techniques of tiger density estimates will be used depending on the logistic possibility within each landscape: capture-recapture based on

Map 2b: 100 SQ KM HABITAT BLOCKS WITH DIFFERENT ABUNDANCE RANKING OF TIGER SIGNS WITHIN THE SATPURA-MAIKAL LANDSCAPE



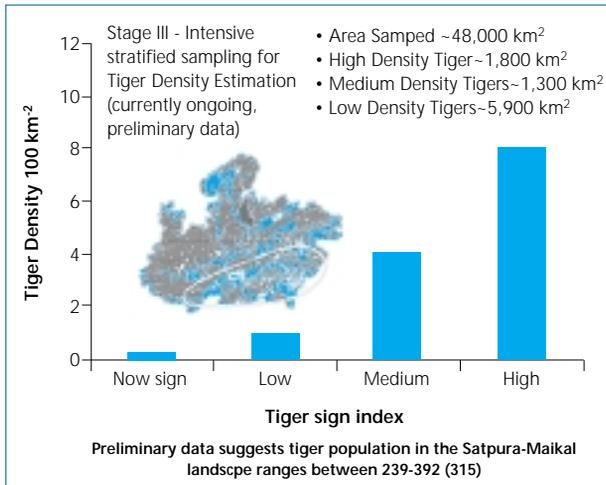
camera traps (Karanth 1995 and 1998, Karanth and Nichols 1998, 2000 and 2002, Karanth et al 2004, Pollock et al 1990, Carbone et al 2001 and Per Wegge et al 2004), mark-recapture based on pugmarks (Sharma et al *in press*) and DNA profile obtained from tiger scats (Broquet and Petit 2004, Prugh et al 2005 and Xu et al 2005). These densities will then be extrapolated for the areas under various density classes within the landscape to arrive at a tiger population estimate (Figure 3). We do realise that these population estimates are likely to have high variances, but since these estimates will not be used for monitoring trends (which is proposed to be done through the site occupancy and relative abundance data), they should suffice the need for converting a relevant ecological index to a more comprehensible concept of numbers.

Tiger prey

Stage I of the protocol would be reporting encounter rates on line transects (Buckland et al 1993); these would suffice for monitoring trends in ungulate

population and site-specific occupancies. To convert encounter rates to density, an estimate of the effective strip width of these transects would be essential. The effective strip width of a transect primarily depends on the visibility (vegetation and terrain type), ability to detect ungulates by different observers and animal behaviour response (Buckland et al 1993). We modeled effective strip widths in different vegetation types of a landscape in the Satpura-Maikal landscape using model ungulate cutouts (Figure 4). Effective strip widths determined from the model and actual sightings of ungulates for different vegetation types estimated for the same season did not differ (Mitra 2004) within Kanha (a protected area). However, ungulate response is likely to play an important role in disturbed areas in determining effective strip widths. We intend to determine habitat and terrain-specific effective strip widths by actually sampling selected sampling units and by modeling. Since the transect line in a beat is habitat-specific (Jhala and Qureshi 2004), we would be able to use these estimates of effective strip widths for converting encounter rates of ungulates to density

EXTRAPOLATING TIGER SIGN INDEX TO TIGER DENSITIES AND POPULATION ESTIMATES



estimates by modeling detection probabilities.

Pellet group counts on transects would serve as an index to the presence of ungulate species and pellet relative abundance (and are not used for absolute density estimation), especially in disturbed areas where actual sightings may be difficult.

Stage IV: Intensive monitoring of source populations

We propose that source populations of tigers (tigers in tiger reserves and protected areas) in each tiger landscape complex be monitored intensively. We propose the following methodology for this monitoring:

Photo registration of tigers: Pictures of individual

tigers obtained by camera traps or by regular cameras should be maintained in the form of a photo identity album. Records should be kept on the location, condition (breeding status, injury, etc) and associated tigers whenever a tiger is sighted. This will provide crude data on ranging patterns, demography and mortality.

Tiger pugmark and other signs: Regular monitoring of tiger signs (pugmark tracings, plaster casts, etc) should be undertaken in every beat at a weekly interval with monthly compilation of data. With experience and exposure to the resident tigers and their pugmarks, the forest staff may be able to identify individual tigers from their track set characteristics (Panwar 1979, Smith et al 1999 and Sharma 2001). Sign surveys and individual tiger monitoring should become a regular task for every guard as was the practice some years ago and is currently practised in some tiger reserves. The monthly data should be mapped and maintained to analyse trends.

Monitoring by telemetry in select areas: Use modern technology of VHF, GPS and satellite telemetry to study and monitor aspects of demography, metapopulation dynamics (dispersal, ranging patterns), mortality, predation ecology and behaviour.

In all source populations, tiger abundance and density should be estimated using camera traps, digital images of pugmarks and/or DNA profile from non-invasive methods biannually.

The Project Tiger directorate will play the overall supervisory and coordination role for all the phases and tasks under each phase of the monitoring.

ANNEXURE-IX Investing in institutions for change: strengthening the Project Tiger directorate

The tiger-reform agenda will not be possible without revamping institutional structures and processes across the board. The Project Tiger directorate itself will have to be strengthened: planning, implementation, monitoring and corrective mechanisms must happen down the line.

Currently, the directorate has only the incumbent director as an effective professional. Whatever assistance he has is deficient in field experience as well as the needed senior status to measure up to the desired equations, as is required to deal with the states.

The directorate staff lacks field training, and doesn't have the seniority to deal with states effectively.

Certainly, this situation must improve. Competent professional assistants having expertise in wildlife management, Geographical Information Systems, statistics and socio-economics. Only carefully selected, individuals from the state forest service cadre and scientific cadres – with the participation of the director in the selection process – can ensure the requisite professional experience and calibre in the candidates selected.

It is on these lines that the Project Tiger directorate shall have to be revamped. It will be necessary to accord a fair measure of autonomy to the directorate in order to ensure quick decision-making and exercising timely interventions for correctives at the tiger reserve and state administration levels. Likewise, effective institutional structures shall have to be put in place to approve programmes and finances.

A competent governing body will be essential to take decisions on policy and programme-merit and its size for the different reserves. The states' response shall have to be ensured by carefully selecting lead managers in each reserve and placing the buffer zones under field directors' control right away, where not already done. Simultaneously, a judicious planning exercise shall have to be undertaken to launch the integrated conservation and people supportive programmes over a larger area, say a sub-landscape much beyond the existing buffer zones.

The Director, Project Tiger should have considerable operational freedom and office support to perform the above role. At present, the Project Tiger directorate is performing the following functions:

National:

A. General

1. Processing of the annual plan of operations received from states for providing funding support
2. Collation and scrutiny of utilisation certificates as received from states vis-à-vis the central assistance provided
3. Collation and scrutiny of monthly, quarterly, half-yearly and annual reports received from the states
4. Monitoring compliance of instructions relating to patrolling/special patrolling/protection initiatives
5. Supervisory field visits and interaction with chief wildlife wardens and field staff
6. Facilitating networking for wildlife crime detection
7. Collation of tiger poaching data
8. Replying to Parliament questions, Parliamentary Committees/VIP references.
9. Filing replies relating to tiger conservation litigation ongoing in courts of law
10. Furnishing replies to audit paras, furnishing reports and returns and participating in the routine meetings of the ministry
11. Fostering awareness, eliciting public support towards tiger conservation
12. Implementing complementary externally aided projects

B. Technical

1. Providing technical comments to the state chief wildlife wardens on management plans of tiger reserves
2. Formulating guidelines on managerial issues relating to core and buffer zones, including carrying capacity for tourist visitation, eco-tourism and park interpretation
3. Carrying out independent monitoring of tiger reserves based on a set criteria by a panel of experts
4. Monitoring the country-level status of tiger population/habitat based on Geographical Information Systems (GIS)
5. Carrying out the all India estimation of tigers, co-predators and prey animals once in every four years
6. Assessing the comparative forest cover status of

- tiger reserves and their surrounds through the Forest Survey of India
7. Facilitating faunal survey of tiger reserves through the Zoological Survey of India
 8. Facilitating floristic survey of tiger reserves through the Botanical Survey of India
 9. Preparing a country-level status paper on Project Tiger
 10. Digital customisation of category-wise funds utilised in tiger reserves since the inception of the project, and its updation
 11. Linking tiger reserves in the GIS domain through National Information Centre for Management Information Systems.
 12. Fostering field research and radio telemetry studies of tigers in tiger reserves in collaboration with the Wildlife Institute of India
 13. Organising national/international workshops on tiger conservation
 14. Facilitating capacity building of field officers in tiger reserve for management and crime detection
 15. Mainstreaming the good/wise practices from various tiger reserves
 16. Participating in training courses of field officers as resource person

International:

1. Participating in international meetings of conventions like the Convention on International Trade in Endangered Species (CITES)
2. Participating in trans-boundary meetings with Nepal on tiger conservation
3. Participating in the meetings of the Global Tiger Forum
4. Evolving bilateral protocol with neighbouring tiger range countries

ANNEXURE - X **A critique of cadre-building in the forestry sector and suggestions for human resource improvement**

■ **H S PANWAR**, *member, Tiger Task Force*

The institutional hierarchy in the forestry sector is organised in the following structures:

The Indian Forest Service (IFS), an All-India Service, leads forest and wildlife management both in the states and the Centre. Recruitment in the service is direct and by promotion from the State Forest Service. Central government positions are also filled by IFS officers seconded on deputation from the state cadres.

The State Forest Service (SFS): The SFS officers render the function of supervisory assistance in protection and work execution. Recruitment is both direct and by promotion from range forest officers. When IFS was reconstituted in 1966, direct recruitment to the state service was stopped. But, ostensibly, to share the increased workload direct recruitment was restarted in 1978. As it proved later this was an unwise move as over time this has led to widespread stagnation in forestry cadres down the line from rangers to forest/wildlife guards.

Forest Rangers or Range Forest Officers (RFO): Forest and wildlife protection and execution of field activities as well as accounts are organized and controlled with a range as the base unit. The RFO is the key field level functionary. Recruitment is both direct and by promotion from the post of deputy rangers.

Forester/Deputy Ranger (Range Assistant or Round Officer): A range is usually organized into two subunits in charge a forester or deputy ranger. They lead or participate in patrolling parties as well as execute field works and other activities. Recruitment at forester level is both direct and by promotion from forest guard level. Generally deputy ranger Positions are all filled by promotion from foresters.

Forest and Wildlife Guards: Basic protection unit is a beat manned by a forest/wildlife guard assisted by a 'watcher'. In PAs, guards must live in interior chowkis and carry out patrolling as well as keep track of animals or animal-signs and habitat use by them. They thus render valuable information of use

in wildlife management. Besides they also carry out the works e.g. fire protection, road maintenance.

Foresters and forest/wildlife guards constitute the main frontline whereas the rangers are the main field executives. ACFS (IFS probationers and SFS officers), DCFS and CFS carry out different levels of supervisory and control functions in an ascending order from rangers above:

Assistant Conservator of Forests (ACF): Field supervision of protection and management.

Deputy Conservator of Forests (DCF): Above plus planning annual work programmes, budgets, rendering accounts and exercising administrative control over their territories and units in their charge, say a forest division, a protected area or a part of a tiger reserve.

Conservator of Forests (CF): As head of a forest-circle or the field director of a tiger reserve, carries out planning, oversees implementation and exercises overall administrative control. In a territorial charge a CF usually controls 4-5 forest divisions.

Poor Cadre Planning & Management

The adverse impacts of revival of direct recruitments to the SFS have significantly upset the promotion prospects lower down leading to frustration in the subordinate forestry cadres – the rangers and the frontline staff. This has been further drastically compounded by the heavy direct recruitments in the IFS and SFS and even RFO cadres during 1978 up to about 1990. In the IFS the peak years were 1988, 1989 and 1993, otherwise they have remained at annual averages during periods shown below:

- Peak years: 1988 - 155; 1989 - 107 and 1993 - 82
- 65 during 1968-1986
- 55 during 1989-1997 (excluding 1993, a peak year)
- 25 during 1998-2003

In the SFS also these have been erratic with irrationally high levels from 1980 to 1990 averaging at 123 per year. They dropped off to about 33

between 1991 and 1998, steeply declining in 1999 to just three. There was no recruitment in 2000 and 16 were recruited in 2001. After that there have been just a few or no recruitments.

At RFO level the recruitment were again high during 1978 to 1982 averaging at 470 per year. It ranged from 120 to 290 between 1983 and 1989, averaging at 209 per year. Later it dropped to a trickle. The total cadre strength of RFOs of all states put together is 9974. If a third is to be filled by promotion from lower rank, the net strength of direct recruits would be 6600. If an average of 20-25 year stay in RFO cadre is taken before promotion, this would suggest a mean quota of about 260-330 per year, or say an average of 300 per year. Steady direct recruitment to the RFO cadre at this rate is critical because the average age of this important field executive cadre must remain around 40 years. But erratic heavy recruitment in six years from 1978 to 1982 upset this and also the avenues for promotion for the frontline staff.

It is not difficult to see that the direct recruitments to the different levels of forestry cadres have been erratic and irrational across the board. This has undermined the functional efficacy of institutional structures in field functions. This has also led to marked stagnation in all cadres too, which has been a major reason for the low morale of the forestry services all across. As challenges and threats have aggravated, the forestry service efficacy has been steadily decimated by these horrors in cadre planning and management. It has also done untold harm to the training institutions, also all across.

The forestry services have to discharge a wide spectrum of functions from policing to development including contribution to the socioeconomic well being of the forest dwellers. Besides the well over a decade old adoption of none or next to negligible direct recruitments by the states at all levels has given a severe blow to the protection and development functions of the forestry services.

While it is not advisable to make direct recruitment to the SFS cadre in most states it is necessary to fill up positions by promotion from the RFO cadre. It is essential to revive direct recruitments at 'normal' levels immediately at the RFO and forester levels. Recruitments to the FG/WLG cadres shall have to be somewhat heavier in order to fill up large-scale vacancies and thus rationalize the average age of the frontline. There is, however, no case for any increase in the respective sanctioned strength of all the cadres. In order to mend the fence with the local community, a good measure would be to fill up all or at least 50 per cent posts at forester and 75 per cent posts at forest/wildlife guard levels by preferential appointment of local candidates. For the tribal candidates having good jungle-craft skills

(ascertained by test) the educational qualifications may be brought down to just 5th standard of school education. In any case all cadres need a thorough review and an obligatory institution of a rational strategy so that such upsets that affect the very core of forestry and wildlife functions are not ever repeated.

Capacity Building

In tune with the decay in the forestry services, the capacity building has deteriorated too, mainly from lack of interest on part of the states. Thus, there is not only a shortage of staff but also a steep fall in the professional capacity, particularly in wildlife management and in respect of the needed paradigm shift in favour of participatory management of forests and PAS through initiatives e.g. JFM and ecodevelopment. The low availing of training facilities in wildlife management in the WII is now the reason of many PAS in many states being managed by untrained officers. The training capacity of WII for 9-month PG Diploma course in wildlife management for IFS and SFS officers is 30 per year but right through nearly two decades the actual number of trainees has stagnated at less than 20 on an average. Likewise the 3-month certificate course for the rangers having also a capacity of 30 has remained underutilised at well below 20 per year. In order to meet the reason advanced by the states of paucity of funds the MOEF has provided for cent percent training cost to be borne by itself from 2003. This has so far had only marginal improvement. It is also seen that training interest varies from state to state.

There is low priority to capacity building and to undertaking organized staff development plan in the forestry services. The worst sufferer of this lapse is the wildlife management. States have not taken much interest in upgrading their forester and forest guard training schools in terms of introducing special packages for wildlife management within forestry courses and undertaking full time wildlife management courses. Some years back the WII had developed specific curricula in wildlife management for forester and wildlife guard courses and selected two schools (Kalagarh in Uttaranchal and Bandhavgarh in Madhya Pradesh) for assistance by way of training of trainers and also helped run one course. But these schools are now running under utilized. It is necessary to strengthen these schools so as to meet the needs of other states in the respective regions. WII should also ask other large states to come forward to avail this capacity building help in developing their schools and staff. WII has an enormous responsibility ahead to bring up capacity in states and to prepare a fair number of IFS officers in order to constitute the long awaited 'wildlife sub-

cadre', which the TTF has fully endorsed. But unfortunately it has lost long years in stagnation despite its efforts to the contrary.

Preparing for paradigm shift

There has been some recognition but hardly any conviction for the paradigm shift in forest and wildlife management towards an integrated management strategy to ameliorate degraded forests in order to improve ecosystem services and enhance productivity for the forest dwellers, the country at large and for state revenues. Diversion, degradation and fragmentation of forests from pressures of industrial development, markets and a steep rise in human population post-independence have forced foresters to adopt a protectionist enforcement approach. This has cost them the loss of sympathy of forest dwellers and the development planners alike.

While industrial development needs being obligated to observe stricter discipline and to carry greater environmental responsibility, the forestry-wildlife sector equally needs to become a key mainstream development agency, especially contributing to the well being of the forest and forest-fringe dwellers. The sector must also simultaneously improve overall conservation in the interest of ecological security including water security, protecting our rich biodiversity and wildlife, endangered species included. This reinforces that while a forester-wildlifer is a strict enforcer against miscreants, he is a friend and development functionary of the local people, particularly the poor and the landless forest-dependents

The needed paradigm shift entails an ability to

envision conservation at landscape level, which while securing ecosystem services, biodiversity and wildlife helps rapid amelioration of degraded forests and pastures in a transparent participatory mode with the genuine local stakeholders and deserving beneficiaries. IGNFA, WII, IIFM and rangers colleges, all institutions in the domain of the MOEF, need to gear up to prepare the forester-wildlifer to be a realistic visionary, a planner and implementer of intergraded programmes capable of ushering the paradigm shift into the field level. This will require a thorough review of all curricula of these institutions as well as a wherewithal for competent and adequate training of fresh recruits. Equally, IGNFA and WII shall have to expeditiously take up the work of planning and running refresher courses for IFS and SFS officers. Short-term courses will be needed for senior IFS officers and medium terms courses for other IFS and SFS officers. WII shall also have to design and implement such courses for the rangers. Both institutions shall have to take up special training of trainers (TOT) programmes imparting expert help in the initial stages in institution based and field training modules. They must continue to run such programmers later as and when needed to update the capacity of training institutions. The Director of forestry education shall similarly have to participate in the capacity building of rangers colleges and in effectively running programmes.

Importantly, similar assistance will be needed for forester and forest/wildlife guard training schools on the new outlines suggested. Identified regional schools should be dedicated to running special wildlife management courses for foresters from all states and for wildlife guards from the states that do not have their own wildlife training schools.

ANNEXURE - XI Amending the criminal provisions of the Wildlife (Protection) Act, 1972

■ Critique by PILSAC, New Delhi for the Tiger Task Force

A. Offences and penalties

- The Act prescribes various offences and penalties. These are discussed below:
 - a. Any violation of the provisions of the Act, its rules or orders made thereunder attracts a punishment of three years or a fine up to Rs 25,000 or both [Section 51(1)]. A second or subsequent offence of the same nature attracts an imprisonment term of at least three years extending to seven years and a minimum fine of Rs 25,000 [second proviso to Section 51(1)].
 - b. Where offences are committed in relation to animals mentioned in Schedule I, or Part II of Schedule II, or where the offence relates to hunting in a sanctuary or national park or changing their boundaries, the punishment will be at least three years imprisonment extending to seven years and a fine of Rs 25,000 [first proviso to Section 51(1)].
 - c. Violation of provisions prohibiting trade or commerce in trophies, animal articles and the like, derived from certain animals, would attract a punishment of at least three years of imprisonment extending to seven years and a fine of Rs 10,000 [Section 51(1A)].
 - d. Any person who teases, molests, injures, feeds animals in zoos or causes disturbance to animals or litters the zoo will be punishable by imprisonment for a term of six months or a fine which may extend to Rs 2,000 or with both [Section 51(1B)].
 - e. Persons convicted under the provisions of the Act also stand to lose their license or permit [Section 51(2) and 51(3)] while also having their license under the Arms Act, 1959 cancelled/reinforced by an order that no re-issue of arms license be made till up to five years from the date of conviction [Section 51(4)]. They will also have no claim to the vehicle used while the offence was being committed [Section 51(2)]. It also becomes difficult for persons convicted to receive bail under Section 51A.
 - f. Persons who, without reasonable cause, fail to produce the things they are required to produce under the Act, will be guilty of the offence [Section 50 (8)].
 - g. It is also important to point out that prosecution

under any other law is not barred for any act which constitutes an offence under this Act, or from being punished for a higher punishment or penalty than that provided by this Act [Section 56].

B. Special provisions relating to the investigation procedure

1. The Act prescribes distinct and special procedures for investigation which are (a) different from those for the investigation of an offence under the Code of Criminal Procedure, 1973 and (b) ostensibly designed to empower forest officials to initiate and participate in the investigation process so that any immediate violation of the Act can be remedied. To the extent to which forest officials have been brought into the investigative process to deal with an immediate transgression of the regime of the Act, these provisions are salutary. But after an initial investigation is enabled in this way, the procedure limps forward, only to get ensnared as a relatively minor case through the criminal process.
2. It might be useful to recount the special investigative provisions of the Act of 1972 (as amended). These are as follows:
 - Power to enter, search and seize
 - Power to arrest and detain
 - Power to record evidence
 - Duty to render assistance
 - Power to destroy or dispose

Power of entry, search and seizure:

Section 50 (1) (a) allows certain officials, including the Director or any other officer authorised by him in this behalf, or the Chief Wildlife Warden or the authorised officer or any forest officer or any police officer not below the rank of a sub-inspector, to require the production, for purposes of inspection, any article of wildlife or license and permit documents to be kept by the person under the provisions of the Act. These officers are also given powers of search [Section 50 (1) (b)] and seizure [Section 50 (1) (c)].

It should be noted that this immediate power of entry, search and seizure can be exercised to (a) require any animal, trophy to be produced; (b) stop a vehicle or search premises, baggage or other things;

or (c) seize any animal, trophy, plant in respect of which an offence is created. An exception is made of fisherfolk who inadvertently enter by boat, not used for commercial fishing, into a national park.

Power to arrest and detain:

There is a power to arrest and detain without warrant for something impermissible — done without permission. Such a detention may not take place if the officers in question are satisfied of the name and address of a person and if the person concerned will answer a summons or other proceedings that might be taken against him Section 50 (3). While such an approach is conducive to civil liberties, such provisions work against the poor, who often have no fixed address nor are able to satisfy the officer of their *bona fides*. It should be noted that persons detained or things seized will be produced before a magistrate [Section 50 (4)].

The power to record evidence:

Under Section 50 (8) (d), any officer not below the rank of an Assistant Director of Wildlife Preservation or Wildlife Warden shall have the power to receive and record evidence. More importantly, such evidence can be admissible in any subsequent trial under Section 50 (9) before a magistrate, the only condition being that it should have been taken in the presence of the accused person.

Duty to render assistance:

Under Section 50 (7), all persons have a duty to render assistance for the purposes of (i) prevention or detection of an offence; (ii) apprehending persons charged with violation of the Act and (iii) for seizure of substances when exercising the power of seizure under Section 50 (1) (c).

Power to destroy or dispose:

If the article seized is government property as defined in Section 39, then the officer has the power to arrange for the sale of the seized substance under Section 50 (6) (a). If on the other hand, the article is not government property, then the proceeds of the sale shall be returned to the owner under Section 50 (6) (b).

These special provisions are necessary in order to police the various areas and regimes created by the Act of 1972. They are also hedged in by civil liberty precautions, so that what is done is placed before a magistrate; and a person arrested may not be detained by an officer where the *bona fides* of an arrestee are established. This does hurt the landless, but that is no reason for the provisions to be removed. Consistent with the Constitution, it should be made clear that where a person is arrested, he should be brought before a magistrate within 24 hours. The provisions that remand live or captive

animals to the custody of the person, in whose possession they are, need examination.

These provisions provide the enforcement process a healthy start; the process then flounders. There is no provision for inviting a Special Investigation Team. As soon as these ‘immediate’ acts are done, the entire case is placed before a magistrate to limp along without priority or speed.

C. Method and forum of trial

Following investigation, a case proceeds on the basis prescribed under the Code, 1973 [Section 4(2), CrPC] unless the Wildlife Protection Act, 1972 lays down special provisions to the contrary [Section 5, CrPC]. Broadly speaking, this means:

1. There is no distinction between serious and trivial cases. All cases proceed under weak trial regimes.
2. All the cases proceed as complaint cases, rather than serious criminal cases to be tried by sessions.
3. Even as complaint cases, where the offence attracts imprisonment for two years or more, it is treated as a warrant case to be tried by a procedure different from normal crimes.
4. Where the offence attracts imprisonment for less than two years, it is treated as a summary case, to be tried by a less rigorous procedure.
5. Very minor cases can be tried by summary procedures.

What needs to be done?

The cases need to be treated as serious criminal cases. The *first step* must be to differentiate between serious and non-serious cases and ensure that serious cases are tried as police cases by the Sessions Courts.

This has an impact on the manner in which the cases are prosecuted. Since they are complaint cases, the police do not prosecute them. It is left to the overworked forest officials to come to court and build the case before it can be taken further. The cases linger on because they are prescribed as ‘lesser’ cases and are not treated as priority. The prosecutors, mainly forest officials, are inept and lose interest. The *second step* therefore must be to have special prosecutors.

Since these cases randomly languish in courts throughout the country, they are not monitored by a Centralised Monitoring Task Force either at the state or the Union level. So, the *third step* must be to create a Centralised Monitoring Task Force for all cases — especially the serious ones.

In order to appreciate the distinctions created by the Code, it would be useful to summarise the relevant provisions of the Code. The Code makes a distinction between summons cases and warrant cases. Summons cases under Section 2 (w) mean a case relating to an offence and not being a warrant

case. Warrant cases under Section 2 (x) of the Code are those relating to an offence punishable with death, imprisonment for life or imprisonment for a term exceeding two years. As has been listed earlier, the various offences of the Wildlife Protection Act, 1972 prescribe punishment of more than two years except for violation of Section 38J related to teasing of animals in a zoo. Thus, Sections 238-250 of the Code dealing with warrant cases would come into play for all the major offences of the Act.

When the case is instituted on the basis of a police report, the magistrate, once satisfied that the various documents that were to be handed over to the accused under Section 207 have been done so [Section 238], proceeds to frame the charge [Section 240]. If the magistrate does not believe a case can be made out on the police documents, he may discharge the accused [Section 239]. When the accused records a plea of guilty he is convicted under Section 241. If he pleads not guilty, the magistrate frames the charge if a case has been made out and proceeds to hear the case on merits after the prosecution [Section 242] and the defence [Section 243] have arrayed the evidence required. If the case is not instituted on a police report, then the magistrate hears the prosecution and decides whether, on the basis of the evidence presented by the Prosecution [Section 244], an offence has been made or not. If no case has been made out against the accused, then the magistrate discharges the accused [Section 245]. Otherwise, a charge is framed under Section 246(1), and the matter goes to trial, following the procedure prescribed in Section 246. With respect to the offence of teasing in a zoo, the procedure followed is the mechanism indicated for a summons case. Summons cases do not require the framing of a charge [Section 251] and if the accused pleads guilty, the magistrate starts the trial process as prescribed in Section 254. The forum to be used for conducting trial is guided by Part II of the First Schedule of the Code, which deals with the classification of offences against other laws. On the basis of the punishment prescribed, the case goes before a magistrate (for punishment of imprisonment of less than three years) or a First Class Magistrate (for imprisonment of three years and not more than seven years) or a Sessions Court (for imprisonment of seven years, life or the death sentence).

D. Special provisions

The Act prescribes certain special provisions relating to cognisance of the offence, compoundability of the offence and presumptions at the stage of trial which are outlined below:

1. Section 54 allows the Government to compound any notified offence whereby a person, who has committed such an offence, would be discharged on paying a certain sum of money [Section 54(2)]. Such compounding is done only to the extent of a penalty of Rs 25,000. All such compounding terminates all pending proceedings in relation to that offence, and no further proceeding is taken in respect of that offence. The penalty is determined by the forest officer in accordance with Section 54 (1).
2. Every person's complaint of the violation of the Wildlife Protection Act, 1972 does not result in a trial. The process of cognisance — the manner in which judicial notice is taken of the offence — is limited to complaints according to the provisions of Section 55, which lists authorities like the Director, Wild Life Preservation, Member-Secretary, Central Zoo Authority as being competent to make the complaint. Section 55 (c) also allows any general member of the public to make a complaint, after giving notice of 60 days to the government that he intends to do so. If the government does not proceed on the prosecution, then such a person could complain to the Court, which would then take cognisance of the offence.
3. Other special provisions relate to presumptions in Section 57, which reverses the onus of proof on to the person who has been caught with an animal part and presumes unlawful possession of the same unless the contrary is proved.
4. A special provision relating to offences by companies in Section 58 pins liability on the person from the company who has connived in the commission of the offence.
5. Any person involved in the abetment or attempt to violate the provisions of the Act is deemed to have violated that provision and punishment accordingly follows [Section 52].

ANNEXURE - XII Guidelines on establishment of wildlife wings etc issued during the period 1973- 1981

1. Letter No. 694-PMO/73 dated 27 December 1973 of the Prime Minister to the Chief Ministers of all States.
2. Letter No. 15/ii (i)74-AIS(IV) dated 16 January 1976 of the Cabinet Secretariat (Deptt of Personnel and AR) to the Chief Secretaries of all States and UTS.
3. Letter No. J-11014/75-76 FRY(WL) dated 16 September 1976 of Joint Secretary (F&WL), Ministry of Agriculture to the Chief Secretaries of all States and UTS.
4. Letter No. J-11014/75-74 FRY(WL) dated 25 October 1976 of Joint Secretary (F&WL), Ministry of Agriculture to the Forest Secretaries of all States and UTS.
5. Letter No. 279-PMO/76 dated 16 December 1976 of the Prime Minister to the Chief Ministers of all States.
6. Letter No. 5-6/80-FRY(WL) dated 8 April 1980 of the Union Minister of Agriculture to all Governors and Chief Ministers.
7. Letter No. 660-PMO/80 dated 20 April 1980 of the Prime Minister to all Governors and Chief Ministers.
8. Letter No. 8-1/80-FRY(WL) dated 21 April 1981 of Joint Secretary (F&WL), Ministry of Agriculture to the Forest Secretaries of all States and UTS.