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पर्यावरण एवं वन मंत्रालय

(राष्ट्रीय व्याघ्र संरक्षण प्राधिकरण)

अधिसूचना

नई दिल्ली, 15 अक्तूबर, 2012

सं. 15-31/2012-एनटीसीए.—जबकि, राष्ट्रीय व्याघ्र संरक्षण प्राधिकरण को वन्य जीव (संरक्षण) अधिनियम, 1972 की धारा 38-ण की उप-धारा (1) के खंड (ग) के अधीन पर्यटन गतिविधियों के लिए आदर्श मूलक मानक और उनका सम्यक् अनुपालन सुनिश्चित करने के लिए व्याघ्र आरक्षितियों के 'बफर' और 'कोड' (कोर) क्षेत्र में व्याघ्र संरक्षण के लिए व्याघ्र परियोजना हेतु मार्गदर्शी सिद्धांत अधिकथित करने की शक्ति है;

और अतएव, केन्द्रीय सरकार, वन्य जीव (संरक्षण) अधिनियम, 1972 की धारा 38-ण की उप-धारा (1) के खंड (ग) के अधीन यथा अनुध्यात कोड क्षेत्रों और 'बफर' क्षेत्रों और पर्यटन, जिसके अंतर्गत कल्याणकारी और धार्मिक पर्यटन भी है, का नियतन करने के संबंध में और साथ ही वन और गैर वन क्षेत्रों में व्याघ्र संरक्षण के संबंध में व्यापक मार्गदर्शी सिद्धांत विरचित करने के लिए प्रतिबद्ध है;

अतः, अब, वन्य जीव (संरक्षण) अधिनियम, 1972 (1972 का 53) की धारा 38-ण की उप-धारा (1) के खंड (ग) के अधीन प्रदत्त शक्तियों के अनुसरण में और राष्ट्रीय व्याघ्र संरक्षण प्राधिकरण द्वारा फा. सं.-3-1/2003-पी.टी., तारीख 21 फरवरी, 2008 द्वारा जारी किए गए मार्गदर्शी सिद्धांतों को उन बातों के सिवाय अधिक्रांत करते हुए जिन्हें ऐसे अधिक्रमण से पूर्व किया गया है या करने का लोप किया गया है, राष्ट्रीय व्याघ्र संरक्षण प्राधिकरण व्याघ्र आरक्षों के 'बफर' और कोड क्षेत्र में व्याघ्र संरक्षण के प्रयोजन के लिए अनुसरण किए जाने वाले निम्नलिखित मार्गदर्शी सिद्धांत बनाता है और व्याघ्र आरक्षित क्षेत्रों में पर्यटन क्रियाकलापों के लिए आदर्श मूलक मानक अधिकथित करता है, अर्थात् :—

1. संक्षिप्त नाम.—इन मार्गदर्शी सिद्धांतों का संक्षिप्त नाम राष्ट्रीय व्याघ्र संरक्षण प्राधिकरण (पर्यटन गतिविधियों के लिए आदर्श मूलक मानक और व्याघ्र परियोजना) मार्गदर्शी सिद्धांत, 2012 है ।

भाग-क

व्याघ्र परियोजना के लिए वन्य जीव (संरक्षण) अधिनियम, 1972 की धारा 38-ण (1) (ग) के अधीन मार्गदर्शी सिद्धांत

अध्याय-1

2. व्याघ्र संरक्षण.—

(1) केन्द्रीय सरकार, पर्यावरण और वन मंत्रालय के माध्यम से, अन्य बातों के साथ, व्याघ्र संरक्षण के लिए विभिन्न राज्य सरकारों को तकनीकी मार्गदर्शन और वित्तीय सहयोग प्रदान करती है ।

(2) वन्य जीव संरक्षण से संबंधित दिन-प्रतिदिन का प्रबंधन तथा नीतियों और योजनाओं के क्रियान्वयन का उत्तरदायित्व राज्य सरकारों का है ।

MINISTRY OF ENVIRONMENT AND FORESTS
(NATIONAL TIGER CONSERVATION AUTHORITY)
NOTIFICATION

New Delhi, the 15th October, 2012

No. 15-31/2012-NTCA.—Whereas, the National Tiger Conservation Authority under clause (c) of sub-section (1) of Section 38-O of the Wild Life (Protection) Act, 1972 has the power to lay down normative standards for tourism activitites and guidelines for project tiger for tiger conservation in the buffer and core areas of tiger reserves to ensure their due compliance:

And whereas, the Central Government is committed to frame comprehensive guidelines with regard to fixation of core areas and buffer areas and tourism including welfare and religious tourism as contemplated under clause (c) of sub-section (1) of section 38-O of the Wildlife (Protection) Act, 1972 as well with regard to the protection of tigers in forest and non-forest areas;

Now, therefore, in pursuance of the powers conferred under clause (c) of sub-section (1) of section 38-O of the Wild Life (Protection) Act, 1972 (53 of 1972) and in supersession of the Guidelines issued by the National Tiger Conservation Authority vide number F.No. 3-1/2003-PT, dated the 21st February, 2008, except as regard to things done or omitted to be done before such supersession, the National Tiger Conservation Authority hereby makes the following guidelines to be followed for the purpose of tiger conservation in the buffer and core area of tiger reserves and lay down normative standards for tourism activities in tiger reserves, namely:—

1. Short title. These guidelines may be called the National Tiger Conservation Authority (Normative Standards for Tourism activities and Project Tiger) Guidelines, 2012.

PART-A

GUIDELINES UNDER SECTION 38-O (c) OF THE WILD LIFE (PROTECTION) ACT, 1972 FOR PROJECT TIGER

Chapter-I

2. Tiger conservation.

(i) The Central Government, through the Ministry of Environment and Forests provides technical guidance and financial support to various State Governments, *inter alia*, for tiger conservation.

(2) The State Governments are responsible for day-to-day management and implementing the policies and plans relating to wildlife conservation.

3. Background.

3.1 "Project Tiger", now ongoing as a Centrally Sponsored Scheme, was launched by the Government of India in 1973 in nine reserves of different States (Assam, Bihar, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Uttar Pradesh and West Bengal) over an area of approximately 14,000 sq. km. Since then, the project coverage has expanded considerably to 41 tiger reserves (TR), encompassing an area of around 63874.68 sq.km. in 17 tiger States with 35123.95 sq.km. of notified core/ critical tiger habitats and 28750.73 sq.km. of buffer / peripheral areas in 17 tiger States. This amounts to 2% of the country's geographical area. The total core/critical tiger habitat of 41 tiger reserves amount to 5.2% of the country's forest cover. There are 668 protected areas in the country (September, 2012), out of which 41 have been designated as core/critical tiger habitats (6%). The in-principle approval has been accorded by the National Tiger Conservation Authority for creation of five new tiger reserves, and the sites are:, Pilibhit (Uttar Pradesh), Ratapani (Madhya Pradesh), Sunabeda (Odisha), Mukundara Hills (including Darrah, Jawahar Sagar and Chambal Wildlife Sanctuaries) (Rajasthan) and Satyamangalam (Tamil Nadu). Final approval has also been accorded to Kudremukh (Karnataka) for declaring as a tiger reserve. Also the concerned State Governments have been advised to send proposals for declaring the following areas as tiger reserves: (i) Bor (Maharashtra), (ii) Suhelwa (Uttar Pradesh), (iii) Nagzira-Navegaon (Maharashtra), (iv) Guru Ghasidas National Park (Chhattisgarh), (v) Mhadei Sanctuary (Goa) and (vi) Srivilliputhur Grizzled Giant Squirrel / Megamalai Wildlife Sanctuaries / Varushanadu Valley (Tamil Nadu).

3.2 Due to ongoing conservation efforts under the Project in designated tiger reserves, India has the maximum number of tigers along with its source areas amongst the 13 tiger range countries in the world. Project Tiger has put the endangered tiger on an assured path of recovery, as revealed in the country level assessment of tiger, co-predators, prey and habitat. The recent (2010) findings in this context indicate a poor status of tiger population in areas outside tiger reserves and protected areas. The tiger population, by and large, in tiger reserves and protected areas of such States are viable, while requiring ongoing conservation efforts.

3.3 Project Tiger has a holistic, ecosystem approach. Its core–buffer strategy, protection and development initiatives gave a new perspective to the concept of wildlife management in our country and is a "role model" for *in-situ* conservation.

4. Present status of tiger, co-predators, prey and habitat.

4.1 The second countrywide assessment of the status of tigers, co-predators and their prey was released in March, 2011. This assessment of 2010 is the second such countrywide assessment using the refined methodology as recommended by the Tiger Task Force. The findings indicate a countrywide 20% increase in the number of tigers in the year 2010 with an estimated number of 1706 (1520-1909). In the year 2006 estimated number of tigers was 1411 (1165-1657). A decline of 12.6% in tiger occupancy from connecting habitats has also been

reported. This has occurred in peripheral and dispersal areas having low densities outside tiger reserves and tiger source populations.

4.2 The increase in the number of tigers is due to the fact that tiger populations in Uttarakhand, Tamil Nadu, Maharashtra and Karnataka have shown an increase in tiger density. The inclusion of Sunderbans, some portions of North East and parts of Maharashtra have also contributed to the increase.

4.3 Tiger occurrence and density were dependent on availability of habitats that were remote, with minimal human disturbance and having a high availability of large wild prey (chital, sambar, gaur, and wild pig).

4.4 Tiger occupied forests in India were classified into following **landscape complexes, namely**:

(a) Shivalik Hills and the Gangetic Plain,
(b) Central India
(c) Eastern Ghats,
(d) Western Ghats,
(e) North-Eastern Hills and Brahmaputra Plains, and
(f) Sunderbans.

4.4.1 In **Shivalik hills and Gangetic Plain Landscape** tigers occupied 6712 km^2 of forested habitats with an estimated population of 353 (320 to 388) in five separate populations.

4.4.2 **Central Indian Landscape** (inclusive of Nagarjunasagar Srisailam of the Eastern Ghats) tiger presence was reported from 39,017 km^2 with an estimated population of 601 (518 to 685) distributed in 20 tiger populations with a few other sporadic occurrences.

4.4.3 **Western Ghats Landscape** was 29,607 km^2 and registered a decline of about 11.5% compared to that of 2006. The current tiger population was estimated at 534 (500 to 568) registering a rise of about 32 % since 2006.

4.4.4 Tiger occupancy of 4,900 km^2 and population numbers between 118 to 178 tigers should be considered as minimal for the **North East** since systematic coverage of the entire landscape was not done.

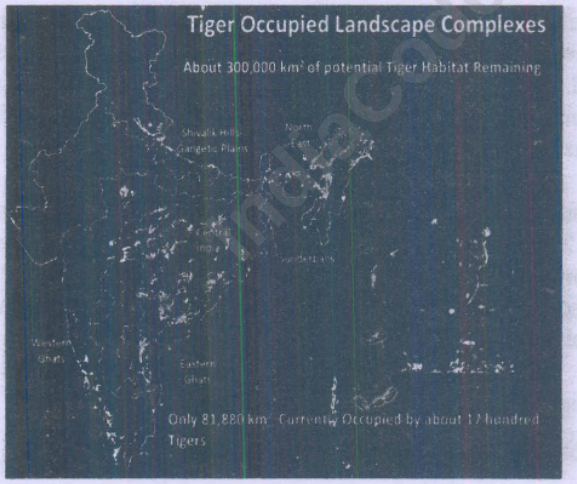
4.4.5 Population estimation of the **Sundarbans** tigers was done with a combination of camera trapping and satellite telemetry. A tiger density of 4.3 (se 0.3) tigers per 100 km^2 was estimated. The total population for the Indian Sundarbans was estimated to be between 64 to 90 tigers.

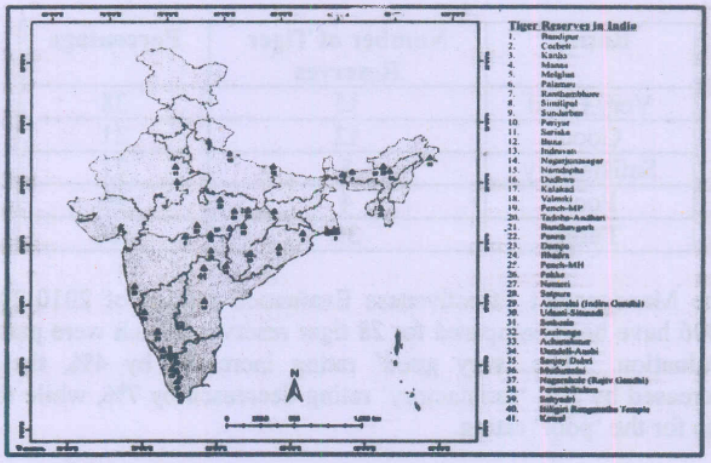
4.5. Currently, Nagarhole-Bandipur-Mudumalai-Wayanad-Moyar-Segur, Corbett, Sundarbans (India and Bangladesh) and Kaziranga-KarbiAnglong have the required number of tiger for long term survival without immigration. The remaining tiger populations require habitat connectivity for genetic and demographic viability.

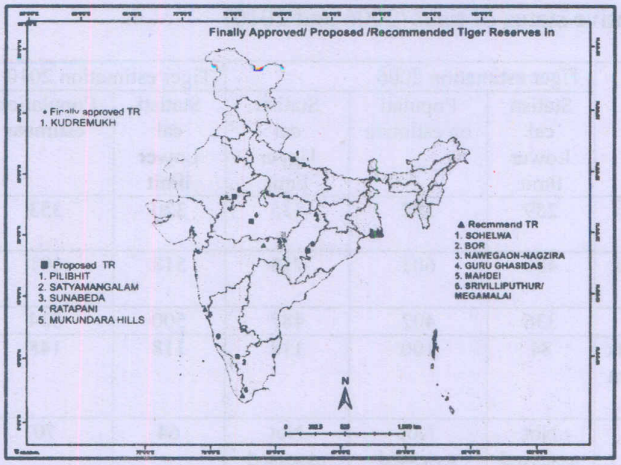
4.6. Comparative status of tiger (2006 and 2010)

Landscape complex	Tiger estimation 2006			Tiger estimation 2010		
	Statistical Lower limit	Population estimate	Statistical Upper limit	Statistical Lower limit	Population estimate	Statistical Upper limit
Shivalik-Gangetic plains	259	297	335	320	353	388
Central Indian & Eastern ghats	486	601	718	518	601	685
Western ghats	336	402	487	500	534	568
Northeastern hills and Brahmaputra flood plains	84	100	118	118	148	178
Sunderbans	Not assessed	Not assessed	Not assessed	64	70	90
Total	**1165**	**1411**	**1657**	**1520**	**1706**	**1909**

4.7. The Tiger Occupied Landscape Complex, the tiger reserves in India and the proposed / recommended Tiger Reserves in India has been shown in following maps:







5. Management Effectiveness Evaluation of Tiger Reserves.

5.1 Independent assessment of tiger reserves based on International Union for Conservation of Nature criteria, as adapted to our conditions, was done for the first time in 2005-2006 for 28 tiger reserves. This assessment was peer reviewed by International Union for Conservation of Nature experts. Both assessments as well as peer review reports were placed before both the Houses of the Parliament in 2006.

5.2 The second round of independent assessment based on refined criteria has been done in 2010-2011 for 39 tiger reserves. This is also based on globally used framework, as adapted to our conditions. In all, five independent teams conducted the evaluation using 30 indicators. The framework consisted of 6 elements: context, planning, inputs, process, outputs and outcomes.

5.3 The 39 tiger reserves were grouped in landscape clusters as followed in country level tiger estimation. An additional category comprising of tigers in 'red corridor' (areas affected by left wing extremism) was also included. The outcome of the evaluation is as below:

Rating	Number of Tiger Reserves	Percentage
Very Good	15	38
Good	12	31
Satisfactory	8	21
Poor	4	10
Total	**39**	**100**

5.4 **The Management Effectiveness Evaluation ratings of 2010-2011 and 2005-2006 have been compared for 28 tiger reserves, which were part of 2005-2006 evaluation. The 'very good' rating increased by 4%, the 'good' rating increased by 3%, 'satisfactory' rating decreased by 7%, while there is a status quo for the 'poor' rating.**

Table-1: Management Effectiveness Evaluation Score (% age) of Landscape Clusters (2010-11)

Cluster Number	Cluster Name	States	No. of Tiger Reserves	Mean Management Effectiveness Evaluation Score%	Management Effectiveness Evaluation Score Range%
(1)	(2)	(3)	(4)	(5)	(6)
I	Shivalik- Gangetic Plain Landscape Complex and Central Indian Landscape Complex and Eastern Ghats Landscape Complex	Uttar Pradesh, Uttarakhand, Rajasthan, Maharashtra	8	64	56-73
II	Central Indian Landscape Complex and Eastern Ghats Landscape Complex	Madhya Pradesh	6	79	56-88
III	Shivalik-Gangetic Plain Landscape Complex and Central Indian Landscape Complex and Eastern Ghats Landscape Complex	Bihar, Chhattisgarh, Odisha, Andhra Pradesh, Jharkhand	8	42	33-63
IV	Western Ghats Landscape Complex	Karnataka, Kerala, Tamil Nadu	9	75	63-80
V	North East Hills and Brahmaputra Flood Plains and Sundarbans	Arunachal Pradesh, Assam, Mizoram, West Bengal	8	66	56-77
	TOTAL		**39**	**65**	**33-88**

Table-2(a): Category-wise outcome of MEE Process (2010-11)

S. No.	Category	Name of Tiger Reserve
1.	Very Good	Annamalai, Bandhavgarh, Bandipur, Bhadra, Dandeli-Anshi, Kalakad-Mundanthurai, Kanha, Kaziranga, Mudumalai, Parambikulam, Pench (Madhya Pradesh), Periyar, Satpura, Sundarbans

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2.	Good	Buxa, Corbett, Dampa, Dudhwa, Manas, Melghat, Nagarole, Pakke, Pench (Maharashtra), Ranthambhore, Tadoba-Andhari
3.	Satisfactory	Achanakmar, Nameri, Namdapha, Sanjay, Sayadari, Valmiki
4.	Poor	Satkosia

Table-2(b): Category-wise outcome of MEE Process (2010-11) of Tiger Reserves falling in the 'Red Corridor'

S. No.	Category	Name of Tiger Reserve
1.	Very Good	---
2.	Good	Nagarjunasagar-Srisailam
3.	Satisfactory	Similipal
4.	Poor	Indravati, Palamau, Udanti-Sitanadi

Table-2(c): Category-wise outcome of MEE Process (2010-11) of Tiger Reserves, which had recently lost all tigers

S. No.	Category	Name of Tiger Reserve
1.	Very Good	Panna
2.	Good	---
3.	Satisfactory	Sariska
4.	Poor	---

Summary of MEE Process of Tiger Reserves

Rating	Number of Tiger Reserves	Percentage
Very Good	15	38
Good	12	31
Satisfactory	8	21
Poor	4	10
TOTAL	**39**	

Table-3: Comparison of MEE Rating of Tiger Reserves in 2005-06 and 2010-11

Category	2005-06	%	2010-11	%
Very Good	09	32	10	36
Good	10	36	11	39
Satisfactory	07	25	05	18
Poor	02	07	02	07
TOTAL	**28**		**28**	

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Table-4 (a): Performance of Headline Indicators (Top Ten)

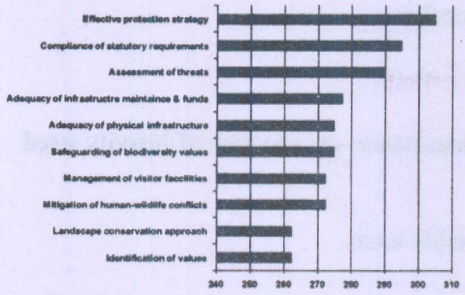


Table-4(b): Performance of Headline Indicators (Middle Ten)

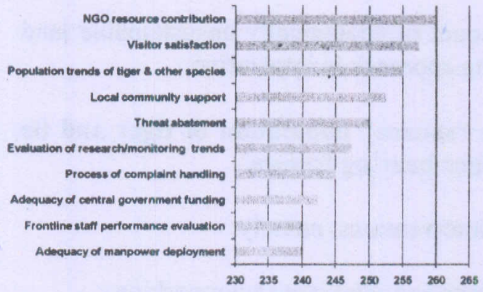
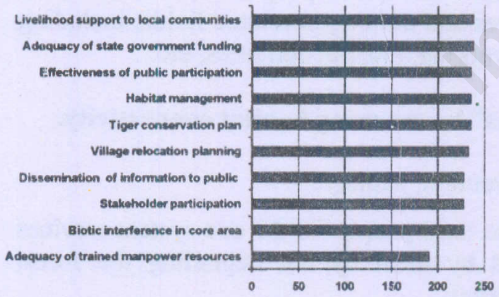


Table-4(c): Performance of Headline Indicators (Bottom Ten)



6. General reasons for tiger decline in areas outside tiger reserves.

The reasons for tiger decline in areas outside tiger reserves and protected areas are as below:

(i) Degradation of forest status outside Protected Areas and Tiger Reserves owing to:

(a) human pressure;
(b) livestock pressure; and
(c) ecologically unsustainable land uses.

(ii) Fragmentation leading to loss of gene flow from source populations.

(iii) Loss of forest quality in terms of prey biomass.

(iv) Tiger deaths due to man-animal conflict.

(v) Tiger deaths due to poaching.

(vi) Loss of reproduction owing to disturbance on account of heavily used infrastructure like highways, etc.

(vii) Lack of adequate protection in outside areas.

(viii) Insurgency or law and order problems.

7. Present approach to tiger conservation.

Owing to habitat fragmentation on account of ecologically unsustainable land uses, biotic pressure and poaching, the following approach is imperative.

7.1 Consolidating and strengthening the "source" population of tiger and its prey in tiger reserves, protected areas and tiger bearing forests.

This involves the following active managerial interventions, namely:

(i) Protection, antipoaching operations and intelligence networking;
(ii) Strengthening of infrastructure within tiger reserves;
(iii) Creation of inviolate space through relocation;
(iv) Capacity building of frontline staff, local people and officers and strengthening of training centres and training in related fields, including enforcement, intelligence networking, tourism activities, etc.

7.2 Managing the "source-sink dynamics" by restoring habitat connectivity.

This involves the following managerial intervention, namely:

(i) actively providing incentives to local people for the eco-system services and corridor values provided by them by not degrading the forest (payment for eco-system services);
(ii) incentives to local people for taking up plantations and protecting natural root stocks besides preventing free grazing;
(iii) encouraging stall feeding of cattle and fostering marketing of dairy products;
(iv) providing subsidized gas connection to local people for reducing their dependency on forest towards fuel wood collection.

7.3. Importance of a buffer zone vis-à-vis the tiger land tenure dynamics.

7.3.1 Tiger is a territorial animal, which advertises its presence in an area and maintains a territory. It is a well known fact that partial overlaps of resident male territories in an area do occur. However, the degree of overlap increases lethal internecine combats. Several female territories do occur in an overlapping manner within the territory of a male tiger. The tiger land tenure dynamics ensures presence of

prime adult inhabitants which act as source populations, periodically replacing old males by young adults from nearby forest areas (**Plate 1**).

7.3.2 The ongoing study and analysis of available research data on tiger ecology indicate, that the minimum population of tigresses in breeding age, which are needed to maintain a viable population of 80-100 tigers (in and around core areas) require an inviolate space of 800 -1200 sq km. Tiger being an "umbrella species", this will also ensure viable populations of other wild animals (co-predators, prey) and forest, thereby ensuring the ecological viability of the entire area or habitat. Therefore, buffer areas with forest connectivity are imperative for tiger dynamics, since such areas foster sub adults, young adults, transients and old members of the population. The young adults periodically replace the resident ageing males and females from the source population area.

7.3.3 The buffer area, absorbs the "shock" of poaching pressure on populations of tiger and other wild animals. In case of severe habitat depletion in buffer areas, the source population would get targeted and eventually decimate.

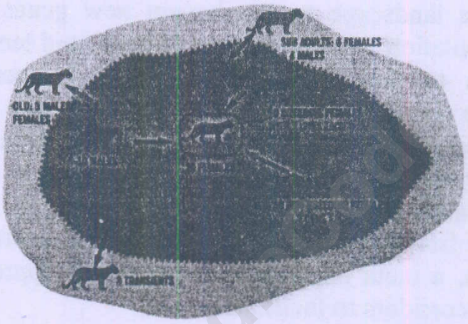


Plate 1: Tiger Land Tenure Dynamics. Minimum population of tigers in breeding age needed for maintaining a viable population (80-100 tigers), which require an inviolate space of 800-1200 square kilometres

7.4 Value of Corridors.

7.4.1 Isolated populations of wild animals face the risk of extinction owing to insularization. Habitat fragmentation adversely affects wildlife due to decreased opportunity available for wild animal movement from different habitats. This in turn prevents gene flow in the landscape. The equilibrium theory of island biogeography predicts greater species richness in large wildlife areas or in smaller areas connected by habitat corridors owing to increased movements of wild animals. Such connecting habitats, apart from facilitating animal movements also act as refuge for spill over populations from the core areas. They may also act as smaller "source" by facilitating breeding and movement of native wildlife populations to colonize adjoining habitats. Natural linear features like rivers or mountain ranges may act as boundaries for wildlife populations. However, disturbance of corridors on account of human interventions (highways, canals, industries, roads, railway tracks, transmission lines) is deleterious to wildlife.

7.4.2 "Source" populations are those which produce a surplus of animals which are potential colonizers. On the other hand, "Sinks" are those populations in which deaths exceed births, and their persistence depends on regular influx of immigrants (Plate 2).

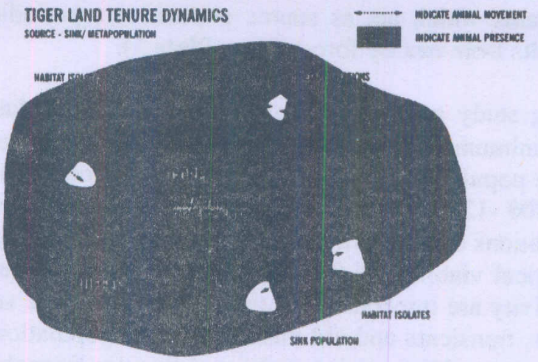


Plate 2: Tiger Land Tenure Dynamics

7.4.3 Patches of suitable habitats in the landscape may support wildlife populations (local populations), which may be separated from one another on account of various disturbance factors. Collectively, such patches of local populations are known as "regional populations". This general situation of sub divided populations interacting with one another in a landscape to supplement new genes through movement, is known as a "meta population". In the context of tiger land tenure dynamics, the core-buffer areas conform to the "island-mainland" or "coresatellite" form of meta population model. The core area of a tiger reserve provides a source of colonizers for the surrounding local populations of different sizes and varying degrees of isolation. The core area may not readily experience extinction owing to the protection inputs for maintaining its inviolate nature. However, the surrounding isolated patches in the buffer area may suffer from local extinction if wildlife concerns are not mainstreamed in the area. Therefore, a meta population management approach is required for the buffer zone as well as corridors to facilitate.—

(a) supplementing declining local tiger populations;
(b) facilitating re-colonization in habitat patches through restorative management;
(c) providing opportunity to tiger for colonizing new areas through patches of habitats (stepping stones) between isolated populations (**Plate 3**).

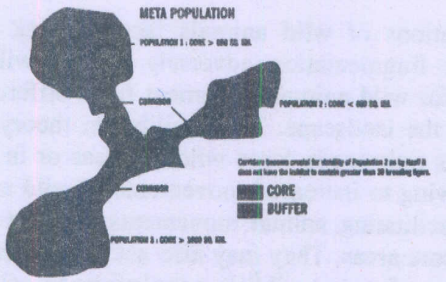


Plate 3 : Meta population dynamics. Corridors become crucial for maintaining viability of Population 2 as by itself it does not have the habitat to sustain greater than 20 breeding tigers

7.5 Mainstreaming tiger and wildlife concerns in the landscape through smart practices with other sectors to prevent and address man-tiger conflicts. Involvement of different sectors, such as: forestry, agriculture, welfare activities

through the district Collector sector, tourism, fisheries, tea-coffee estates, road and rail transport, industry, mining, thermal power plants, irrigation projects, temple tourism and communication projects operating in the landscape will be instrumental in effectively addressing human-tiger conflicts besides being helpful in mainstreaming tiger and wildlife concerns.

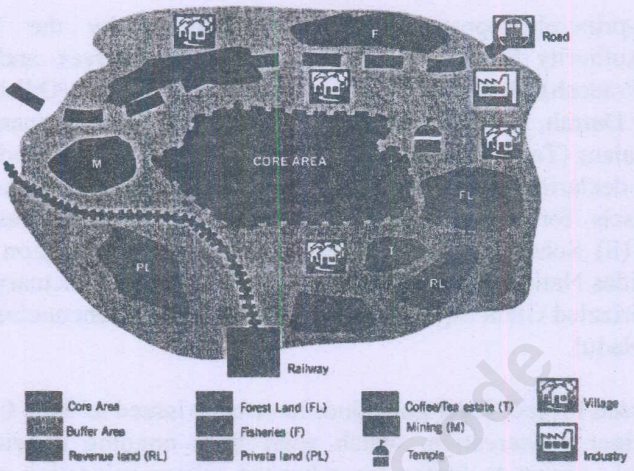


Plate 4: Production Sectors in a Tiger Landscape

8. Milestone Initiatives taken for strengthening tiger conservation.

Several milestone initiatives have been taken in the last few years to strengthen tiger conservation in the country. Certain recommendations of the Tiger Task Force constituted by the National Board for Wildlife have been implemented. These initiatives, *inter alia*, include the following, namely:

8.1. Amendment of the Wild Life (Protection) Act, 1972 making enabling provisions for constituting the National Tiger Conservation Authority and the Tiger and Other Endangered Species Crime Control Bureau.

8.2. Enhancement of punishment for offence in relation to the core area of a tiger reserve or where the offence relates to hunting in the tiger reserves or altering the boundaries of tiger reserves, etc.

8.3. Strengthening of antipoaching activities, including special strategy for monsoon patrolling, by providing funding support to tiger reserve States, as proposed by them, for deployment of antipoaching squads involving ex-army personnel or home guards, apart from workforce comprising of local people, in addition to strengthening of communication and wireless facilities.

8.4. Constitution of the National Tiger Conservation Authority with effect from the 4th September, 2006, for strengthening tiger conservation by, *inter alia*, ensuring normative standards in tiger reserve management, preparation of reserve specific tiger conservation plan, laying down annual audit report before Parliament, constituting

State level Steering Committees under the Chairmanship of Chief Ministers and establishment of Tiger Conservation Foundation.

8.5. Constitution of a multidisciplinary Tiger and Other Endangered Species Crime Control Bureau (Wildlife Crime Control Bureau) with effect from the 6th June, 2007 to effectively control illegal trade in wildlife.

8.6. The in-principle approval has been accorded by the National Tiger Conservation Authority for creation of five new tiger reserves, and the sites are:, Pilibhit (Uttar Pradesh), Ratapani (Madhya Pradesh), Sunabeda (Odisha), Mukundara Hills (including Darrah, Jawahar Sagar and Chambal Wildlife Sanctuaries) (Rajasthan) and Satyamangalam (Tamil Nadu). Final approval has been accorded to Kudremukh (Karnataka) for declaring as a tiger reserve. The State Governments have been advised to send proposals for declaring the following areas as tiger reserves: (i) Bor (Maharashtra), (ii) Suhelwa (Uttar Pradesh), (iii) Nagzira-Navegaon (Maharashtra), (iv) Guru Ghasidas National Park (Chhattisgarh), (v) Mhadei Sanctuary (Goa) and (vi) Srivilliputhur Grizzled Giant Squirrel / Megamalai Wildlife Sanctuaries / Varushanadu Valley (Tamil Nadu).

8.7. The revised Project Tiger guidelines have been issued to State Governments for strengthening tiger conservation, which apart from ongoing activities, *inter alia*, include financial support to States for enhanced village relocation or rehabilitation package for people living in core or critical tiger habitats (from Rs. 1 lakh per family to Rs. 10 lakhs per family), rehabilitation or resettlement of communities involved in traditional hunting, mainstreaming livelihood and wildlife concerns in forests outside tiger reserves and fostering corridor conservation through restorative strategy to arrest habitat fragmentation.

8.8. A scientific methodology for estimating tiger (including co-predators, prey animals and assessment of habitat status) has been evolved and mainstreamed. The findings of this estimation and assessment are bench marks for future tiger conservation strategy.

8.9. An area of 35123.9547 sq. km. has been notified by 17 Tiger States as core or critical tiger habitat under section 38V of the Wild Life (Protection) Act, 1972, as amended in 2006.

8.10. Financial and technical help is provided to the State Governments under various Centrally Sponsored Schemes, such as Project Tiger and Integrated Development of Wildlife Habitats for enhancing the capacity and infrastructure of the State Governments for providing effective protection to wild animals.

International Cooperation

8.11. India has a bilateral understanding with Nepal on controlling trans-boundary illegal trade in wildlife and conservation, apart from a protocol on tiger conservation with China.

8.12. A protocol has been signed in September, 2011 with Bangladesh for conservation of the Royal Bengal Tiger of the Sunderban.

8.13. A sub-group on tiger and leopard conservation has been constituted for cooperation with the Russian Federation.

8.14. A Global Tiger Forum of Tiger Range Countries has been created for addressing international issues related to tiger conservation.

8.15. During the 14th meeting of the Conference of Parties to CITES, which was held from 3rd to 15th June, 2007 at The Hague, India introduced a resolution along with China, Nepal and the Russian Federation, with direction to Parties with operations breeding tigers on a commercial scale, for restricting such captive populations to a level supportive only to conserving wild tigers. The resolution was adopted as a decision with minor amendments. Further, India made an intervention appealing to China to phase out tiger farming and eliminate stockpiles of Asian big cats' body parts and derivatives. The importance of continuing the ban on trade of body parts of tigers was emphasized.

8.16. Based on India's strong intervention during the 62nd meeting of the Standing Committee of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) at Geneva from 23-27 July, 2012, the Convention on International Trade in Endangered Species of Wild Fauna and Flora Secretariat has issued a notification No. 2012/054 dated the 3rd September, 2012 to Parties to fully implement Decision 14.69 and report to the Secretariat by 25 September, 2012 (Progress made on restricting captive breeding operations of tigers etc.).

8.17. As a part of active management to rebuild Sariska and Panna Tiger Reserves where tigers have become locally extinct, reintroduction of tigers and tigresses have been done.

8.18. Special advisories issued for in-situ build up of prey base and tiger population through active management in tiger reserves having low population status of tiger and its prey.

Creation of Special Tiger Protection Force (STPF)

8.19. The policy initiatives announced by the Finance Minister in his Budget Speech of the 29th February, 2008, *inter alia*, contains action points relating to tiger protection. Based on the one time grant of Rs. 50.00 crore provided to the National Tiger Conservation Authority (NTCA) for raising, arming and deploying a Special Tiger Protection Force, the proposal for the said force has been approved by the competent authority for 13 tiger reserves. Rs. 93 lakhs each has been released to Corbett, Ranthambhore and Dudhwa Tiger Reserve for creation of STPF during 2008-2009. Since then, the guidelines of the STPF have been revised for deploying forest personnel in place of Police as an option-II, with scope for involving local people like the Van Gujjars. During the year 2010-2011 and 2011-2012, an amount of Rs. 270 lakhs has been provided to the Similipal Tiger Reserve for raising, arming and deploying the STPF. The States of Karnataka and Maharashtra have already deployed the STPF.

8.20. In collaboration with TRAFFIC-INDIA, an online tiger crime data base has been launched, and Generic Guidelines for preparation of reserve specific Security Plan has been evolved.

Recent initiatives

8.21. Implementing a tripartite Memorandum of Understanding (MOU) with tiger States, linked to fund flows for effective implementation of tiger conservation initiatives.

8.22. Rapid assessment of tiger reserves done.

8.23. Special crack teams sent to tiger reserves affected by left wing extremism and low population status of tiger and its prey.

8.24. Chief Ministers of States having tiger reserves affected by left wing extremism and low population status of tiger and its prey addressed for taking special initiatives.

8.25. Steps taken for modernizing the infrastructure and field protection, besides launching 'Monitoring system for Tigers' Intensive Protection and Ecological Status (M-STrIPES)' for effective field patrolling and monitoring.

8.26. Steps taken for involvement of Non-Governmental Experts in the ongoing all India tiger estimation.

8.27. Initiatives taken for improving the field delivery through capacity building of field officials, apart from providing incentives.

8.28. Action initiated for using Information Technology to strengthen surveillance in tiger reserves.

8.29. The second round of country level tiger status assessment completed in 2010, with the findings indicating an increase with a tiger population estimate of 1706, lower and upper limits being 1520 and 1909 respectively, as compared to the last country level estimation of 2006, with an estimate of 1411, lower and upper limits being 1165 and 1657, respectively.

8.30. The second round of independent assessment of Management Effectiveness Evaluation of Tiger Reserves done in 2010-2011 for 39 tiger reserves based on globally used framework.

8.31. Increase in the allocation for Project Tiger with additional components.

8.32. Providing special assistance for mitigation of human-tiger conflicts in problematic areas.

8.33. As an outcome of the fourth Trans-border Consultative Group Meeting held in New Delhi, a joint resolution has been signed with Nepal for biodiversity and tiger conservation.

8.34. Regional Offices of the National Tiger Conservation Authority sanctioned at Nagpur, Bengaluru and Guwahati.

8.35. Launching of Phase-IV tiger reserve level monitoring.

IndiaCode

8.36. The Revised Cost Estimate of Project Tiger has also been approved by the competent authority in August, 2011 by enhancing the allocation for the XIth Plan period from Rs.650 crore of central assistance to Rs. 1216.86 crore. The upward revision has been necessitated due to increased action for relocation of villages from the notified core and critical tiger habitats as also inclusion of additional components.

9. **Thrust areas for the XII Plan period.**

9.1. **Stepping up protection** by supporting the States for raising, arming and deploying the Special Tiger Protection Force (so far, the STPF has been constituted only in Karnataka for Nagarahole and Maharashtra for Tadoba-Andhari and Pench; funding support has been provided to Uttar Pradesh, Uttarakhand and Rajasthan where process of constituting the same is ongoing. Funding has also been provided to Odisha for STPF constitution at Similipal Tiger Reserve).

9.2. **Need for enhanced funding support to States for voluntary village relocation** from core areas to provide inviolate space for tigers (800-1200 sq.km.) for a viable population.

9.3. **Strengthening infrastructure and habitat management.**

9.4. **Use of information technology** in wildlife crime prevention.

9.5. **Capacity building** of field personnel.

9.6. **Addressing man-wildlife conflicts** to prevent revenge killings.

9.7. **Addressing the issue of livelihood dependency** in the fringes of core/critical tiger habitats by supporting the States for managing the buffer/peripheral areas of tiger reserves as a multiple use zone through village level participatory planning for ecodevelopment with reciprocal commitments (out of 41 tiger reserves 41 have notified buffer area). The details of core and critical tiger habitats and buffer and peripheral areas notified by tiger reserves are at **Appendices-A and B**.

9.8. **Launching Phase-IV** tiger reserve level continuous monitoring with capacity building.

9.9. **Active management** involving translocation of tiger to suitable low density tiger habitats within a landscape.

9.10. **Supporting field oriented research work.**

9.11. **Strengthening the Regional Offices** of the NTCA at Nagpur, Guwahati and Bengaluru (AIGs posted at Nagpur and Bengaluru Regional Offices; IGFs are required to be posted in the 3 Regional Offices, besides an AIG at Guwahati).

9.12. **Declaring and consolidating new tiger reserves** (5 have been given in-principle approval, and for another 6, the States have been advised, besides according approval for one tiger reserve in Karnataka).

9.13. Fostering awareness / supporting reserve specific communication strategy to elicit public support for tiger conservation with the active involvement of Panchayati Raj institutions.

10. Field strategies with sub-activities.

10.1 Stepping up protection: (antipoaching squad/Tiger Protection Force deployment)

The antipoaching operations in tiger reserves are site specific. However, the following activities, *inter alia*, form part of the protection strategy in tiger reserves, namely:—

(a) Raising, arming and deployment of Special Tiger Protection Force.
(b) Use of information technology in wildlife crime prevention.
(c) Launching M-STrIPES for field patrolling.
(d) Deployment of antipoaching squads.
(e) Establishing and maintenance of existing patrolling camps/chowkis and deployment of camp labourers for patrolling.
(f) Organising vehicular patrolling by constituting squads (Tiger Protection Force), comprising of field staff, labourers and police/SAF/ex-army personnel, with wireless handset and paraphernalia for apprehending offenders, apart from prescribing a patrolling calendar for the squad.
(g) Establishing and maintenance of wireless network.
(h) Organising surprise raids jointly with the local police in railway stations, local trains, bus-stops, buses, catchers and cafeteria.
(i) Ensuring special site-specific protection measures, during monsoon as 'Operation Monsoon' – considering the terrain and accessibility of Protected Areas.
(j) Deployment of ex-army personnel / home guards.
(k) Deployment of local work force for patrolling, surveillance of water holes, manning barriers.
(l) Procurement of arms and ammunition.
(m) Procurement/maintenance of elephant squads.
(n) Rewards to informers.
(o) Legal support for defending court cases.
(p) Procurement of vehicles, boats.
(q) Procurement of field gear, night vision device.

10.2. Deciding inviolate spaces for wildlife and relocation of villagers from core or critical tiger habitats in Tiger Reserves within a timeframe and settlement of rights.

10.2.1. The Wild Life (Protection) Act, 1972, as well as the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, require that rights of people (Scheduled Tribes and other traditional forest dwellers) recognized in forest areas within core and critical tiger or wildlife habitats of tiger reserves or protected areas may be modified and resettled for providing inviolate spaces to tiger or wild animals. This requires payment of compensation (rights settlement in addition to the relocation package offered under the Centrally Sponsored Scheme at present). Chapter IV of the Wild Life (Protection) Act, 1972 (section 24) provides for acquisition of rights in or over the land declared by the State Government

under section 18 (for constituting a Sanctuary) or section 35 (for constituting a National Park). Sub-section (2) of section 24 of the Wild Life (Protection) Act, 1972 authorizes the Collector to acquire such land or rights. Therefore, payment of compensation for the immovable property of people forms part of modifying or settling their rights which is a statutory requirement.

10.2.2. The ongoing study and the analysis of the available research data on tiger ecology indicate that the minimum population of tigresses in breeding age, which are needed to maintain a viable population of 80-100 tigers (in and around core) require an inviolate space of 800-1200 sq. km. Tiger being an "umbrella species", this will also ensure viable populations of other wild animals (co-predators, prey) and forest, thereby ensuring the ecological viability of the entire area and habitat. Thus, it becomes an ecological imperative to keep the core areas of tiger reserves inviolate for the survival of source populations of tiger and other wild animals.

10.2.3. The proposed package has following two options, namely:

(a) **Option I** – Payment of the entire package amount (Rs. 10 lakhs per family) to the family in case the family opts so, without involving any rehabilitation or relocation process by the Forest Department.

(b) **Option II** – Carrying out relocation or rehabilitation of village from protected area or tiger reserve by the Forest Department.

10.3. Strengthening of infrastructure within Tiger Reserves.

The following activities, inter alia, would form part of reinforcing the infrastructure of Tiger Reserves (including support to new tiger reserves), namely:—

(a) Civil Works (staff quarters, family hostels, office improvement, patrolling camp, house keeping buildings, museum, culverts).
(b) Maintenance, creation and upgradation of road network.
(c) Maintenance and creation of wireless tower.
(d) Maintenance and creation of fire watch tower.
(e) Maintenance and creation of bridges, dams, anicuts.
(f) Maintenance, creation of firelines and firebreaks.
(g) Maintenance and creation of earthen ponds.
(h) Procurement, maintenance of vehicles (Gypsy, Jeep, Truck, Tractor etc.).
(i) Habitat improvement works.
(j) Procurement of hardware, software and Geographical Information System (GIS).
(k) Procurement of compass, range finder, Global Positioning System (GPS), camera traps.
(l) Procurement of satellite imageries for management planning.
(m) Map digitization facility for management planning.

10.4. Habitat improvement and water development.

These, inter alia, may include, weed eradication, removal of gregarious plant growth from grasslands, grass improvement, water retention structures and the like. These initiatives would increase the forage and browse values of the habitat for wild animals.

10.5. Addressing man-animal conflict (ensuring uniform, timely compensation for human deaths due to wild animals, livestock depredation by carnivores, crop depredation by wild ungulates) (compensation for crop loss is a new component):

This would involve:

(a) payment of compensation for cattle lifting, death of human beings and crop depredation due to wild animals.
(b) creation of crop protection structures.
(c) procurement and deployment of traps, cages to catch problematic animals.
(d) procurement of tranquilizing equipments, rescue vehicles and drugs.

10.6. Co-existence agenda in buffer or fringe areas.

The fringe areas around tiger reserve have corridor value, and their ecological sustainability is important to prevent the area from becoming ecological sinks on account of over use of resources and unwise land use. This calls for delineation of buffer zone around a tiger reserve to incorporate such fringe areas so that it can fulfill the following objectives, namely:

(a) providing ecologically viable livelihood options to local stakeholders for reducing their dependency on forests.
(b) conserving the forest area through restorative inputs involving local people for providing habitat supplement to wild animals moving out of core areas.

10.7. Rehabilitation of traditional hunting tribes living around tiger reserves.

There is an urgent need to launch a rehabilitation and development programme for the denotified tribes and tribes involved in traditional hunting, living around tiger reserves and tiger corridors. The following denotified tribes and communities are involved in traditional hunting of wild animals : Behelias, Ambalgars, Badaks, Mongias, Bavariyas, Monglias, Pardhi, Boyas, Kaikads, Karwal Nat, Nirshikaris, Picharis, Valayaras, Yenadis, Chakma, Mizo, Bru, Solung and Nyishi. While this list is not exhaustive, around 5,000 such families are required to be taken up under a welfare programme (forming part of NTCA initiatives) during the Plan period. The rehabilitation and welfare package should be evolved in a site specific, consultative manner with livelihood options, to include : wages for such people towards their deployment in foot patrolling for protecting wildlife, providing agricultural land with irrigation, basic health care, housing and related community welfare inputs and basic education facilities. The experience gained in the past for settling denotified tribes by the salvation army is required to be considered dispassionately while structuring the programme.

10.8. Research and field equipments.

The All India tiger estimation using the new methodology approved by the Tiger Task Force has resulted in a permanent monitoring protocol for the field units. The Phase-IV, tiger reserve level, would be launched to monitor the source populations of tiger. Further, assistance would be provided for fostering field oriented

research and to equip the staff with facilities like Global Positioning System (GPS), camera traps, night vision, range finder and related accessories including hardware and software.

10.9. Staff development and capacity building.

10.9.1 This would involve:

(a) Capacity building and training.
(b) Providing project allowance and special incentives.
(c) Specialized training in the use of Geographical Information System (GIS), antipoaching operations.
(d) Specialized training in jurisprudence and wildlife forensics.
(e) Study tours for appraisal of good practices in other reserves.
(f) Dissemination workshops.
(g) Specialized training in park interpretation.
(h) Specialized training in management planning.

10.9.2 The above inputs are extremely important for enhancing the skill of field staff. Several instances of poaching occur for want of specialized training in crime detection and related skills.

10.10. Mainstreaming wildlife concerns in tiger bearing forests and fostering corridor conservation through restorative strategy involving locals to arrest fragmentation of habitats.

This would involve:

(a) Redressing man-animal conflict.
(b) Capturing problematic and aberrant wild animals.
(c) Monitoring of wild animals.
(d) Antipoaching operations.
(e) Habitat improvement measures.

10.11. Safeguards and Retrofitting measures in the interest of wildlife conservation.

Several tiger reserves are affected on account of heavily used infrastructure like roads, railway tracks etc. The high tension electric lines passing through many reserves cause mortality of wild animals due to electrocution by poachers. In the interest of wild animals several safeguards as well as retrofitting measures may be required, which would be supported on a site-specific basis.

10.12. Providing basic infrastructure. The expenditure for consultancy, field visits by expert teams, all India tiger estimation and continuous monitoring of tigers (Phase-IV), support for monitoring tigers outside tiger reserves through National Tiger Conservation Authority grant, developing a National Repository of Camera Trap Photo Database of tiger, strengthening of National Tiger Conservation Authority at the Center and Regional Offices, besides establishing a monitoring lab.

10.13. Independent monitoring and evaluation of tiger reserves.

The second round of independent monitoring has been completed using globally accepted indicators. This would be further refined and continued.

10.14. Establishment and development of new tiger reserves.

'Project Tiger' has a holistic ecosystem approach. Though the focus is on the flagship species 'tiger', the project strives to maintain the stability of ecosystem by fostering other trophic levels in the food chain. This is essential to ensure an ecologically viable population of tiger, which is at the 'apex' of the ecological food chain. The community pressures on forests are ever on the increase in developing countries and India is no exception. As a sequel, the tiger habitat has become fragile and weak at several places, warranting a focused conservation approach. Our protected areas and tiger reserves are analogous to "islands" in an ocean of the other-use patterns. Empirical evidences from 'island biogeography' indicate that "isolated" reserves lose their species rapidly owing to 'ecological insularization'. Further, apart from fragmentation, the situation is aggravated by degraded forest cover owing to biotic pressure, dislocated prey – predator ratio, absence of effective measures to ensure the desired level of protection and lack of eco developmental initiatives for the fringe dwelling stake holders to reduce their dependency on forest resources. Since 'Project Tiger' would go a long way in redressing the above situation, the Steering Committee of Project Tiger in its meeting held on the 23rd January, 2003 recommended inclusion of new tiger reserve areas so as to increase the total area of 'Project Tiger' from existing 37761 sq. kms. to 50,000 sq. kms. during the Tenth Plan period.

10.15. Provision of Project Allowance to staff of Project Tiger.

The tiger States would be supported (100%) for Project Allowance to staff of tiger reserves.

10.16. Staff welfare activities.

Staff welfare inputs like residential accommodation for the children of frontline staff in nearby towns or villages, supply of kerosene, medicine, field kit, mosquito net, torch and the like would be supported.

10.17. Fostering Tourism or Ecotourism in tiger reserves.

'Tourism' in the context of Tiger Reserves is contemplated as "ecotourism", which needs to be ecologically sustainable nature-tourism. This is emerging as an important component of tourism industry. It is distinct from 'mass tourism', having sustainable, equitable, community based effort for improving the living standards of local, host communities living on the fringes of tiger reserves. Ecotourism is proposed to be fostered under 'Project Tiger' to benefit the host community in accordance with tiger reserve specific Tourism Plan forming part of the Tiger Conservation Plan, subject to regulation as per carrying capacity, with a focus on buffer areas. Since, tourism has been happening in areas of national parks and wildlife sanctuaries which are now designated as core or critical tiger habitat, regulated low impact tourism (visitation) would be allowed in such areas subject to site specific carrying capacity. However, no new tourism infrastructure should be permitted in such core and critical

tiger habitats. Further, the buffer forest areas should also be developed as wildlife habitats with the active involvement of local people living in such areas. This would provide extended habitat to tiger population for its life cycle dynamics, besides benefitting local people from ecotourism activities in such areas while reducing the resource dependency of people on core or critical tiger habitats and human-tiger interface conflicts. The opportunities for stakeholders would include management of low cost accommodation for tourists, providing guide services, providing sale outlets, managing excursions, organizing ethnic dances and the like.

11. Local livelihood under Project Tiger.

In all, approximately 24 lakh mandays are generated annually with 50% central assistance amounting to around Rs. 24 crores (excluding matching 50% share given by States) under 'Project Tiger'. Many local tribes constitute such local workforce (besides non-tribals), such as Baigas, Gonds in Madhya Pradesh, Gonds in Maharashtra, Chenchus in Andhra Pradesh, Sholigas in Karnataka, Gujjars in Uttarakhand and Irulas in Tamil Nadu to name a few. The deployment of such local tribals has been fostered and encouraged in the last two years.

12. Details of funding allocation under Project Tiger since inception over various Plan periods.

Project Tiger is an ongoing Centrally Sponsored Scheme of the Ministry of Environment and Forests, launched in 1973. Over the years, the project coverage has expanded considerably. The provisions made in the Five Year Plans for the project since beginning are as below:.

Five Year Plan	Rs. in lakhs
(1)	(2)
IV Plan (only 1973-74)	2.53
V Plan (1974-75 to 1978-79)	387.25
Rolling Plan (1979-80)	63.90
VI Plan (1980-81 to 1984-85)	494.86
VII Plan	1475.42
1990-92	700.98
1991-93	549.81
VIII Plan	3890.09
IX Plan	7500.00
X Plan	15000.00
XI Plan	79219.96
TOTAL	**109284.8 or 1092.85 crores**

Appendix-A

List of core and critical tiger habitats of Tiger Reserves in India, notified under the Wildlife (Protection) Act, 1972, as amended in 2006 (as on 24.09.2012)

Sl. No.	Year of creation	Name of Tiger Reserve	State	Area of the core / critical tiger habitat (In Sq. Kms.)
1	2	3	4	5
1	1973-74	Bandipur	Karnataka	872.24
2	1973-74	Corbett	Uttarakhand	821.99
3	1973-74	Kanha	Madhya Pradesh	917.43
4	1973-74	Manas	Assam	840.04
5	1973-74	Melghat	Maharashtra	1500.49
6	1973-74	Palamau	Jharkhand	414.08
7	1973-74	Ranthambore	Rajasthan	1113.364
8	1973-74	Similipal	Odisha	1194.75
9	1973-74	Sunderbans	West Bengal	1699.62
10	1978-79	Periyar	Kerala	881.00
11	1978-79	Sariska	Rajasthan	881.1124
12	1982-83	Buxa	West Bengal	390.5813
13	1982-83	Indravati	Chhattisgarh	1258.37
14	1982-83	Nagarjunsagar	Andhra Pradesh	3721.00**
15	1982-83	Namdapha	Arunachal Pradesh	1807.82
16	1987-88	Dudhwa	Uttar Pradesh	1093.79
17	1988-89	Kalakad-Mundanthurai	Tamil Nadu	895.00
18	1989-90	Valmiki	Bihar	598.45
19	1992-93	Pench	Madhya Pradesh	411.33
20	1993-94	Tadoba-Andhari	Maharashtra	625.82
21	1993-94	Bandhavgarh	Madhya Pradesh	716.903
22	1994-95	Panna	Madhya Pradesh	576.13
23	1994-95	Dampa	Mizoram	500.00
24	1998-99	Bhadra	Karnataka	492.46
25	1998-99	Pench	Maharashtra	257.26
26	1999-2000	Pakke	Arunachal Pradesh	683.45
27	1999-2000	Nameri	Assam	200.00
28	1999-2000	Satpura	Madhya Pradesh	1339.264
29	2008-2009	Anamalai	Tamil Nadu	958.59
30	2008-2009	Udanti-Sitanadi	Chattisgarh	851.09
31	2008-2009	Satkosia	Odisha	523.61
32	2008-2009	Kaziranga	Assam	625.58
33	2008-2009	Achanakmar	Chattisgarh	626.195
34	2008-2009	Dandeli-Anshi	Karnataka	814.884
35	2008-2009	Sanjay-Dubri	Madhya Pradesh	812.571

36	2008-2009	Mudumalai	Tamil Nadu	321.00
37	2008-2009	Nagarahole	Karnataka	643.35
38	2008-2009	Parambikulam	Kerala	390.89
39	2009-2010	Sahyadri	Maharashtra	600.12
40	2011-2012	Biligiri Ranganathan Temple	Karnataka	359.10
41.	2012-2013	Kawal	Andhra Pradesh	893.23
		TOTAL		**35123.9547**

** Government of Andhra Pradesh has notified Gundla Brahmeswaram Wildlife Sanctuary as an extended core to Nagarjunasagar Srisailam Tiger Reserve (NSTR). The extended area is 1194 sq.km. Hence the total core area of NSTR is 3721 sq.km.

Appendix-B

List of Buffer and peripheral areas in India, notified under the Wildlife (Protection) Act, 1972, as amended in 2006
(24.09.2012)

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Sl. No.	Year of creation	Name of Tiger Reserve	State	Area of the buffer / peripheral (In Sq. Kms.)
1	2	3	4	5
1	1973-74	Bandipur	Karnataka	584.06
2	1973-74	Corbett	Uttarakhand	466.32
3	1973-74	Kanha	Madhya Pradesh	1134.361
4	1973-74	Manas	Assam	2310.88
5	1973-74	Melghat	Maharashtra	1268.03
6	1973-74	Palamau	Jharkhand	715.85
7	1973-74	Ranthambore	Rajasthan	297.9265
8	1973-74	Similipal	Odisha	1555.25
9	1973-74	Sunderbans	West Bengal	885.27
10	1978-79	Periyar	Kerala	44.00
11	1978-79	Sariska	Rajasthan	332.23
12	1982-83	Buxa	West Bengal	367.3225
13	1982-83	Indravati	Chhattisgarh	1540.70
14	1982-83	Nagarjunsagar	Andhra Pradesh	1175.51
15	1982-83	Namdapha	Arunachal Pradesh	245.00
16	1987-88	Dudhwa	Uttar Pradesh	1107.9848

17	1988-89	Kalakad-Mundanthurai	Tamil Nadu	706.542
18	1989-90	Valmiki	Bihar	300.93
19	1992-93	Pench	Madhya Pradesh	768.30225
20	1993-94	Tadoba-Andhari	Maharashtra	1101.7711
21	1993-94	Bandhavgarh	Madhya Pradesh	820.03509
22	1994-95	Panna	Madhya Pradesh	1002.42
23	1994-95	Dampa	Mizoram	488.00
24	1998-99	Bhadra	Karnataka	571.83
25	1998-99	Pench	Maharashtra	483.96
26	1999-2000	Pakke	Arunachal Pradesh	515.00
27	1999-2000	Nameri	Assam	144.00
28	1999-2000	Satpura	Madhya Pradesh	794.04397
29	2008-2009	Anamalai	Tamil Nadu	521.28
30	2008-2009	Udanti-Sitanadi	Chattisgarh	991.45
31	2008-2009	Satkosia	Odisha	440.26
32	2008-2009	Kaziranga	Assam	548.00
33	2008-2009	Achanakmar	Chattisgarh	287.822
34	2008-2009	Dandeli-Anshi	Karnataka	282.63
35	2008-2009	Sanjay-Dubri	Madhya Pradesh	861.931
36	2008-2009	Mudumalai	Tamil Nadu	367.59
37	2008-2009	Nagarahole	Karnataka	562.41
38	2008-2009	Parambikulam	Kerala	252.772
39	2009-2010	Sahyadri	Maharashtra	565.45
40	2011-2012	Biligiri Ranganathan Temple	Karnataka	215.72
41.	2012-2013	Kawal	Andhra Pradesh	1125.89
		TOTAL		**28750.73**

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PART-A

Chapter-II

DETAILED GUIDELINES OF PROJECT TIGER

13. Introduction.

13.1. 'Project Tiger' is an ongoing Centrally Sponsored Scheme of the Ministry of Environment and Forests. The revised guidelines incorporate the additional activities for implementing the urgent recommendations of the Tiger Task Force, constituted by the National Board for Wildlife, chaired by the Hon'ble Prime Minister. These, inter alia, include support for implementing the provisions of the Wild Life (Protection) Act, 1972 as amended by the Wild Life (Protection) Amendment Act, 2006, which came into force with effect from the 4th September, 2006. The activities are as follows:

(i) antipoaching initiatives;
(ii) strengthening infrastructure within tiger reserves;
(iii) habitat improvement and water development;
(iv) addressing man-animal conflicts;
(v) co-existence agenda in buffer and fringe areas with landscape approach;
(vi) deciding inviolate spaces and relocation of villages from critical tiger habitats within a timeframe by providing a better relocation package, apart from supporting States for settlement of rights of such people;
(vii) rehabilitation of traditional hunting tribes living in and around tiger reserves;
(viii) providing support to States for research and field equipments;
(ix) supporting States for staff development and capacity building in tiger reserves;
(x) mainstreaming wildlife concerns in tiger bearing forests outside tiger reserves, and fostering corridor conservation in such areas through restorative strategy involving local people to arrest fragmentation of habitats;
(xi) providing safeguards and retrofitting measures in and around tiger reserves and tiger bearing forests for wildlife conservation;
(xii) strengthening the infrastructure of National Tiger Conservation Authority at the Centre;
(xiii) carrying out independent monitoring and the evaluation of tiger reserves;
(xiv) establishment and development of eight new tiger reserves;
(xv) provision of project allowance to all categories of staff working in tiger reserves;
(xvi) providing residential amenities to facilitate basic education to children of frontline field staff posted in tiger reserves;
(xvii) providing assistance to States for fostering ecotourism to benefit local people.

13.2. 'Project Tiger' was launched in April, 1973 with the objective "to ensure maintenance of a viable population of Tigers in India for scientific, economic, aesthetic, cultural and ecological values, and to preserve for all times, areas of

biological importance as a national heritage for the benefit, education and enjoyment of the people".

13.3. The 'Project Tiger' has been successfully implemented, and at present, there are **41 Tiger Reserves** in **17 States**, covering an area of **63874.68 sq. km.** Apart from the above, 5 have been given in-principle approval, and for another 6, the State Governments have been advised, besides according approval for one tiger reserve in Karnataka. The selection of reserves has been guided by the need to conserve unique ecosystem and habitat types across the geographic distribution of tigers in the country.

13.4. Conservation of endangered species and their habitat, strengthening and enhancing the Protected Area Network, control of poaching, monitoring, research and ensuring people's participation in Wildlife Conservation have been accorded high priority in the National Wildlife Action Plan and the Wildlife Conservation Strategy, 2002.

14. Past funding pattern and major activities supported under the Scheme.

During present plan period, 100% Central Assistance is being made available to States for expenditure on all non-recurring items; for recurring items, the Central Assistance is restricted to 50% of the expenditure, while the matching grant is provided by the Project States. The activities and field inputs under 'Project Tiger', inter alia, include : **(Non recurring)** strengthening of protection, deployment of armed squads in tiger reserves, creating basic infrastructure for management, roads, wireless, civil works, habitat development, augmenting water resources, compensatory ameliorative measures for habitat restoration, eco-development, village relocation, use of Information Technology in crime detection, establishment of a digitized database in tiger reserves having collaborative linkage with Project Tiger Directorate in the Geographical Information System (GIS) domain, monitoring and evaluation of tiger reserves, monitoring of habitat status, carrying out All India Estimation of Tigers, co-predators and prey animals in the Geographical Information System (GIS) domain with the state of art technology, continuous monitoring of tiger populations in various tiger range States (tiger reserves and other forest areas outside tiger reserves), fostering wildlife viewing for tourists in tiger reserves, providing compensation to villagers for human deaths and livestock depredation by carnivores in tiger reserves, staff welfare measures, providing 'Project Allowance' to all categories of staff working in tiger reserves, establishment of veterinary facility, and fostering research and research projects relating to tiger conservation, replacement and purchase of new vehicles for existing and new tiger reserves to ensure staff mobility. **(Recurring)** creation and deployment of local work force for patrolling and barriers, habitat improvement, providing salt licks, water facility, fire protection measures, maintenance of various items, publicity and extension and legal assistance.

15. Constitution of the National Tiger Conservation Authority (NTCA).

15.1. The Central Government had launched 'Project Tiger' to promote conservation of the tiger, since the significance of its conservation has ramifications beyond State boundaries. Management of forests and wildlife is primarily the responsibility of concerned States. The field implementation of the project, protection and management in the designated reserves is done by the project States, who also provide

the matching grant to recurring items of expenditure, deploy field staff and officers, and give their salaries. The Project Tiger Directorate of the Ministry of Environment and Forests was mandated with the task of providing technical guidance and funding support.

15.2. The implementation of 'Project Tiger' over the years has highlighted the need for a statutory authority with legal backing to ensure tiger conservation. On the basis of the recommendations of National Board for Wild Life under the Chairmanship of the Hon'ble Prime Minister, a Task Force was set up to look into the problems of tiger conservation in the country. The recommendations of the said Task Force, inter alia include strengthening of 'Project Tiger' by giving it statutory and administrative powers, apart from creating the Wildlife Crime Control Bureau. It has also recommended that an annual report should be submitted to the Central Government for laying in Parliament, so that commitment to 'Project Tiger' is reviewed from time to time, in addition to addressing the concerns of local people. Broadly, the urgent recommendations of the said Task Force are as below:

(i) Reinvigorating the constitution of governance.
(ii) Strengthening efforts towards protection of tiger, checking poaching, convicting wildlife criminals and breaking the international trade network in wildlife body parts and derivatives.
(iii) Expanding the undisturbed areas for tiger by reducing human pressure.
(iv) Repair the relationship with local people who share the tigers habitat by fielding strategies for coexistence.
(v) Regenerate the forest habitats in the fringes of the tigers protective enclaves by investing in forest, water and grassland economies of the people.

15.3 The tiger reserves are faced with ecological disturbances and various other problems. Fragmentation of habitats occurs owing to overuse of forest habitats, apart from conflicting land uses leading to loss of habitat. There are also in some cases, significant village population with large number of cattle, which graze in the forests, leading to ecological degradation, apart from major sources of regular or intermittent disturbance, such as temples and commercial entities, such as, tea estates. This also leads to man-animal conflicts, resulting in tiger and prey mortality.

15.4. Several constraints affect field implementation of the project, such as, delayed release of Central Assistance given to the States for Field Units, staff vacancies, ageing of field staff, lack of capacity building initiatives, weak enforcement and monitoring of protection work, etc. The events in the recent past have highlighted the fact that there is a need in the States for greater commitment and vigilance. The field administration managing the tiger reserves require capacity building and supervision.

15.5. There is also an urgent need to strengthen the system at the Central Government level (Project Tiger Directorate), which has the mandate to oversee and guide tiger conservation in the country. Involvement of States and strengthening the field administration, supervision of the project and building a participatory base by including interests of local people living in and around tiger reserves are extremely important.

15.6. Considering the urgency of the situation, 'Project Tiger' has been converted into a statutory authority National Tiger Conservation Authority (NTCA) by providing enabling provisions in the Wild Life (Protection) Act, 1972 through an amendment, namely, the Wild Life (Protection) Amendment Act, 2006. This forms one of the urgent recommendations of the Tiger Task Force appointed by the Prime Minister. The NTCA would address the ecological as well as administrative concerns for conserving tigers, by providing a statutory basis for protection of tiger reserves, apart from providing strengthened institutional mechanisms for the protection of ecologically sensitive areas and endangered species. The Authority would also ensure enforcing of guidelines for tiger conservation and monitoring compliance of the same, apart from placement of motivated and trained officers having good track record as Field Directors of tiger reserves. It would also facilitate capacity building of officers and staff posted in tiger reserves, apart from a time bound staff development plan.

15.7. Despite three decades of 'Project Tiger' and the efforts of the Centre and State Governments, tiger continues to remain one of the most endangered large predators in the world. The causative factors are many, and to name a few, we may mention the important ones like loss of habitat due to agriculture expansion and development, revenge killings by people due to man-animal conflicts and above all, the demand for the body parts and derivatives of tiger in the illegal international market. These factors contribute to the decimation of our in-situ population in the wild. Therefore, continuance of a focused, species- specific, multifaceted, ecosystem project like 'Project Tiger' becomes important and crucial at this juncture to address the threats faced by the tiger and its habitat.

15.8. The three key imperatives in tiger conservation which necessitate a 'project mode' are, namely, a focused approach to prioritize actions, in the interest of tiger conservation (within and outside the tiger reserves), eliciting the support of local stakeholder communities and ensuring the necessary infrastructure for protection and management. Considering the fact that conservation of tiger has ecological and national significance transcending State boundaries, the Central Government provides funding support and technical guidance to States through the ongoing Centrally Sponsored Scheme of Project Tiger and other schemes for wildlife conservation. Tigers are present in the forests of seventeen States in our country at present, which also include their protected areas and tiger reserves.

15.9 The distribution of tigers and their density vary in States due to several ecological and human reasons, such as, the forest cover, terrain, natural prey availability, presence of undisturbed habitat and the quality of managerial efforts taken towards protection. Since tigers are at the top of the ecological "food -chain", their conservation results in the overall conservation of all other species of plants and animals occupying the ecosystem. We can say that tigers are indicators of the well being of the ecosystem. A healthy tiger population indicates that the other ecological components in its habitat are equally robust, since tigers need large amount of prey and good habitat. The investments made in a project of this kind are more than justified.

16. Ongoing activities and additionalities to be supported under the revised Centrally Sponsored Scheme of Project Tiger.

16.1. Anti-poaching activities (ongoing) (non recurring for antipoaching squad and Tiger Protection Force deployment, and recurring for wages towards

patrolling camp labourers and watchers).

The antipoaching operations in tiger reserves are site specific. However, the following activities, inter alia, would form part of the protection strategy in tiger reserves, namely:

(i) Providing 100% support to tiger reserves for raising, arming and deploying Special Tiger Protection Force (STPF).
(ii) Deployment of antipoaching squads.
(iii) Establishing and maintenance of existing patrolling camps/chowkis and deployment of camp labourers for patrolling.
(iv) Organising vehicular patrolling by constituting squads (Tiger Protection Force), comprising of field staff, labourers and police or SAF or ex-army personnel or homeguards with wireless handset and paraphernalia for apprehending offenders, apart from prescribing a patrolling calendar for the squad.
(v) Establishing and maintenance of wireless network.
(vi) Organising surprise raids jointly with the local police in railway stations, local trains, bus-stops, buses, catchers and cafeteria.
(vii) Ensuring special site-specific protection measures during monsoon as 'Operation Monsoon' – considering the terrain and accessibility of Protected Areas.
(viii) Deployment of ex-army personnel and home guards.
(ix) Deployment of local work force for patrolling, surveillance of water holes, manning barriers.
(x) Procurement of arms and ammunition.
(xi) Procurement/maintenance of elephant squads.
(xii) Rewards to informers.
(xiii) Legal support for defending court cases.
(xiv) Procurement of vehicles, boats.
(xv) Procurement field gear, night vision device.

16.2. Strengthening of infrastructure within Tiger Reserves (ongoing) (non recurring for new civil works and recurring for maintenance).

The following activities, inter alia, would form part of reinforcing the infrastructure of tiger reserves (including support to new tiger reserves):

(i) Civil Works (staff quarters, family hostels, office improvement, patrolling camp, house keeping buildings, museum, culverts).
(ii) Maintenance, creation and upgradation of road network.
(iii) Maintenance and creation of wireless tower.
(iv) Maintenance and creation of fire watch tower.
(v) Maintenance and creation of bridges, dams, anicuts.
(vi) Maintenance, creation of firelines and firebreaks.
(vii) Maintenance and creation of earthen ponds.
(viii) Procurement and maintenance of vehicles (Gypsy, Jeep, Truck, Tractor etc.).
(ix) Habitat improvement works.
(x) Procurement of hardware, software / Geographical Information System (GIS).
(xi) Procurement of compass, range finder, Global Positioning System

(GPS), camera traps.

(xii) Procurement of satellite imageries for management planning.

(xiii) Map digitization facility for management planning.

(xiv) Monitoring system for Tigers' Intensive Protection and Ecological Status (M-STrIPES) monitoring.

(xv) E-surveillance.

16.3. Habitat improvement and water development (ongoing) (recurring).

These, inter alia, may include: weed eradication, removal of gregarious plant growth from grasslands, grass improvement, water retention structures and the like. These initiatives would increase the forage and browse values of the habitat for wild animals.

16.4. Addressing man-animal conflict (ensuring uniform, timely compensation for human deaths due to wild animals, livestock depredation by carnivores, crop depredation* by wild ungulates) (compensation for crop loss is a new component) (non recurring).

16.4.1. This would involve:

(i) Payment of compensation for cattle lifting, death of human beings and crop depredation* due to wild animals.

(ii) Creation of crop protection structures.

(iii) Procurement and deployment traps, cages to catch problematic animals.

(iv) Procurement of tranquilizing equipments, rescue vehicles and drugs.

16.4.2. The above initiatives are extremely important to avoid as well as redress the "park-people" interface conflicts.

(* would be supported as per prevailing norms of the State, in the delineated buffer area as explained in Section 38V of the Wild Life (Protection) Act, 1972, as amended in 2006.)

16.5. Co-existence agenda in buffer and fringe areas (landscape approach, sectoral integration, ecologically sustainable development programme, livelihood options and eco-tourism) (new activity in case of tiger reserves where buffer has not been notified so far) (non recurring).

The fringe areas around tiger reserve have corridor value, and their ecological sustainability is important to prevent the area from becoming ecological sinks on account of over use of resources and unwise land use. This calls for delineation of buffer zone around a tiger reserve to incorporate such fringe areas so that it can fulfill the following objectives, namely:

(i) Providing ecologically viable livelihood options to local stakeholders for reducing their dependency on forests.

(ii) Conserving the forest area through restorative inputs involving local people for providing habitat supplement to wild animals moving out of core areas.

A comparative assessment of the forest cover status of outer fringe areas of tiger reserves up to a radial distance of 10 kms. has been done in collaboration with the

Forest Survey of India. The States are required to delineate the fringe or buffer area around the core zones of tiger reserves, and submit a Tiger Conservation Plan as required under section 38 V of the Wild Life (Protection) Act, 1972, to ensure wildlife conservation while addressing the livelihood issues relating to local people.

16.6 Rehabilitation package for traditional hunting tribes living around tiger reserves (new activity) (non recurring).

There is an urgent need to launch a rehabilitation and development programme for the denotified tribes and tribes involved in traditional hunting, living around tiger reserves and tiger corridors. The following denotified tribes and communities are involved in traditional hunting of wild animals: Behelias, Ambalgars, Badaks, Mongias, Bavariyas, Monglias, Pardhi, Boyas, Kaikads, Karwal Nat, Nirshikaris, Picharis, Valayaras, Yenadis, Chakma, Mizo, Bru, Solung and Nyishi. While this list is not exhaustive, around 5,000 such families are required to be taken up under a welfare programme (forming part of NTCA initiatives) during the Plan period. The rehabilitation and welfare package should be evolved in a site specific, consultative manner with livelihood options, to include: wages for such people towards their deployment in foot patrolling for protecting wildlife, providing agricultural land with irrigation, basic health care, housing and related community welfare inputs and basic education facilities. The experience gained in the past for settling denotified tribes by the salvation army is required to be considered dispassionately while structuring the programme.

16.7. Research and field equipments (ongoing) (non recurring).

The All India tiger estimation using the new methodology approved by the Tiger Task Force has resulted in a permanent monitoring protocol for the field units. The format and protocol used for the Phase-I data collection in the new estimation process should be adopted for day-to-day field monitoring. Further, assistance would be provided for fostering field oriented research and to equip the staff with facilities like Global Positioning System (GPS), camera traps, night vision, range finder and related accessories including hardware and software. As decided in the 1st meeting of the National Tiger Conservation Authority, the tiger reserves are required to carry out the day to day monitoring of wild animals using the refined process in the GIS domain, which would enable "forecasting" vis-à-vis wildlife protection.

16.8. Staff development and capacity building (ongoing) (non recurring).

This would involve:

(i) Capacity building and training.
(ii) Providing project allowance and special incentives.
(iii) Specialized training in the use of Global Information System (GIS), antipoaching operations.
(iv) Specialized training in jurisprudence and wildlife forensics.
(v) Study tours for appraisal of good practices in other reserves.
(vi) Dissemination workshops.
(vii) Specialized training in park interpretation.
(viii) Specialized training in management planning.

The above inputs are extremely important for enhancing the skill of field staff. Several instances of poaching occur for want of specialized training in crime detection and related skills.

16.9. Deciding inviolate spaces for wildlife and relocation of villagers from core or critical tiger habitats in tiger reserves within a timeframe and settlement of rights (settlement of rights is a new activity) (non recurring).

16.9.1. The Wild Life (Protection) Act, 1972, as well as the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, require that rights of people (Scheduled Tribes and other traditional forest dwellers) recognized in forest areas within core and critical tiger and wildlife habitats of tiger reserves and protected areas may be modified and resettled for providing inviolate spaces to tiger and wild animals. This requires payment of compensation (rights settlement in addition to the relocation package offered under the Centrally Sponsored Scheme at present). Chapter IV of the Wild Life (Protection) Act, 1972 (section 24) provides for acquisition of rights in or over the land declared by the State Government under section 18 (for constituting a Sanctuary) or section 35 (for constituting a National Park). Sub-section (2) of section 24 of the said Act, authorizes the Collector to acquire such land or rights. Therefore, payment of compensation for the immovable property of people forms part of modifying or settling their rights which is a statutory requirement.

16.9.2. The ongoing study and the analysis of the available research data on tiger ecology indicate that the minimum population of tigresses in breeding age, which are needed to maintain a viable population of 80-100 tigers (in and around core) require an inviolate space of 800-1000 sq km. Tiger being an "umbrella species", this will also ensure viable populations of other wild animals (co-predators, prey) and forest, thereby ensuring the ecological viability of the entire area or habitat. Thus, it becomes an ecological imperative to keep the core areas of tiger reserves inviolate for the survival of source populations of tiger and other wild animals.

16.9.3. Based on the recommendations of the professional agency, a new package for village relocation and rehabilitation has been proposed, with the following options and norms, which adequately covers the "National Rehabilitation and Resettlement Policy, 2007", while taking into consideration the difficulties and imperatives involved in relocating people living in forest areas.

16.9.4. The proposed package has two options, namely:

Option I – Payment of the entire package amount (Rs. 10 lakhs per family) to the family in case the family opts so, without involving any rehabilitation and relocation process by the Forest Department.

Option II – Carrying out relocation and rehabilitation of village from protected area and tiger reserve by the Forest Department.

(i) In case of option I, a monitoring process involving the District Magistrate of concerned District would be ensured so that the villagers rehabilitate themselves with the package money provided to them. In this regard, a mechanism involving handholding, preferably by external agencies should also be ensured, while depositing

a considerable portion of the amount in the name of the beneficiary in a nationalized bank for obtaining income through interest generated.

(ii) In case of option II, the following package (per family) is proposed, at the rate of Rs. 10 lakhs per family, namely:

(a)	Agriculture land procurement (2 hectare) and development	:	35% of the total package
(b)	Settlement of rights	:	30% of the total package
(c)	Homestead land and house construction	:	20% of the total package
(d)	Incentive	:	5% of the total package
(e)	Community facilities commuted by the family (access road, irrigation, drinking water, sanitation, electricity, tele-communication, community center, religious places of worship, burial and cremation ground)	:	10% of the total package

(iii) The relocation process would be monitored and implemented by the following two Committees, namely:

State level Monitoring Committee consisting of:

(a)	Chief Secretary of the State	-	Chairman
(b)	Secretaries of related departments	-	Members
(c)	State Principal Chief Conservator of Forests	-	Member
(d)	Non-official members of respective Tiger Conservation Foundation	-	Members
(e)	Chief Wildlife Warden	-	Member-Secretary.

District level Implementing Committee for ensuring convergence of other sectors, consisting of:

(a)	District Collector	-	Chairman
(b)	Chief Executive Officer (CEO)	-	Member
(c)	Representative officials from Public Works Department (PWD), Social Welfare, Tribal Department, Health Department, Agriculture Department, Education Department, Power and Irrigation Departments	-	Members
(d)	Deputy Director of the tiger reserve or protected area	-	Member Secretary.

(iv) The above cost norms are indicative in nature to facilitate flexibility for State and site specific situation, and may be modified to allow inter component as well as inter family adjustments by respective State Governments as per site specific requirements.

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(v) The relocated village would be taken up on a priority basis for eco development as well as local development through convergence of District level schemes.

(vi) The labour oriented works involved in the relocation process would be preferably implemented through the villagers who are being relocated, so that they derive benefits out of the same apart from ensuring the field implementation to their satisfaction.

(vii) In case resettlement has been done on a forest land, the new settlement will be eligible for access to forest resources for their bonafide use through the Village Level Committee and Gram Sabhas.

(viii) The District Administration would facilitate fair price shop, education, health centre close to the relocated site.

(ix) "Handholding" after relocation would be ensured through the forest department with ongoing ecodevelopmental inputs through Central assistance and district administration involving convergence of schemes. In this effort help of competent independent agencies may be sought wherever available.

(x) The relocated villagers would be given priority for livelihood options emanating from the protected area.

(xi) In case the cost of relocation including settlement of rights per family exceeds Rs. 10 lakhs, the State Government has to meet the extra cost.

(xii) The relocation process would be an open ended one, since the progress of relocation process would depend on performance by States.

16.10 Mainstreaming wildlife concerns in tiger bearing forests and fostering corridor conservation through restorative strategy involving locals to arrest fragmentation of habitats (new activity) (non recurring).

16.10.1. The forests connecting tiger reserves or protected areas have tigers and other wild animals in most of the States. At present, there is no Scheme for addressing wildlife concerns in such areas, where restorative as well as protective inputs are required. The Wild Life (Protection) Act, 1972, provides for addressing such corridor areas. This, inter alia, would involve the following, namely:

(i) Redressing man-animal conflict.
(ii) Capturing problematic and aberrant wild animals.
(iii) Monitoring of wild animals.
(iv) Antipoaching operations.
(v) Habitat improvement measures.

16.10.2. The communities living in fringe areas of National Parks, Sanctuaries and tiger reserves suffer from frequent depredation of their crops on account of damage caused by wild herbivores like blue bull, black buck, wild pig and elephants. The situation becomes acute in certain pockets, since people depend on a single annual rain fed crop with low productivity. This is one of the major reasons for man-animal

conflicts around our Tiger Reserves and Protected Areas, and is a serious bottleneck in enlisting the much needed local support for wildlife conservation.

16.10.3 Under Section 11 of the Wild Life (Protection) Act, 1972, the State Chief Wildlife Wardens and officers authorized on his behalf can permit killing of wild animals causing destruction to life and property, including standing crops. However, rural communities do not favour such killings due to religious sentiments attached to these animals. Trapping and translocation of such wild animals which gain a pest value is neither feasible nor cost effective. Therefore, the situation calls for adequately compensating the stakeholder communities around tiger reserves from this recurring loss. This would be supported as per prevailing norms of the State, in the delineated buffer area as explained in Section 38V of the Wild Life (Protection) Act, 1972, as amended in 2006.

16.11 Safeguards and Retrofitting measures in the interest of wildlife conservation (new activity) (non recurring).

Several tiger reserves are affected on account of heavily used infrastructure like roads, railway tracks and others. The high tension electric lines passing through many reserves cause mortality of wild animals due to electrocution by poachers. In the interest of wild animals several safeguards as well as retrofitting measures may be required, which would be supported on a site-specific basis.

16.12 Providing basic infrastructure/Project Tiger Headquarter expenditure for consultancy, field visits by expert teams, all India tiger estimation/ continuous monitoring of tigers (Phase-IV), support for monitoring tigers outside tiger reserves through NTCA grant, developing a National Repository of Camera Trap Photo Database of tiger, strengthening of NTCA at the Centre and Regional Offices, besides establishing a monitoring lab (non recurring).

16.13 Independent monitoring and evaluation of tiger reserves (ongoing) (non recurring).

The independent monitoring of tiger reserves was carried out using as many as 45 parameters by a panel of experts, based on International Union for Conservation of Nature format. The monitoring reports were peer reviewed by the International Union for Conservation of Nature and placed before the Parliament. An independent Management Effectiveness Evaluation was again carried out in 2010-2011, which would be repeated again in subsequent years.

16.14 Establishment and development of new tiger reserves (new activity) (recurring and non recurring as indicated for various activities).

16.14.1 'Project Tiger' has a holistic ecosystem approach. Though the focus is on the flagship species 'tiger', the project strives to maintain the stability of ecosystem by fostering other trophic levels in the food chain. This is essential to ensure an ecologically viable population of tiger, which is at the 'apex' of the ecological food chain. The community pressures on forests are ever on the increase in developing countries, and India is no exception. As a sequel, the tiger habitat has become fragile and weak at several places, warranting a focused conservation approach. Our protected areas and tiger reserves are analogous to "islands" in an ocean of the other-use patterns. Empirical evidences from 'island biogeography' indicate that "isolated"

reserves lose their species rapidly owing to 'ecological insularization'. Further, apart from fragmentation, the situation is aggravated by degraded forest cover owing to biotic pressure, dislocated prey – predator ratio, absence of effective measures to ensure the desired level of protection and lack of eco developmental initiatives for the fringe dwelling stake holders to reduce their dependency on forest resources. Since 'Project Tiger' would go a long way in redressing the above situation, the Steering Committee of Project Tiger in its meeting held on 23rd January, 2003 recommended inclusion of new tiger reserve areas so as to increase the total area of 'Project Tiger' from existing 37761 sq. kms. to 50,000 sq. kms. during the X Plan period.

16.14.2 In-principle approval has been accorded for declaring the following tiger reserves:

Sl. No.	Name of Tiger Reserve	State
1.	Ratapani	Madhya Pradesh
2.	Sunabeda	Odisha
3.	Pilibhit	Uttar Pradesh
4.	Mukundara Hills (including Darrah, Jawahar Sagar and Chambal Wildlife Sanctuaries)	Rajasthan
5.	Sathyamangalam	Tamil Nadu

16.14.3 Further, the following areas have been suggested, by the National Tiger Conservation Authority to States, for creation as tiger reserves are given below:

Sl. No.	Name	State
1.	Nagzira-Navegaon	Maharashtra
2.	Bor	Maharashtra
3.	Suhelwa	Uttar Pradesh
4.	Guru Ghasidas	Chhattisgarh
5.	Mahdei	Goa
6.	Srivilliputhur Grizzled Giant Squirrel / Megamalai Wildlife Sanctuaries / Varushanadu Valley	Tamil Nadu

16.14.4 Final approval has been accorded for the Kudremukh Tiger Reserve (Karnataka).

16.15 Provision of Project Allowance to staff (all categories) of Project Tiger (providing project allowance to Ministerial staff is a new component) (non recurring).

16.15.1 The officers and staff of tiger reserves receive Project Allowance as approved by the Expenditure Finance Committee and Cabinet Committee on Economic Affairs during IX plan period as detailed below:

(a) Field Director - @ Rs. 1000 per month
(b) Deputy Director - @ Rs. 750 per month

(c)	Assistant Director/ Research Officer/Veterinary Officer (equivalent rank)	- @ Rs. 650 per month
(d)	Forest Ranger and equivalent rank	- @ Rs. 500 per month
(e)	Forester and equivalent rank	- @ Rs. 450 per month
(f)	Forest Guard and equivalent rank	- @Rs. 350 per month

16.15.2 The offices of tiger reserves are located in remote places. More often than not, the ministerial staff prefer postings elsewhere in regular Forest Division offices, as a result of which the routine official working in the Project Tiger Office are adversely affected. Further, several ongoing complimentary schemes from the Collector Sector are also dovetailed in tiger reserves as a part of the eco development strategy to benefit the stake holders. Such ongoing schemes, enhance the office work and therefore, able ministerial support becomes extremely crucial. However, to attract the best talent, it is proposed to extend the project allowance to ministerial staff working in tiger reserves as indicated below:-

Class II	-	Rs 500 (per employee per month)
Class III	-	Rs 350 (per employee per month)
Class IV	-	Rs 200 (per employee per month)

16.15.3 The above rates were doubled for the existing categories of eligible employees with the approval of the Ministry of Finance with effect from the 1st September, 2008.

16.16 Staff welfare activities (non recurring).

The field staff of tiger reserves serve in remote and difficult areas, often subjected to endemic diseases like malaria, dengue, water-borne infections, apart from facing the risk of chance encounters with wild animals. Further, such postings are normally 'non- family postings', and the frontline personnel has to bear the cost of maintaining his family in a nearby village or town having the basic schooling and medical facilities. It is relevant to add, accommodation in such rural areas are seldom readily available. In addition, the field staff of a tiger reserve, unlike his counterpart in Territorial Forest Divisions, has also to bear the brunt of local community dwelling in fringe areas, owing to restrictions on the latter for free access to forest resources. Thus, the role of a frontline field personnel in a protected area or tiger reserve is different from his counterpart in regular Forest Divisions. The physical assault on the staff of tiger reserves and protected areas by people nurturing a grudge against the management is more common, often resulting in casualties. Therefore it becomes essential to provide amenities for staff welfare, to attract the best talent in the working age group. During the Plan period, staff welfare inputs like residential accommodation for the children of frontline staff in nearby towns or villages, supply of kerosene, medicine, field kit, mosquito net, torch and the like would be supported.

16.17 Fostering Tourism/Ecotourism in tiger reserves (new activity) (non recurring).

'Tourism' in the context of tiger reserves is contemplated as "ecotourism", which needs to be ecologically sustainable nature-tourism. This is emerging as an important component of tourism industry. It is distinct from 'mass tourism', having sustainable, equitable, community based effort for improving the living standards of

local, host communities living on the fringes of tiger reserves. Ecotourism is proposed to be fostered under 'Project Tiger' to benefit the host community in accordance with tiger reserve specific Tourism Plan forming part of the Tiger Conservation Plan, subject to regulation as per carrying capacity, with a focus on buffer areas. Since, tourism has been happening in areas of national parks and wildlife sanctuaries which are now designated as core and critical tiger habitat, regulated low impact tourism (visitation) would be allowed in such areas subject to site specific carrying capacity. However, no new tourism infrastructure should be permitted in such core and critical tiger habitats. Further, the buffer forest areas should also be developed as wildlife habitats with the active involvement of local people living in such areas. This would provide extended habitat to tiger population for its life cycle dynamics, besides benefitting local people from ecotourism activities in such areas while reducing the resource dependency of people on core and critical tiger habitats and human-tiger interface conflicts. The opportunities for stakeholders would include management of low cost accommodation for tourists, providing guide services, providing sale outlets, managing excursions, organizing ethnic dances and the like.

16.18 Change in the funding pattern in respect of North Eastern States by increasing the central share from the existing 50% to 90% for Recurring Expenditure, with the States' share becoming 10%. The ongoing support for Non-Recurring Expenditure would continue to be 100%.

There is considerable delay in the release of central assistance to the field formations (tiger reserve) by the North Eastern States under the Project Tiger Scheme, owing to non availability of matching State share for recurring activities, despite allocation from the Centre. There has been a demand for increasing the central share in the recurring component of funding support. Accordingly, the central share has been increased from 50% to 90% for recurring items of expenditure.

16.19 Raising compensation for man-animal conflict to Rs. 2 lakhs in case of loss of human life, 30 per cent of the same for grievous injury and cost of treatment for minor injury (Non-Recurring).

The human-wildlife interface is extremely sensitive due to spill over of wild animals from core areas of tiger reserves. The loss on account of such depredation needs to be compensated adequately in a time bound manner to avoid 'revenge killings'. The compensation on man-wildlife conflict has been doubled from Rs. 1 lakh to Rs. 2 lakh in the case of loss of human life, while the compensation for serious injury has been retained at 30% of the amount of compensation on death, besides meeting the cost of treatment of minor injuries to people due to wildlife.

16.20 Acquisition of private land for making the core and critical tiger habitat inviolate (Non-Recurring).—

In several tiger reserves, there are private land holdings/estates within the core and critical tiger habitats of tiger reserves. The above component has been included under the Project Tiger Scheme for providing 100% central assistance to States to acquire such areas, if necessary, for making the core/critical tiger habitat inviolate.

16.21 Establishment of Tiger Safari, interpretation and awareness centres under the existing component of 'co-existence agenda in buffer and fringe areas', and

management of such centres through the respective Panchayati Raj Institutions (creation – Non-Recurring; maintenance – Recurring).

The Tiger Safaris may be established in the buffer areas of tiger reserves which experience immense tourist influx in the core/critical tiger habitat for viewing tiger. The interpretation and awareness centres would also be supported in such buffer areas to foster awareness for eliciting public support. The management of such centres would be through the respective Panchayati Raj (PR) institutions.

16.22 Re-introduction of Cheetah in the States of Madhya Pradesh and Rajasthan under the Scheme at a cost of Rs. 50 crores after ensuring the historical co-existence of Cheetah with other carnivores, especially the tiger.

Reintroduction of large carnivores has increasingly been recognised as a strategy to conserve threatened species and restore ecosystem functions. The Cheetah is the only large carnivore that has been extirpated, mainly by over-hunting in India in historical times. Based on the recommendations of an expert group involving the Wildlife Institute of India, the Ministry of Environment and Forests has decided to take up reintroduction of cheetah in the States of Rajasthan (Shahgarh area) and Madhya Pradesh (Kuno-Palpur and Noradehi Wildlife Sanctuaries). The said States would receive 100% support towards village relocation, habitat management and restoration, holding facility, veterinary facility, training professionals, monitoring, procurement of cheetah, eco-development in the fringes and maintenance.

17. State to enter into Memorandum of Understanding.

The Tiger Reserve States would be required to enter into a Tripartite Memorandum of Understanding with the Ministry of Environment and Forests, as provided in the format at **Appendix-C.**

18. The Tiger Reserves would receive funding support under the ongoing Centrally sponsored Scheme of 'Project Tiger' on the basis of a reserve specific Tiger Conservation Plan as required under Section 38V of the Wildlife (Protection) Act, 1972, as amended in 2006. This should be prepared in accordance with the guidelines issued by the National Tiger Conservation Authority. Till the preparation and approval of the Tiger Conservation Plan vis-à-vis the provisions of the Wild Life (Protection) Act, 1972, the tiger States would be required to send an interim Indicative Tiger Conservation Plan which should form the basis of the Annual Plan of Operations to obtain funding support under 'Project Tiger'.

19. The centrality of Panchayati Raj Institution should be ensured through consultation for deployment of local workforce, issues relating to man – animal conflicts, livelihood options, village relocation and eco-tourism.

Appendix-C

TRIPARTITE MEMORANDUM OF UNDERSTANDING BETWEEN THE MINISTRY OF ENVIRONMENT AND FORESTS (NATIONAL TIGER CONSERVATION AUTHORITY) BIKANER HOUSE, SHAHJAHAN ROAD, NEW DELHI GOVERNMENT OF ....., AND FIELD DIRECTOR ..... TIGER RESERVE

The Government of India has revamped its Tiger Conservation Programme through the setting of the National Tiger Conservation Authority. The urgency in saving the tiger, India's national animal enjoins on the Centre, State and Tiger Reserve Management onerous responsibilities, effective discharge of which is essential. This tripartite memorandum seeks to lay our respective responsibilities and reciprocal commitments linked to fund flows to ensure effective tiger conservation in the country.

This tripartite Memorandum of Understanding made this .....day of .....between the Ministry of Environment and Forests, acting through the National Tiger Conservation Authority, Annexe No. 5, Bikaner House, Shahjahan Road, New Delhi-110011 (hereinafter referred to as the 'NTCA') of the First Part, the State Government of _____, acting through (designation and office address) (hereinafter referred to as the State Government), of the Second Part, and the Field Director of ..... Tiger Reserve (hereinafter referred to as the Field Director), of the Third Part.

Whereas the State Government has submitted a proposal to the Ministry of Environment and Forests, through the Field Director, seeking financial assistance for protection and development of .....tiger reserve, hereinafter referred to as the "____".

And whereas the Ministry of Environment and Forests is ready and willing to extend financial support for the approved items of the said work, on the terms and conditions given below for the year 2009-2010 and thereafter.

NOW, THEREFORE, IT IS HEREBY AGREED between the Parties as follows:

ARTICLE I

Obligations of the Ministry of Environment and Forests (through the NTCA)

The Ministry of Environment and Forests has agreed and affirmed that:-

(1) Funding support under Project Tiger shall be made available to the Tiger Reserve in two phases, on receipt of the Annual Plan of Operation with cost estimates of proposed field initiatives, based on tiger reserve specific "Tiger Conservation Plan".

(2) The first installment of the funding support under Project Tiger would be done by four weeks after receipt of the Annual Plan of Operation from respective State Governments, subject to the availability of funds and directives of the Ministry of Finance.

(3) The second installment of the funding support under Project Tiger would be released by two weeks after receipt of Utilisation Certificate pertaining to previous year from the States alongwith 60% Utilisation Report of funding support released as first installment during the current financial year, and the Progress Report in the desired format from the Field Director, duly recommended by the Chief Wildlife Warden of the State.

(4) Technical guidance in the form of advisory would be provided to the Field Director under intimation to the State Government in the Tiger Reserve, within the ambit of the provisions contained in the Wildlife (Protection) Act, 1972, with regard to conservation of tigers and their habitat.

(5) An ecological auditing on the impact of investment made in the reserve shall be carried out as per prescribed criteria.

ARTICLE II

Obligations of the Government of .....

The State Government has agreed and affirmed that:-

(1) The Tiger Conservation Plan, as required under section 38V of the Wildlife (Protection) Act, 1972, as amended in 2006, shall be prepared for the Tiger Reserve for which the funding support is being sought from ....., as per the prescribed guidelines within 6 months from .....

(2) The core or critical tiger habitat and the buffer or peripheral area shall be delineated and notified as required under the Wildlife (Protection) Act, 1972, as amended in 2006 within 6 months from .....

(3) The staff vacancies shall be filled up by .....for ensuring effective implementation and field protection, after fixing area norms vis-à-vis the topography within 6 months from .....

(4) The money released under Project Tiger shall be made available to the tiger reserve within 2 weeks of its receipt in the State for implementing tiger conservation initiatives, as proposed in the Annual Plan of Operations, with due compliance of the normative guidelines and advisories of the said Authority.

(5) The State Government shall post a motivated officer with proven track record, preferably trained in wildlife management, as the Field Director of the Tiger Reserve, with a minimum tenure of three years (extendable if the situation warrants).

(6) The State Government shall constitute a Steering Committee as required under section 38U of the Wildlife (Protection) Act, 1972, as amended in 2006, under the Chairmanship of the Chief Minister, for ensuring coordination, monitoring, protection and conservation of tiger, co-predators and prey animals, within one year from .....

(7) The State Government shall establish a reserve-specific Tiger Conservation Foundation, as autonomous "profit centres" for the Tiger Reserve to facilitate and support its management for tiger conservation and eco-development, by involving local people, as per the guidelines issued, empowered to receive tourism gate collections, assistance from Government and other funds from Government and planning authority, to create a "development fund", and deploy it for the benefit of the reserve, local people and the staff within 6 months from .....

(8) The State Government shall promote action for local intelligence gathering and protection of the tiger reserve, and this "Security Plan" should form part of the Tiger Conservation Plan, with provisions for periodic "Security Audit".

(9) The State Government shall ensure capacity building of the frontline staff for effective enforcement, apart from staff development and staff welfare measures, based on a capacity building plan made part of the Tiger Conservation Plan.

(10) The State Government shall regulate tourism as per carrying capacity computed for the reserve and develop forest and wildlife tourism policy for the State within one year from .....

(11) The State Government shall avail the enhanced relocation package for relocating the villages in the core / critical tiger habitats as per the revised guidelines of the Project Tiger and statutory provisions, in a time bound manner.

(12) The State Government shall take steps for restoring the identified corridor linkages with the tiger reserve by mainstreaming tiger conservation in the landscape amongst the various production sectors, with the active involvement of territorial forest divisions, and revenue authorities, having scope for handholding by credible agencies outside the Government system.

(13) The State Government shall ensure ecologically compatible land uses in areas linking one tiger reserve with the other, while ensuring that forestry operations of regular forest divisions and those adjoining tiger reserves are not incompatible with the needs of tiger conservation.

(14) The State Government shall certify that no ecologically unsustainable land use such as mining, industry and similar projects operate within the tiger reserve.

(15) The State Government would ensure that the day-to-day tiger monitoring protocol is ensured in the tiger reserve as per advisories issued by the National Tiger Conservation Authority (Project Tiger), for facilitating forecasting of untoward happenings.

(16) The State Government shall ensure active management of the buffer zone of the tiger reserve with central assistance for eliciting public support through mainstreaming of wildlife concerns, to benefit local people and wild animals, apart from addressing man-wildlife animal interface.

(17) The State shall place in the public domain the Tiger Conservation Plan of the reserve and details of execution within 6 months from ....., in their official website ....., apart from making available the same in local language to promote public vigil.

(18) The money released by the National Tiger Conservation Authority shall be made available to tiger reserves for taking up the works proposed in the Annual Plan of Operations (APO) immediately, with due compliance of the normative guidelines and advisories of the said Authority.

(19) The Director/Officer Incharge of the tiger reserve shall be empowered to spend the money provided by the National Tiger Conservation Authority for immediate execution of the schemes, as per the norms and procedures prescribed by NTCA and the State Government.

(20) The State Government will ensure that the Accounts of the grants released by NTCA are audited by Statutory Audit of the State Government on annual basis and a certificate to this effect will be sent to NTCA annually latest by 31st May each year.

ARTICLE III

Obligations of the Field Director .....Tiger Reserve

The Field Director ..... Tiger Reserve has agreed and affirmed that:-

(1) A Security Plan would be drawn up for the Reserve, considering its strength, weakness, opportunity and threat which would form part of the Tiger Conservation Plan, to ensure intelligence based enforcement for protection of tiger, other wild animals and the habitat.

(2) The day-to-day monitoring protocols for tiger and other wild animals would be duly followed, as prescribed by the National Tiger Conservation Authority, to ensure forecasting of untoward happenings in the habitat.

(3) The Tiger Conservation Plan would be prepared within a time frame of six months, as per the guidelines issued by the NTCA with prescriptions for the core, buffer and adjoining areas.

(4) A staff development plan should be prepared and submitted to the State Government for ensuring frontline field staff in the right age group with the capacity to perform field work in the Reserve.

(5) Initiatives for mainstreaming tiger conservation in the buffer and outer landscapes should be taken up through sectoral integration of different district level schemes, to provide livelihood options to the fringe dwellers for reducing their dependency on the tiger reserve, with reciprocal commitments from beneficiaries to protect the tiger.

(6) Timely redresssal of man-wild animal conflicts would be ensured to prevent revenge killings of tiger and other wild animals.

(7) A Tiger Conservation Foundation will be set up for the Reserve as a receptacle for gate receipts and other receipts from the State / Central Governments to undertake local actions.

(8) The Annual Plan of Operation for funding support from NTCA shall have reference to the Tiger Conservation Plan.

(9) The cost estimates worked out by the Field Director should be based on approved schedule of rates of the State Government.

(10) The APO must indicate the location / area of proposed initiative / initiatives on a map, along with physical target, financial target and unit rate, with the basis of estimation.

(11) The progress report should invariably indicate the physical achievement (viz., quantity, number, area indicating location) and the objectives fulfilled on implementation of proposed activities.

(12) A year-wise photo catalogue of physical targets shall be maintained to facilitate verification during supervisory visits.

(13) During execution, details of estimate, man-days involved etc. shall be displayed near the work site.

(14) Utilisation Certificate showing unspent balance, if any, shall be furnished to National Tiger Conservation Authority annually after the close of the financial year so that the same is reached in this office by 31st May of each year. Complete Utilisation Certificate shall be submitted immediately on completion of the work.

(15) The accounts of the grants released by National Tiger Conservation Authority shall be maintained properly as per audit requirement and shall be open to inspection by the NTCA/Audit. A copy of these accounts shall also be released to NTCA. In case of construction / habitat improvement works, photocopies of

the measurement books (for the work which was executed from NTCA's grant) shall also be sent to NTCA. Details of unspent amount, if any, shall be intimated to the Authority for adjustment as unspent balance or revalidation.

(16) The funds will be used only for the purpose of which it was sanctioned. Diversion of funds will not be allowed without the prior approval of NTCA.

(17) The records of all assets acquired out of the grant released herewith by the NTCA, shall be made available for scrutiny of audit. Such assets shall not be, without the prior approval of Govt. of India / National Tiger Conservation Authority be disposed off, encumbered or utilized for the purpose other than those for which the grant is sanctioned.

(18) A statement showing the extracts of the assets created out of the grants released by NTCA shall be furnished to NTCA annually by 31st May of each year.

(19) The tiger reserve Management should consult the Gram Sabha while deploying the local work force, as Members of the Sabha would be conversant with the geographical and other related information about the area.

(20) 1. The Compensation for cattle lifting, crop depredation, injury and death of humans should be decided in consultation with the Zilla Parishad (ZP).

2. The Tiger Reserve Management should coordinate with the concerned Gram Panchayat (GP) while implementing crop protection safeguards and other initiatives relating to man-wild animal conflicts

(21) The Tiger Reserve Management should consult with Panchayati Raj Institutions for providing ecologically viable livelihood options to reduce villagers' dependence on forests. The Gram Sabha should be involved in restoring forest cover in the buffer areas in order to provide a supplementary habitat to animals moving out of core areas.

(22) Zilla Parishad should be involved in monitoring the payment and utilization of the compensation package whether under option-I or option-II.

(23) In case of option II, relocation/rehabilitation from the protected area/tiger reserve by the Forest Department should be done in consultation with the Gram Sabha.

(24) Zilla Parishad Chairperson should be a member of the District level Implementing Committee for ensuring convergence with other sectors.

(25) Implementation and monitoring of district level schemes in the relocated village should be done through Gram Panchayat/Gram Sabha.

(26) Gram Panchayat/Gram Sabha should be involved in identifying labour oriented works relating to the relocation process, ensuring that the relocated villagers get adequate remuneration for their labour.

(27) In case of re-settlement on forest land, the new settlement should be eligible to access forest resources based on their traditional forest rights as certified by the Gram Sabha.

(28) Recommendations of Gram Panchayat/Gram Sabha should be taken while deciding the site for fair price shops, schools, health centre etc. close to the relocated village.

(29) Gram Panchayat/Gram Sabha should be consulted in the identification of services, activities and personnel involved in ecotourism.

(30) The Local Traditional Village Councils or the Gram Sabha under the PESA Act, 1996, as the case may be, should be consulted on the rehabilitation/welfare package to ensure that such tribal people are provided with livelihood options as well as health care, education and housing facilities, vis-à-vis the statutory provisions contained in the Wild Life (Protection) Act, 1972 as amended in 2006.

ARTICLE IV

(Site-specific action)

Some tiger reserves may warrant special interventions owing to their unique geographical and other attributes.

Examples:

1. Proactive steps for intelligence based enforcement/antipoaching operations in border reserves and sensitive areas.
2. Proactive steps for preventing mortality of wild animals in Kaziranga.
3. Proactive steps for fire prone habitats.
4. Proactive steps for drought prone habitats.
5. Innovative steps for areas affected by insurgency and related problems.
6. Innovative steps for addressing issues like tigers straying out frequently in human settlements in habitats like Sundarbans.

ARTICLE V

Consequences of non-observance of the terms of the MOU

(In case of non-observance of the terms of MOU by the State Government and the Field Director)

1. Stoppage of funding support under Project Tiger.
2. Release of second installment would not be made in case the Utilisation Certificate relating to the first release is not received in the NTCA.
3. Non adherence / observance to MOU may lead to stoppage of incentives which may be provided to the officials and staff of the Tiger Reserve.
4. Non observance of the MOU leading to loss of tiger and its habitat and violation of statutory provisions of the NTCA may lead to penal action on the Field Director through the State Government.

IN WITNESS WHEREOF, the representatives of the Parties to this Memorandum of Understanding being duly authorized have signed this Memorandum of Understanding as of the day, month and year first above written.

Signed for and on behalf of National Tiger Conservation Authority	**Signed for and on behalf of Government of**	**Field Director ..... Tiger Reserve**
Name & Designation (With Stamp) Dated:	**Name & Designation (With Stamp) Dated:**	**Name & Designation (With Stamp) Dated:**

PART-B

GUIDELINES FOR TOURISM IN AND AROUND TIGER RESERVES

PREAMBLE.

Whereas, healthy natural ecosystems are critical to the ecological well-being of all living entities, and especially for the economic security of people. Tourism in the form of ecotourism has the potential to enhance public awareness, education, and wildlife conservation, while providing nature-compatible local livelihoods and greater incomes for a large number of people living around natural ecosystem which can help to contribute directly to the protection of wildlife or forest areas, while making the local community stakeholders and owners in the process.

Whereas, the Central Government considers it necessary to lay down a framework Guidelines on the selection, planning, development, implementation and monitoring of tourism in tiger reserves of the country with a view to recognise that tiger reserves and their landscapes are diverse, specific State Tourism and Ecotourism Strategies to be developed by the concerned State Governments and Tourism and Ecotourism Plans to be developed by the concerned Authorities.

These Guidelines are framed under section 38-O (c) of the Wild Life (Protection) Act, 1972, (WLPA), the provisions of the Scheduled Tribes and Other Forest Dwellers (Recognition of Forest Rights) Act, 2006, (FRA), Panchayat (Extension to Scheduled Areas) Act, 1996, (PESA) and Part IX of the Constitution of India, besides other laws in force. These Guidelines are in consonance with the Guidelines of the Centrally Sponsored Scheme of Project Tiger.

1. THE NEED FOR GUIDELINES.

1.1 The objective of these Guidelines is to move from wildlife tourism to ecotourism which is defined as 'responsible travel to natural areas that conserves the environment and improves the well-being of local people'. Given the conditions in India, it is proposed that ecotourism includes tourism that is community based and community driven. The aim should be to move towards a system of tourism around tiger reserves, which is primarily community based tourism. Such tourism should be low-impact, educational and conserve the ecology and environment, while directly benefiting the economic wellbeing of local communities.

1.2 The primary objective of tiger reserves is to conserve tiger source populations that also act as an umbrella for biodiversity conservation. These areas provide a whole host of ecosystem services and opportunities for tourism. Unplanned and unregulated tourism in such landscapes can destroy the very environment that attracts such tourism in the first place. Hence, there is a need to move towards a model of tourism that is responsible and compatible with these fragile landscapes.

1.3 Tourism, when practiced appropriately, is an important economic and educational activity. It has the scope to link to a wider constituency and build conservation support while raising awareness about the worth and fragility of such ecosystems in the public at large. It also promotes the non-consumptive use of wilderness areas, for the benefit of local communities living around and dependent on these fragile landscapes.

1.4 In the absence of proper planning and regulation, there has been a mushrooming of tourist facilities in recent years around tiger reserves which has led to the exploitation, degradation, disturbance and misuse of fragile ecosystems. It has also led to misuse of the term 'ecotourism', often to the detriment of the ecosystems and towards further alienation of local people and communities.

1.5 These Guidelines are applicable to areas in and around tiger reserves.

1.6 PRINCIPLES OF TOURISM IN AND AROUND TIGER RESERVES.

The persons who implement and participate in tourism activities shall, *inter alia,* practice the following principles, namely:—

(a) adopt low-impact wildlife tourism which protects ecological integrity of forest and wildlife areas, secure wildlife values of the destination and its surrounding areas;
(b) engage with Gram Sabhas as defined in the Scheduled Tribes and Other Forest Dwellers (Recognition of Forest Rights), Act 2006 (FRA) and Panchayat (Extension to Scheduled Areas) Act, 1996 (PESA) to facilitate decision making;
(c) ensure free participation and prior informed consent of Gram Sabhas and all other stake holders;
(d) develop mechanisms to generate revenues from wildlife tourism for the welfare and economic upliftment of local communities;
(e) highlight the biodiversity richness, their values and their ecological services to people;
(f) highlight the heritage value of India's wilderness and tiger reserves;
(g) build environmental, cultural awareness and respect;
(h) facilitate the sustainability of tourism enterprises and activities;
(i) provide livelihood opportunities to local communities;
(j) promote sustainable use of indigenous materials for tourism activities;
(k) promote processes for forest dwellers to control and maintain their resources, culture and rights so as to minimize negative impacts.

2. GUIDELINES FOR DEVELOPING STATE TOURISM STRATEGY FOR TIGER RESERVES.

The following paragraphs provide the broad framework for each stakeholder.

Synergy and collaboration amongst the Central Government, and relevant State Government Departments, forest dwellers, local communities and civil society institutions are vital for ensuring successful implementation of the Guidelines.

2.1. State Governments.

2.1.1. The State-level Tourism and Ecotourism Strategy for Tiger Reserves shall be in tune with these guidelines. Ecologically sensitive land use policies related to tourism shall be specified by the State Government for the landscape surrounding tiger reserves. Adequate provisions shall be made to ensure that ecotourism does not get

relegated to purely high-end, exclusive tourism, leaving out local communities. Relevant modifications in State rules and regulations should be carried out in order to ensure adherence to these standards by tourism developers and operators. All States Governments shall notify the State-level Tourism and Ecotourism Strategy within one year from the date of notification of these Guidelines.

2.1.2. The State Governments shall endeavour to develop a State-level policy to favour ecotourism in place of wildlife tourism as a comprehensive plan to ensure that the primary objective of tiger conservation is not compromised and inter alia, include:

(i) maintaining integrity and connectivity of tiger reserves;
(ii) local community rights, participation and benefit-sharing;
(iii) sound environmental design and sustainable use of indigenous materials;
(iv) conservation education and training;
(v) adequate machinery for monitoring and evaluation of the impact of ecotourism activities on wildlife conservation and local communities;
(vi) capacity building of local communities in planning, providing and managing ecotourism facilities;
(vii) development of appropriate land use and water management planning and regulation for maintaining the ecological integrity of landscape in and around tiger reserves.

2.1.3. No new tourist infrastructure shall be set up within the core or critical tiger habitat of tiger reserves, in violation of the provisions of the Wild Life (Protection) Act, 1972, and the directives of the Honourable Supreme Court.

2.1.4. The State Level Steering Committee under section 38U of the Wild Life (Protection) Act, 1972 shall review the implementation of the State-level Tourism and Ecotourism Strategy in Tiger Reserves.

2.1.5. The State Governments shall develop a system to ensure that gate receipts from tiger reserves are utilised by their management for specific conservation purposes and shall not to go as revenue to the State Exchequer. This will ensure that resources generated from tourism can be earmarked for protection, conservation and local livelihood development, tackling human-wild animal conflict and welfare measures of field staff.

2.1.6. Since the tourism industry in and around tiger reserves is sustained primarily from the non-consumptive use of wildlife resources and the local communities are the ones that bear the brunt of conservation, the State Governments may charge a conservation fee from the tourism industry for eco-development and local community upliftment works. The conservation fee shall be decided on the number of beds in a facility, the duration of operation of the facility (seasonal or year round) and on a luxury classification system such as home stay (fee for which will not be charged up to a 6 bed facility), to high end (which will have the maximum quantum of the fee). The suggested fee structure may range between Rs. 500 to Rs. 3000 per room per month. The rate of conservation fee and tourist facility strata shall be determined by the State Government, and the fund thus collected shall be earmarked to address local livelihood development, human-wildlife conflict management and conservation through ecodevelopment and not go to the State Exchequer as specified in 2.1.5 above.

2.1.7 The fund shall be administered by the Tiger Conservation Foundations with the Tourism Industry having a say in how and where this fund is to be utilized, and mechanisms for which need to be worked out at specific tiger reserves. The fund shall be used for all the villages located within or adjacent to the tiger reserves. Every State Government shall notify the rate of local conservation fee within a year from the date of notification of these Guidelines. The rate of fee shall be revised periodically taking into consideration the cost of operation. The rationale for a local conservation fee should be clearly explained to the public at large, through clear signages at local tourist facilities. The State Government shall put in place a transparent mechanism for utilisation of these funds involving the tiger reserve management through the Tiger Conservation Foundations and Gram Sabhas.

2.1.8. A Local Advisory Committee (hereinafter referred to as LAC) shall be constituted for each tiger reserve by the State Government. The LAC shall have the following functions, namely:

(a) to review the tourism strategy with respect to the tiger reserve and make recommendations to the State Government;
(b) to ensure computation of reserve specific carrying capacity and its implementation through periodic reviews;
(c) to ensure site specific norms on buildings and infrastructures in areas inside and close to tiger reserves, keeping in view the corridor value and ecological aesthetics;
(d) to advise local self Government and State Government on issues relating to development of tourism in and around tiger reserves;
(e) monitor regularly (at least half yearly) all tourist facilities in and around tiger reserves vis-à-vis environmental clearance, area of coverage, ownership, type of construction, number of employees, etc., for suggesting mitigation and retrofitting measures if needed;
(f) monitor regularly activities of tour operators to ensure that they do not cause disturbance to animals while taking visitors into the tiger reserves;
(g) to encourage tourism industry to augment employment opportunities for members of local communities.

2.1.9. Local Advisory Committee shall consist of:

(a) Divisional Commissioner or an officer of equivalent rank to be nominated by the State Government - Chairperson;
(b) Member/s of the State Legislature representing the area comprising of the concerned tiger reserve
(c) District Collector/s
(d) Tiger Reserve Field Director (Member Secretary)
(e) Local Territorial Divisional Forests Officers
(f) Honorary Wildlife Warden (if present)
(g) Official of State Tourism Department
(h) Official of the State Tribal Department
(i) one Block Development Officer or Sub Divisional Magistrate to be nominated by the State Government
(j) two Members of Local Panchayats to be nominated by the State Government

(k) one Wildlife scientist to be nominated by the State Government

(l) one Social scientist to be nominated by the State Government

(m) one representative of the tourism sector to be nominated by the State Government

(n) two local conservationists to be nominated by the State Government

(o) two representative from a local, registered Civil Society Institution to be nominated by the State Government

(p) Provided that the Gram Sabhas and in case of North Eastern States, the traditional village councils shall be recognized as equivalent to Panchayat Members, wherever such councils exist.

2.1.10 For tourism in a tiger reserve, the Tiger Conservation Foundation shall be the overseeing authority.

2.1.11 Terms of reference and tenure of the Local Advisory Committees shall be determined by the State Government.

2.2. Tiger Reserve Management in the context of tourism.

2.2.1 The Chief Wildlife Warden of the State shall ensure that each tiger reserve prepares a tourism plan, as part of the Tiger Conservation Plan vis-à-vis the technical Guidelines of the National Tiger Conservation Authority. The plan shall inter alia, include identification of corridor connectivity and important wildlife habitats and mechanisms to secure them. This site-specific tourism plan forming part of the Tiger Conservation Plan shall be approved as per the provisions of the Wild Life (Protection) Act, 1972. Prior to this approval, no new infrastructure for tourism (except for minor alterations in existing modest home stays) shall be allowed to be developed in and around tiger reserves.

2.2.2 The tourism plan shall, inter alia, include a monitoring mechanism, estimated carrying capacity (a suggested model mechanism to calculate carrying capacity, is provided in Annexure-I and Annexure-II, which may be modified on a site specific basis), tourism zones and demarcation of the area open to tourism on the basis of objective and scientific criteria.

2.2.3. The tourism plan should be consistent with the State Tourism and Ecotourism Strategy and shall also be approved by the LAC and the State Government.

2.2.4 The plan shall:

(i) identify (using landscape ecological principles and tools) and monitor the ecologically sensitive areas surrounding tiger reserves, in order to ensure the ecological integrity of corridor and buffer areas, and prevent corridor encroachment;

(ii) assess carrying capacity of the tiger reserve, at three levels: physical, real and effective or permissible carrying capacity of visitors and vehicles as well as residential facilities in and around the tiger reserve (in accordance with Annexure-I, Annexure-II). On the lines of the illustrative calculation provided for vehicular tourist visitation, carrying capacity needs to be computed on a site specific basis for tourist visitation involving elephant, boat and foot travel. Explore the possibility of technological tools (Global Positioning System, wireless, etc.) to manage traffic and spacing of tourist vehicles within tiger

reserves;

(iii) set a ceiling level on number of visitors allowed to enter a tiger reserve at any given time, based on the carrying capacity of the habitat;

(iv) indicate the area open to tourism in the reserves to be designated as 'eco-tourism zone';

(v) ensure visitor entry into tiger reserves through vehicles registered with the tiger reserve management, accompanied by authorised guide;

(vi) develop a participatory community-based tourism strategy, in collaboration with local communities, to ensure long-term local-community benefit-sharing, and promotion of activities run by local communities.

(vii) develop codes and standards for privately-operated tourist facilities located in the vicinity of core or critical tiger habitats, eco-sensitive zones or buffer areas, with a view to, inter alia, ensure benefit and income to local communities;

(viii) develop monitoring mechanisms to assess impact of tourism activities on the wildlife and its habitat so as to minimize them;

(ix) develop generic guidelines for environmentally acceptable and culturally appropriate practices, and for all new constructions;

(x) set up lists of Do's and Don'ts for visitors;

(xi) provide for subsidized visits of students while fostering educational extension activities.

2.2.5. In the case of human animal conflicts, compensation shall be paid within the period as per Citizen's Charter, apart from immediate payment of ex gratia.

2.2.6. All tourism activities shall take place only in delineated 'tourism zones' indicated in the tourism plan. The vacant posts in tiger reserves shall be filled up since the staff is also required to manage some tourism in addition to their regular duties.

2.2.7. Tigers in India occur across varied habitats that range from high elevation mountain subtropical forests, tropical wet evergreen forests, mangrove swamps, tropical moist or dry deciduous forests and alluvial floodplain grasslands. The densities of large ungulates, the main prey of tigers, vary from 2 to over 60 animals per km^2 among these different habitats. Breeding tigress's are territorial, and the size of their territories adjust to prey density so as to successfully raise cubs. Male tiger territories cover the territories of two to four breeding tigress territories. Due to variation in habitat specific prey density, breeding tigress territories range from 20 to 200 km^2 in India. For a demographically viable population it is essential to have a core area that harbours a minimum of 20 to 25 breeding tigresses. For long-term genetic viability the minimum effective population size is believed to be about 500 individuals. Due to the variability in breeding tigress territory size and thus breeding tiger density, the core area needed can be generalized to be between 800-1200 km^2. This core and surrounding buffer can then sustain a population of about 75 to 100 individual tigers to attain demographic viability. However, genetic viability is possible only through corridor connectivity within the larger landscape where dispersing individual tigers ensure genetic mixing between different source populations (tiger reserves) in a metapopulation framework. Current tourism zones where only tourist visits are permitted and there are no consumptive uses, tiger density and recruitment does not seem to be impacted. For this reason permitting up to 20% of the core/ critical tiger habitat as a tourism zone should not have an adverse effect on the tiger biology needs, which is subject to adherence to all the prescriptions made in these Guidelines.

2.2.7.1. There is also a need for fostering the buffer and peripheral areas for carrying out the greater part of ecotourism to benefit local communities.

2.2.8. Conservation of the tiger, our National animal, is the paramount objective of tiger reserves and generating public support through regulated tourism is an invaluable tool for harnessing public and community support for tiger conservation. Regulated tourism results in enhanced awareness and is of educational value especially for the younger generation. Non-consumptive, regulated, low-impact tourism, could be permitted within core or critical tiger habitat without in any way compromising the sprit of core/critical tiger habitat for tiger conservation. With this importance of tourism in tiger conservation in mind, it is recommended that a maximum of 20% of the core or critical tiger habitat usage (not exceeding the present usage) for regulated, low-impact tourist visitation may be permitted. In case the current usage exceeds 20%, the Local Advisory Committee may decide on a timeframe for bringing down the usage to 20%. Such area may be demarcated as tourism zone and there should be strict adherence to site specific carrying capacity. Restoration of buffer forest areas shall be done through its unified control under the respective Field Directors of tiger reserves vis-à-vis the Guidelines of the Project Tiger and the National Tiger Conservation Authority. Further, no new tourism infrastructure shall be created in the core areas. Existing residential infrastructure inside core or critical tiger habitats shall be strictly regulated to adhere to low ecological impacts as decided by the Local Advisory Committee on a site specific basis.

2.2.8.1. Any core area in a tiger reserve from which relocation has been carried out, shall not be used for tourism infrastructure.

2.2.9. Forest dwellers who have been relocated from core or critical tiger habitat to the buffer shall be given priority in terms of livelihood generation activities related to community-based ecotourism in the tiger reserve. Tiger reserve management shall make a special effort in this regard, besides a periodic review to ensure its compliance.

2.2.10. Tourism infrastructure shall conform to environment-friendly, low-impact aesthetic architecture, including solar energy, waste recycling, rainwater harvesting, natural cross-ventilation, proper sewage disposal and merging with the surrounding habitat. Violations of these norms will be appropriately dealt with by the LAC. Any violation of the guidelines will be referred to the appropriate authorities under intimation to the NTCA, for taking action in accordance to the relevant provisions of the law.

2.2.11. The District Revenue and tiger reserve authorities shall ensure that all tourist facilities within a zone of influence (to be identified by the LAC) in the context of core/critical tiger habitats in tiger reserves must adhere to all environmental clearances, noise pollution norms, and are non-polluting, blending in with surroundings. Severe penalties must be imposed for non-compliance.

2.2.12. Permanent tourist facilities located inside core or critical tiger habitat, which are being used for wildlife tourism shall be phased out on a time frame decided by the LAC. Strict plans ensuring low impact adherence by these facilities shall be developed and approved by the LAC for implementation. There shall be no privately run facilities such as catering, etc., inside the core or critical tiger habitat where night

stay is permitted. Such existing facilities if any, are to be run by the Tiger Conservation Foundations.

2.2.13. All tourism facilities located within the zone of influence (as determined by the LAC) in the context of the tiger reserve shall adhere to pollution norms (noise, solid waste, air and water, etc.), under the respective laws or rules for the time being in force. Outdoor high intensity illumination shall not be utilized as it disturbs nocturnal wild animal activities.

2.2.14. There shall be a complete ban on burying, burning or otherwise disposing non- biodegradable or toxic waste in and around the tiger reserve. Proper plan for disposal of degradable waste shall be developed and strictly implemented.

2.2.15. Management of habitat to inflate animal abundance for tourism purposes shall not be practiced within the core or critical habitat. Visitors shall keep a minimum distance of more than 20 meter from all wildlife; cordoning, luring or feeding of any wildlife shall be prohibited. Minimum distance between vehicles while spotting wildlife shall be maintained at 50 meters. Vehicles shall not monopolize a wildlife sighting for more than 15 minutes.

2.2.16. To avoid the number of visitors and vehicles exceeding carrying capacity, tiger reserve managers shall establish an advance booking system to control tourist and vehicle numbers. Rules of booking shall be transparent and, violators shall be penalized.

2.2.17. Tiger reserve authorities shall delineate an adequate and appropriate area for the visitor facility outside the protected area.

2.2.18. Tourism activities in tiger reserves shall be under the overall guidance of the respective Tiger Conservation Foundations and the LACs.

2.3. Tourist facilities and Tour operators.

2.3.1. Tourism infrastructure must conform to environment-friendly, low-impact, low height aesthetic architecture; renewable including solar energy, waste recycling, water management, natural cross-ventilation, no use of asbestos, discharge of only treated sewage, no air pollution, minimal outdoor lighting, and merging with the surrounding landscape.

2.3.2. The use of battery operated vehicles shall be encouraged to minimize pollution wherever terrain permits.

2.3.3 A 'curriculum' shall be developed for training of guides and drivers in the art, craft and ethics of wildlife tourism, resulting in certification. All guides and drivers shall compulsorily go through a short course in interpretation and rules and regulations followed by an oral examination before being certified by the Tiger Conservation Foundation. Courses may be scheduled during the non-tourist season. All certified guides and drivers shall wear appropriately designed uniforms with name tags and badges. This will instil a sense of pride, discipline and accountability. Prior to every tourist season, certified guides and drivers shall go through a refresher course or workshop. They shall also build up their capacity to identify birds and provide natural history information on other species, to slowly wean them away from a tiger-centric obsession. A periodic assessment of their

performance shall be reviewed by the LAC before reissuing their licences.

2.3.4. All tourist facilities falling within the zone of influence of a tiger reserve shall be reviewed regularly by the Local Advisory Committee vis-à-vis environmental clearance, area of coverage, ownership, type of construction, number of employees, etc., for suggesting mitigation and retrofitting measures if needed.

2.3.5. All tourist facilities, old and new shall aim to generate at least 50% of their total energy and fuel requirements from alternate energy sources that may include solar and biogas.

2.3.6. The use of wood as fuel shall be prohibited, except for campfires for which wood must be procured from State Forest Department or the Forest Development Corporation depots.

2.3.7. In order to allow free passage to wildlife, developments shall be sensitive to the conservation of flora and fauna, and the corridor value of the area in and around tiger reserves.

2.3.8. Tourist facilities and tour operators shall not cause disturbance to animals while taking visitors on nature trails.

2.3.9. Any violation of the guidelines shall be referred to the appropriate authorities under intimation to the National Tiger Conservation Authority, for taking action in accordance to the relevant provisions of the law.

2.4. Temple and Pilgrimage Boards.

2.4.1. Pilgrim sites located inside tiger reserves shall be in accordance with the Forest (Conservation) Act, 1980, Wild Life (Protection) Act, 1972 and the Environment (Protection) Act, 1986 to prevent any further expansion. This shall be periodically reviewed by the LAC.

2.4.2. All transit camps and places of stay for such pilgrimage shall be restricted to nominated days in a year. The protected area managers shall work with the temple authorities to develop a system for controlling the number of pilgrims so as to maintain the ecological integrity of the area. This mechanism shall be developed within three years of the notification of these Guidelines.

2.4.3. All rules relating to tourism facilities including noise, building design, use of alternate energy and free passage to wildlife shall apply to such pilgrim facilities.

2.4.4 Temple boards shall negotiate terms of revenue sharing with local communities and channel a minimum of 10 percent of gross revenue collected into development of local communities through the Gram Sabha.

2.4.5 The tourist operators, drivers and temple controlling authorities shall be given an exposure on the value of forest ecosystem and their ecological services and alongwith the do's and don'ts during visits to forests and tiger reserves.

2.5 These Guidelines shall be applicable to the tiger reserves notified under section 38V of the Wild Life (Protection) Act, 1972. The State Government shall lay down Guidelines on similar lines for tourism in other protected areas.

2.6 Contravention of any provision of these guidelines or conditions laid therein by any person or organization shall be liable of an offence under sub-section (2) of 38-O of the Wild Life (Protection) Act, 1972.

ANNEXURE-I

ESTIMATION OF CARRYING CAPACITY*

(Illustrative Calculation for vehicle based tourist visitation, Example: Kanha Tiger Reserve)

(a) **Physical Carrying Capacity (PCC):** This is the "maximum number of visitors that can physically fit into a defined space, over a particular time". It is expressed as:

PCC = A X V/a X RF
Where, A = available area for public use
V/a = one visitor / M^2
Rf = rotation factor (number of visits per day)

In order to measure the PCC to Kanha, the following criteria must be taken into account:

Only vehicular movements on forest roads are permitted
The "standing area" is not relevant, but "closeness" between vehicles is important
There is a required distance of at least 500 m (1/2km.) between 2 vehicles to avoid dust (2 vehicles / km.)
At least 3 ½ hours are needed for a single park excursion
The protected area is open to tourists for 9 months in a year and 9 hours per day

Linear road lengths within the tourist zone are more relevant than area, and the total lengths are:

Kanha	107.20 km.
Kisli	72.56 km.
Mukki	103 km.
Total	282.76 or 283 km.

Due to constant vehicular use, the entire road length of 283 km. is prone to erosion, out of which around 90 km. is affected more

$$\text{Rotation Factor (Rf)} = \frac{\text{Opening period}}{\text{Average time of one visit}}$$

Physical Carrying Capacity (PCC) = 283 km. x 2 vehicles / km. x 2.6

= 1471.6 or 1472 visits / day

* Hector Ceballos-Lascurain 1992-Tourism, ecotourism, and protected areas, IV World Congress on National Parks and Protected Areas, IUCN, Gland, Switzerland.

(b) **Real Carrying Capacity (RCC):** RCC is the maximum permissible number of visits to a site, once the "reductive factors" (corrective) derived from the particular characteristics of the site have been applied to the PCC. These "reductive factors" (corrective) are based on biophysical, environmental, ecological, social and management variables.

$$RCC = PCC - Cf_1 - Cf_2 \text{ ---------- } Cf_n,$$

Where Cf is a corrective factor expressed as a percentage. Thus, the formula for calculating RCC is:

$$RCC = PCC \times \frac{100 - Cf_1}{100} \times \frac{100 - Cf_2}{100} \times \ldots\ldots 100 - Cf_n$$

Corrective Factors are "site-specific", and are expressed in percentage as below:

$$Cf = \frac{M_l}{M_t} \times 100$$

Where: Cf = corrective factor
M_l = limiting magnitude of the variable
M_t = total magnitude of the variable

(i) Road erosion: Here the susceptibility of the site is taken into account.

Total road length = 283 km. (M_t)
Medium erosion sink = 50 km. (weighting factor: 2)
High erosion risk = 40 km. (weighting factor: 3)
$M_l = 50 \times 2 + 40 \times 3 = 100 + 120 = 220$ km.
$M_t = 283$ km.

$$Cfe = \frac{220}{283} \times 100 = 77.8 \text{ or } 78\%$$

(ii) Disturbance to Wildlife: Here, species that are prone to disturbance owing to visitation are considered. The Central Indian barasingha, a highly endangered, endemic species found only in Kanha has a courtship period of about 1 month in winter, during which it is extremely sensitive to disturbance. Likewise, the peak courtship activity for spotted deer lasts for two months before the onset of regular monsoon. As far as tigers are concerned, newborns are seen between March and May and also during the rains; hence an average value of two months in a year can be considered as the matter phase.

$$\text{Corrector Factor (Cf)} = \frac{\text{limiting months / year}}{\text{12 months / year}} \times 100$$

Corrective Factor for barasingha

$$Cf\ w_1 = \frac{1}{9} \times 100 = 11.1\%$$