

Chapter 2: Performance Audit

Forest Department

Protection of Forests and Biodiversity through Protected Area Network

2.1 Introduction

Forests play an important role in environmental and economic sustainability. They provide numerous goods and services, and maintain life support systems essential for life on earth. Changes in forest composition and quality, and the resultant habitat type lead to decline in primary food species for wildlife. Intensified shifting cultivation, indiscriminate removal of timber, fuel wood, fodder and other forest produce, forest fire and encroachment contribute to forest degradation and deforestation.

The Wildlife (Protection) Act, 1972 introduced for protection of wild animals, birds and plants, provides for establishment of four types of Protected Areas (PAs) viz. National Parks (NPs), Wildlife Sanctuaries (WLS), Conservation Reserves and Community Reserves. There are 21 PAs (six NPs and 15 WLSs) in the State as stated in *Appendix 2.1*. At present West Bengal has 4692 sq km of forests under PA network which is 39.50 per cent of State's total forest area⁷ and 5.28 per cent of total geographical area⁸.

The Forest Department in West Bengal aims to conserve natural flora & fauna (biodiversity conservation) in the forests and wetlands, through creation of Protected Areas in the State. The overall strategy involves protection of critical habitats of endangered species, improved PA management, development of infrastructure, improvement of habitat, reduction of human-animal conflict, besides capacity building and involving local people in management of PAs.

2.2 Organisational set-up

The Forest Department is responsible for management of forests and wildlife in West Bengal. Principal Secretary to the Government of West Bengal is the administrative head of the Forest Department. He is assisted by four⁹ Principal Chief Conservators of Forests (PCCsF). PCCF & Head of Forest Force (HoFF), West Bengal is the administrative head of Forest Directorate. Wildlife Wing of Forest Directorate is headed by the PCCF, Wildlife & Chief Wildlife Warden (CWLW). Out of 21 PAs in the State, 17 PAs are under the control of Wildlife Divisions of the Wildlife Wing and the remaining four PAs are under the control of Forest Divisions under the Forest Directorate. Each PA is headed by a PA Manager.

For selection and management of PAs, formulation of policy for protection and conservation of wildlife and to specify plans and measures to be taken for harmonising needs of tribal/ other dwellers of forest areas, State Board for Wildlife (SBWL) was first constituted in November 2003 as per provisions of

⁷ 11879 sq km

⁸ 88752 sq km

⁹ (i) PCCF & Head of the Forest Force (HoFF) West Bengal (ii) PCCF, Wildlife & Chief Wildlife Warden, (iii) PCCF, Research, Monitoring and Development and (iv) PCCF, General.

WPA, 1972. The State has neither framed State Forest Policy to meet the objectives and targets set in National Forest Policy nor formulated the State Wildlife Action Plan for conservation of biodiversity in the state.

2.3 Scope and methodology of audit

In order to assess the Department's efforts made during 2011-16 for protection of forests and biodiversity through the PA Network, a Performance Audit was carried out between February and June 2016 on the basis of standard audit guidelines, joint site inspections with departmental officials, taking photographs and holding discussions with departmental officials, apart from the examination of records of divisions of all 21 Protected Areas (*Appendix-2.1*). Audit objectives, criteria and methodology were discussed in an Entry Conference with the PCCF & HoFF in April 2016. Exit Conference was held on 15 December 2016 but Audit findings could not be discussed as the reply was received only on 14 December 2016.

2.4 Audit objectives

The Performance Audit sought to assess whether:

- Adequate measures were undertaken for setting up, strengthening and enhancing the Protected Area networks for conservation of forests and biodiversity of the State;
- PA Network was managed in a manner to enhance conservation of wildlife and their habitats; and
- Necessary infrastructure and institutional mechanisms were provided for in an effective manner for protection of forests and biodiversity in PAs.

2.5 Audit criteria

Audit findings are based on criteria derived from:

- Indian Wildlife Protection Act (WPA), 1972 and Rules thereunder,
- National Wildlife Action Plan (NWAP), 2002-16,
- Management Plans (MPs) of Protected Areas/ Tiger conservation Plans (TCP) of Tiger Reserves formulated by the PAs in the State,
- Guidelines issued by National Tiger Conservation Authority (NTCA),
- Orders of the Hon'ble Supreme Court of India, guidelines/ orders issued by the GoI/ GoWB/ Wildlife Institute of India (WII)¹⁰, International Union for Conservation of Nature¹¹(IUCN) *etc.*

¹⁰ An Autonomous Institution of the MoEF&CC, it is an internationally acclaimed Institution, which offers training programmes, academic courses and advisories in wildlife research and management.

¹¹ Created in 1948, IUCN is now the world's largest and most diverse environmental network, harnessing knowledge, resources and reach of more than 1,300 Member organisations and some 16,000 experts. It is a leading provider of conservation data, assessments and analysis. India is also a member.

Audit Findings

2.6. Creation and expansion of PA network in the State

At present West Bengal has 4692 sq km of forests under PA network which was 39.50 per cent of the State's total forest area (11879 sq km) and 5.28 per cent of the total geographical area (88752 sq km) which was less than the national target of 10 per cent. National Wildlife Action Plan-2002-16 (NWAP) aimed to bring 10 per cent of the landmass under the PA network, of which at least 50 per cent should be inviolate. It also specified that the PA network should adequately cover all bio-geographic zones, forest types and wild species of flora and fauna, especially the endangered ones. In this regard, Audit observed the following:

2.6.1 Lack of representation of all bio-geographic zones and forest types

(a) The State has four bio-geographic zones¹². Audit observed that despite recommendations of NWAP regarding coverage of PAs in all bio-geographical zones, there was no PA in the Deccan Peninsula Chhotanagpur zone of the State which contained 38 per cent of recorded forest area of the State. Further, the State has a coastal length of 280 km in the northern part of Bay of Bengal which supports unique marine biodiversity, however, no Marine National Park/ Sanctuary had been created in this area for protection of marine biodiversity. Thus, all the bio-geographic zones in West Bengal were not represented in the PA network of the State.

Chief Wildlife Warden (CWLW) stated (December 2016) that Mayurjharna Elephant Reserve covering the districts of Purulia, Midnapore and Bankura was created which would represent Deccan Peninsula Chhotanagpur zone. Regarding Marine NP, CWLW stated that Tiger Reserve, National Park and Wildlife Sanctuary established in the Sundarban would serve the purpose of conserving the marine biodiversity. The reply was not acceptable as the Elephant Reserve has no legal status to ensure protection of biodiversity and wildlife. Further, all the PAs established in the Sundarban were terrestrial in nature, and did not address conservation of the marine ecosystem.

Good practice

Odisha had notified Gahirmatha Marine Sanctuary in the same coastal belt of Sundarban.

(b) Audit further observed that out of 10 types of forests in the State, Northern Tropical Dry Deciduous forest type (4527 sq km, 38 per cent of total forest area) was found in five districts- Bankura, Purulia, Midnapur, Birbhum and Burdwan. Despite high spread of these forests, only two¹³ small Wildlife Sanctuaries (2.17 sq km) were created in these districts.

Chief Wildlife Warden (CWLW) stated (July 2016) that forest areas in these five districts were not contiguous, but fragmented and have human habitation all around. Moreover, these forests hardly supported any wildlife/ biodiversity which require special protection. The contention of the CWLW was incorrect

¹² 2C- Central Himalayas, 6B-Deccan Penninsula-Chhotanagpur 7B-Lower Gangetic Plain and 8B-East Coast

¹³ Ballavpur WLS in Birbhum District and Ramnabagan WLS in Burdwan District

as a Report¹⁴ of the Forest Directorate had shown that an area of 250 ha of contiguous forests was available in Forest Division of Kangsabati in Purulia district. Further, this area was also rich in biodiversity as exhibited in the Report with the existence of flora and fauna which were vulnerable, like wild pig, jackal, langur, Indian wolf, spotted deer, hyena, python, porcupine, pangolin, wild boar, different kinds of birds *etc.* As such, this area warranted special protection measures to conserve these threatened/ vulnerable resources.

2.6.2 Creation of Conservation Reserves

Wildlife Protection Act 1972 stipulates that State Government may create Conservation Reserves for the purpose of protecting landscapes, seascapes, flora and fauna, their habitat areas adjacent to PAs and those areas which link one PA to another.

Audit observed that no Conservation Reserves have been formed in the State as of December 2016, despite being recommended by State Board for Wildlife (SBWL), as discussed below:

(a) As per Zoological Survey of India report on wetlands in 2013, Santragachi Jheel was one of the most important urban wetland of West Bengal. The report observed that migratory birds¹⁵ visited this lake and it was getting polluted due to dumping of waste materials and sewage inlets by local people. SBWL had observed in 2010 that the proposal for setting up the Conservation Reserve was kept pending by the Forest Department. It was further observed that the Forest Department had prepared a management plan (2007-2011) for the conservation of the lake, which was, however, not operationalised. Accepting the Audit observation, the CWLW stated (December 2016) that the proposal for declaring the area as Conservation Reserve was under examination.

(b) As per the Conservation Action Plan (2010-2020) for the Gangetic Dolphin prepared by Ministry of Environment and Forest and Climate Change (MoEF&CC) (November 2010), Chief Wildlife Wardens of each State should consult experts for preparation of Status Report of Gangetic Dolphin. Based on the status report and identification of river stretches that supported breeding populations of the Gangetic Dolphin, States were to propose Protected/ Conservation areas under the provisions of the Wildlife (Protection) Act (1972). It was observed that SBWL had approved (October 2015) creation of a dolphin community reserve, however, notification in this regard had not been issued as of December 2016. Further, it was observed that SBWL had proposed as far back as December 2003 to declare a part of the Hooghly-Bhagirathi River as protected area for conservation of Gangetic Dolphin, but no action was taken by the State Government.

¹⁴ State Report on National Programme on promoting Medicinal Plants Conservation and Traditional Knowledge for Enhancing Health and Livelihood Security for West Bengal (UNDP-CCF-II Project No 13047) Published by the Research Circle, Directorate of Forest, Government of West Bengal in 2010.

¹⁵ Saras crane from North America and Australia, Gadwall, Northern Pintail, Northern Shoveler, Garganey from North of the Himalayas and many other local migratory birds such as cotton pygmy goose, Comb duck *etc.*

In reply, the CWLW stated (December 2016) that the proposal for declaration of the area as Dolphin Conservation Reserve had been prepared and would be submitted to SBWL; however, no further details were made available.

Good practice

Vikramshila Gangetic Dolphin Sanctuary was set up in 1991 covering about 50 km of the Ganga between Sultanganj and Kahalgaon in Bihar.

2.6.3 Protection measures for conservation of endangered species

Protected Areas (PAs) are the cornerstone of efforts to conserve biodiversity and environment. PAs face many challenges to their integrity and are under pressure from internal and external threats. Regular census of wildlife species enables PA managers to undertake effective conservation measures. Census of some endangered animals like tigers, leopards, gaurs, elephants, rhinoceros and crocodiles only were conducted intermittently, whereas census was not carried out for a number of other threatened and endangered species¹⁶. In the absence of any regular census, PA managers were totally unaware of the exact status of threatened species. This would hinder them in taking timely measures for their conservation if required and would defeat the purpose of setting up the PA. Audit observed that the Department had not taken sufficient measures for protection of biodiversity by strengthening the network of PAs as discussed below:

2.6.3.1 Creation of corridors to link one PA to another

According to National Wildlife Action Plan (NWAP), States had to identify wildlife corridors between important PAs, harbouring endangered and long range species. Wildlife Institute of India was entrusted by MoEF&CC with the task of identification of elephant corridors all across India and 19 such corridors were identified in West Bengal. The Elephant Task Force set up by MoEF&CC had recommended (August 2010) that identified elephant corridors should be legally protected through any of these means: (i) creation of Community/ Conservation Reserves, (ii) declaration as ecologically sensitive area, (iii) declaring corridor land as Reserve Forest/ Protected Forest, (iv) declaration as community forests and (v) by increasing boundary of existing PA and make the corridor as part of existing PA. Audit observed that eight out of 14 identified elephant corridors in North Bengal link five PAs¹⁷ and were adjacent to each other. However, as of December 2016, all these corridors were yet to be legally protected as per the recommendation of the Task Force. Further, Audit observed that obstruction of natural migratory path of elephants resulted in many conflicts with humans as discussed in **Paragraph 2.7.6**. Thus, as a result of lack of legal protection¹⁸, the Government was unable to put in place a mechanism to regulate land use, land

¹⁶ Fishing cat, Himalayan serow, Pigmy hog, Bengal florican, Asian wild dog, different kinds of eagles, Parrot bills, Vulture etc

¹⁷ Mahananda WLS, Gorumara NP, Chapramari WLS, Jaldapara NP and Buxa Tiger Reserve

¹⁸ Legal protection can be given under various laws appropriate for the state e.g. declaring corridors land as conservation/ community reserve under Wildlife Protection Act-1972, restricting certain activities such as: land use pattern, regulation of traffic, maintenance of the ecological status of the corridors etc.

diversion, prevention of encroachment *etc.*, in these identified elephant corridors.

CWLW agreed (December 2016) that protection of these corridors was important and out of 14 identified corridors in the State, seven would be duly covered as the part of Eco-Sensitive Zones (ESZs), once the GoI notified them. The reply, however, should be seen in the light of the fact that the Department was yet to earmark the areas for declaration of ESZs, as directed by MoEF&CC.

2.6.3.2 Destruction of Jorepokhari WLS



Figure 2.1: Concrete pond of Jorepokhari WLS

Himalayan Salamander is a threatened unique tailed amphibian species found in the Darjeeling Hills. The Jorepokhari Salamander Sanctuary (4.05 ha area), the only Sanctuary for conservation of the Himalayan Salamander, was notified in March 1985 for the purpose of protecting, propagating and developing the Salamander and its environment. Audit

observed that the Conservator of Forest, Wildlife (North) had visited the Sanctuary in June 2012 and reported that there was no sign of Salamander anymore in the Sanctuary site. He attributed disappearance of Salamander to the fact that two natural ponds of the Sanctuary had been concretised by Public Health Engineering Department and concrete picnic spot, black top road & tourist lodges had been constructed within the Sanctuary by the then Darjeeling Gorkha Hill Council. However, Audit observed that the disappearance of the Salamander had been reported¹⁹ as far back as in 2007 by Zoological Survey of India (ZSI) and it had also identified 19 other sites where Salamanders were found and had suggested taking measures for its conservation in the areas. However, the Department was neither able to protect the Salamander in the Jorepokhari Sanctuary nor was able to set up other PAs for the conservation of this threatened species.

The CWLW stated (December 2016) that Salamander was available in many other parts of the Darjeeling Hills. However, the fact remains that the Department failed to act on the advice of the ZSI for conservation of the endangered species in other identified areas through the PA network.

2.6.3.3 Creation of Eco-Sensitive Zones (ESZs) around PAs

According to Wildlife Conservation Strategy 2002, land falling within 10 km of boundaries of National Parks (NPs) and Wildlife Sanctuaries (WLSs) should be identified by the State Government and notified as Eco-Sensitive Zones (ESZs)²⁰ by MoEF&CC. The basic aim of creation of ESZs was to

¹⁹ Status Survey of Himalayan Salamander *Tylototriton Verrucosus Anderson* in Darjeeling Hills 2007.

²⁰ MoEF&CC in its guidelines of February 2011 for creation of ESZ stated that the purpose of creation of Eco-Sensitive Zones around NPs and sanctuaries is to create a kind of shock absorber for the PAs. These would also serve as transition zone from areas of high protection to areas requiring lesser protection.

regulate certain activities around NPs/ WLSs like those of saw mills, hotels *etc.*, to minimise the negative impacts of such activities on the fragile ecosystem encompassing the PAs.

MoEF&CC had brought out (February 2011) guidelines²¹ for declaration of ESZs in order to facilitate the submission of site specific proposals. It had issued (December 2012) a reminder to States for sending proposals by 15 February 2013 which was extended subsequently to 15 May 2013 and 15 July 2013. Audit observed that Forest Department had forwarded (May 2013) to MoEF&CC the proposals for declaration of ESZ around all the PAs. MoEF&CC requested (September 2015) the Forest Department to send a draft notification for declaration of ESZs. Further, MoEF&CC also instructed (November 2015) the Forest Department to send clearly earmarked areas for declaration of ESZs. However, the Department had not taken any action in this regard till date of audit.

The fact remains that in absence of creation and notification of Eco-Sensitive Zones around each NP/ WLS, the activities, which were harmful to the fragile ecosystems could not be prohibited/ regulated.

2.6.3.4 Identification of inviolate areas in PAs

National Wildlife Action Plan (2002-16) aimed to bring 10 *per cent* of the landmass under the PA network, of which at least 50 *per cent* should be inviolate. This was considered necessary to retain the pristine status of such areas without any management intervention except protection and monitoring of biodiversity.

(a) Audit observed that in six PAs, inviolate habitats (wilderness zone) were less than 50 *per cent* of the total area of PAs as shown in the table 2.1.

Table No. 2.1: Details of inviolate spaces in PAs

Name of the PAs	Total Area (in sq km)	Inviolate space (in sq km)	Percentage of inviolate space
Chapramari WLS	9.60	4.35	45
Neora Valley NP	159.8917	69.52	43
Jaldapara NP	216.34	71.80	33
Mahananda WLS	158.04	65.73	42
Sajnakhali WLS	362	0	0
Raiganj WLS	1.30	0.1446	11

(Source: Respective Management Plans and Divisional records)

CWLW stated (December 2016) that it was not mandatory to keep more than 50 *per cent* of the area as inviolate. The reply does not address the audit objection as to why even the lower limit of 50 *per cent* could not be maintained.

²¹ Each state has to carry out an inventory of different land use patterns/ types and number of industries operating around each PA to be done by Range Officers along with the help of a committee. The committee should prepare a list of activities like commercial mining, felling of trees, setting of industries causing pollution (Water, Air, Soil, Noise *etc.*), establishment of hotels and resorts *etc.* Each of these activities had to be classified as prohibited, restricted with safeguards or permissible. These are then to be sent to the MoEF&CC, as and when the proposals are completed for each NP.

(b) No area within Sajnakhali WLS (362 sq km) was identified and declared as inviolate. Entire area under this WLS, which falls in the buffer area of Sundarban Tiger Reserve (STR), was included in the tourism zone to meet the objectives of promoting tourism and allied activities, provide a source of recreation to the local population *etc.* As a result, over the years, tourism activities in Sajnakhali had multiplied manifold with mushrooming of new lodges, resorts, hotels which led to problems like waste disposal, water pollution, overcrowding of tourist places *etc.* Despite the fact that this sanctuary has enormous ecological importance due to presence of tigers, estuarine crocodiles, mangroves *etc.*, tourism in this area posed a threat to these endangered species.

The CWLW stated that the entire sanctuary had been designated as tourism zone and the conservation efforts were not being hampered. The reply needs to be seen in light of the fact that according to the WPA 1972 and Hon'ble Supreme Court²² (1992), the purpose of declaring any area as PA is to protect the forest wealth and wildlife of the areas and not to encourage tourism.

2.7 Management of PA network

As per National Wildlife Action Plan (2002-16), each PA should have its own Management Plan (MP) based on sound scientific and ecological data for effective management of PAs. MPs of all PAs were to be completed by 2002. According to "Manual for Planning Wildlife Management in Protected Areas and Forests" of Wildlife Institute of India, the MP must realistically address all management issues and must maintain objectivity, quality and standards. WPA 1972 stipulated preparation of Tiger Conservation Plan (TCP) for proper management of a tiger reserve. MPs/ TCPs guided the ecologically sound management of any PA.

2.7.1 Preparation/ implementation of Management Plans/ TCPs

National Wildlife Action Plan (2002-16) stated that "preparation of scientific, ecologically sound, PA specific MPs were to be done by teams of officials, experts and local community representatives, incorporating case studies of past management successes and failures, strict conservation zones and degraded habitats were to be identified for each PA and special management measures were to be formulated for these areas for effective management of PAs". As per management plan code, MPs were to be prepared in every 10 years and approved by GoI.

In West Bengal, out of 21 PAs, four PAs²³ were to be managed by Tiger Conservation Plan of concerned tiger reserve. For remaining 17 PAs where MPs were to be prepared, 13 PAs had approved MPs and four PAs²⁴ did not have approved MPs (*Appendix 2.2*). Audit observed the following deficiencies in preparation of management plans:

²² *Tarun Bharat Sangh, Alwar v. Union of India, AIR 1992 SC 514*

²³ *Buxa WLS and Buxa NP under BTR and Sajnakhali WLS and Sundarban NP under STR.*

²⁴ *Chintamonikar Bird Sanctuary, West Sundarban WLS, Ramnabagan WLS and Jorepokhari WLS*

2.7.1.1 Institutional mechanism

According to the “Manual for Planning Wildlife Management in Protected Areas and Forests” (1995) by Wildlife Institute of India, a premier institute in Wildlife Management under the MoEF&CC, for making wildlife planning process effective, an independent planning cell was required to be established under CWLW and the process of planning needed to be institutionalised with specified steps and time frames leading to finalisation of a Management Plan (MP). The Manual also recommended that a minimum period of a year and half should be assigned for completion of a MP and the first six months should be devoted to the preparation of preliminary plan.

Audit observed that no independent planning cell had been set up for preparation of MPs, as was done for preparation of Working Plans of forest divisions. The task of preparing the MPs were entrusted on Park Managers in addition to their regular duty of protection and conservation. As a result, the work of preparation of MPs was hampered.

CWLW agreed (December 2016) and stated that in view of expansion of PA network a separate Management Planning Cell would be set up at Headquarters as an advisory body for monitoring and writing of MPs.

Lack of a planning cell contributed to deficiencies/ delay in preparation of MPs as discussed below:

2.7.1.2 Preparation of Management Plans

Management Plans were required to be prepared by the concerned Park Managers of the Protected Areas after consideration of available information, past management practices, consultation with stakeholders, field surveys *etc.* The draft MPs were to be submitted to Chief Wildlife Warden (CWLW) for approval of the same. Audit observed following lapses in the preparation of Management Plans.

(a) The Forest Directorate had not set any timelines for preparation of MPs. There was significant gap between expiry of a MP and approval of a new MP of five PAs²⁵ (gap period ranged from two years to seven years). As a result, management of these PAs were done on ad-hoc basis during these interim periods.

(b) Management Plan (MP) of Ramnabagan WLS had expired on 31 March 2012. After a lapse of two years, the concerned DFO submitted (April 2014) the draft MP of the WLS for the period from 2013-14 to 2022-23 to CWLW which was yet to be approved (December 2016).

(c) West Sundarban WLS was created in September 2013. Audit observed that despite lapse of almost three years (September 2013 to July 2016), MP for the new WLS had not been prepared by the Division. It was also seen that MP of another PA (Chintamonikar WLS) which had lapsed in March 2015 was also not prepared. The Division stated (June 2016) that an experienced person having sufficient knowledge of Sundarban was required for preparation of the MPs. The Division further stated that works such as ‘Habitat improvement for

²⁵ Mahananda WLS, Neora Valley WLS, Senchal WLS, Bethuadahari WLS and Singhalila NP

wildlife' and 'Infrastructure development activities' had suffered due to non-availability of funds under Central Sector Schemes in absence of MPs.

CWLW stated (December 2016) that necessary action was being taken to complete these MPs.

2.7.1.3 Mid-term review/ appraisal of the MP

The manual of WII, 1995 had also emphasised mid-term-review of MPs. MPs themselves also contained provisions for periodical review. Audit observed that the MPs of Jaldapara, Gorumara, Neora Valley NP and Chapramari WLS were not reviewed in accordance with the changing needs as discussed below:

(a) The present MP of Jaldapara NP (2007-08 to 2016-17) was approved (September 2010) when it was a WLS; it was subsequently declared as a NP in 2012. Audit observed that the work of revision of MP commenced in March 2013 by Assistant Wildlife Warden (AWLW), Jaldapara NP. Due to heavy work pressure, the concerned Park Manager had requested (November 2013) Chief Wildlife Warden to assign the job to an officer on special duty which was not agreed to by the Forest Directorate and the work was assigned to the posted AWLW for completion by April 2014. Audit observed that this work was not completed till May 2016. In reply, the Park Manager stated (May 2016) that due to frequent changes at the level of AWLW by way of transfer and promotion, the review of the MP could not be completed.

(b) About five sq. km of non-forest land was added to Gorumara NP on the eastern side of the park through compensatory afforestation scheme. Audit observed that despite addition of such land into the NP, the MP was not revised to include this area for conservation measures.

(c) State Board for Wildlife had approved (February 2012) inclusion of a part of forest land of Kalimpong Forest Division into the Neora Valley NP for better and holistic management of the ecosystem as this area was rich in biodiversity. Accordingly, area of Neora Valley NP was increased (January 2013) from 88 sq km to 159.17 sq km. As per Park Manager, the added area was susceptible to illegal felling and criminal activities as it was surrounded by many revenue villages. Further, non-provision of fund and manpower for added area was creating problems in protection and overall management of the protected area. Audit, however, observed that its MP had not been reviewed and modified till December 2016. This impacted the holistic management of the entire area.

In absence of dedicated manpower and prescribed timeline, completion of the review of the MPs were still pending. Non-review of MPs would result in inputs like changing situations, suggestions received from experts, new policies introduced by Government like eco-tourism *etc.*, not being incorporated into it.

CWLW accepted (December 2016) the audit observation and stated that formation of Management Planning Cell would help in addressing this issue.

2.7.1.4 Preparation of Tiger Conservation Plan (TCP)

As per Hon'ble Supreme Court of India's order (October 2012) each tiger reserve was required to submit a TCP inclusive of a tourism sub-plan by April 2013. Audit observed that though the preparation of the first draft of TCP of Buxa Tiger Reserve (BTR) commenced as early as in the year 2010-11, the final draft of the TCP of BTR was submitted to NTCA only in December 2015 and its approval was obtained in November 2016. Audit analysis showed that the main reason for delay in preparation of TCP was tardiness in incorporating suggestions of NTCA into the TCP; these included plan for mitigation of human-wildlife conflict, details of proposed corridors, provision for augmenting prey base, security plan, year-wise planned activities, tourism plan *etc.* Audit also observed that delay in preparation of the TCP was due to non-finalisation of core and buffer zones of BTR. As such, BTR had been functioning without any TCP since 2010-11 and was being run in an ad-hoc manner without taking into account the long term perspective which was essential for management of tiger reserve. This needs to be seen in light of the fact that the population of tigers in BTR had disappeared over the years and no tigers were seen in the last census (January 2015).

2.7.2 Improvement of habitat of PAs

The goal of habitat restoration was to identify disturbed habitats and restore the native flora and fauna to ensure the continued use of the land by both wildlife and humans. An integral part of MPs, habitat restoration included activities like natural and artificial regeneration of grass, plantation of fodder species, development of water holes, weed removal and regular maintenance of fire lines to control ground fire. Grassland management was also one of the major activities in the Terai and Dooars forest areas of West Bengal. All habitat improvement activities were to be carried out in line with approved MPs. Audit observed the following shortcomings in habitat improvement activities undertaken by PAs:

2.7.2.1 Improvement of degraded forest land in PAs

(a) As per divisional records, BTR had 5550 ha of blank and degraded area (February 2013). Audit observed that during 2013-16, only 426 ha of land were rejuvenated through the plantation of trees and grasslands and soil conservation for providing adequate cover to wildlife and availability of fodder. It was observed that BTR had failed to improve 5124 ha of old degraded land (March 2016).

Field Director stated (July 2016) that biotic factors like grazing, illicit removal of firewood and timber *etc.*, were the main reasons for degradation of wildlife habitat and increase in intensity of man-animal conflict in this area. He further stated that due to acute shortage of field level staff and non-availability of fund for plantation, entire blank areas could not be taken up for habitat improvement. This reply needed to be seen in light of the fact that contractual labourers from Eco-Development Committees were engaged for this activity and these activities were not carried out by departmental staff. Audit further observed that ₹ 4.26 crore (March 2016) was lying unused in the Buxa Tiger Conservation Fund which could have been utilised for this purpose.

(b) Approximately 101 ha blank area, free from encroachment, exists in Rachilla Chawk in Neora Valley NP which was once covered by forests. MP of Neora Valley prescribed plantation in five ha every year in this blank area. Audit, however, observed that during the period 2011-12 to 2015-16, against the target of 25 ha, plantation was done in only four ha. As per the MP (2011-12 to 2021-22) of Chapramari WLS, there were 200 ha degraded and blank area, free from encroachment, against which plantation was done in only 20 ha during 2011-12 to 2015-16. As such, the forested area in the WLS kept decreasing and did not afford habitat to the protected species.

2.7.2.2 Maintenance/ creation of grasslands

Jaldapara and Gorumara NPs in North Bengal are famous for one-horned rhinos. As per MP, a limiting factor for conservation of rhinos in these two NPs was inadequate grassland habitat for this species. In Gorumara NP, grassland available as forage for rhino was only 7.50 sq km which was 9.44 *per cent* of the total area. In Jaldapara NP, grassland available for foraging for rhino was 30.55 sq km (14.11 *per cent* of total area). As per MP, the two National Parks were required to expand the area under grassland as well as maintain existing grassland. In this regard, audit observed the following:

(a) Against the aggregate annual target of maintenance of grasslands²⁶ prescribed in MPs of Gorumara and Jaldapara NPs of 740 ha, achievement ranged between 110 and 200 ha during the period 2011-12 to 2015-16 (**Appendix 2.3**).

(b) During 2011-12 to 2015-16, achievement in respect of fresh fodder grass in Gorumara and Jaldapara NPs ranged between 57 and 160 ha against the annual target of 940 ha as envisaged in MPs (**Appendix-2.4**).

(c) No fodder plantation was taken up in 2012-13 and 2014-15 in these NPs.

2.7.2.3 Removal of invasive species and weeds

Audit observed that the MPs of Jaldapara and Gorumara NPs had identified weeds and climbers²⁷ as acute problems in these parks. The MP of Neora Valley NP also identified thick undergrowth of malling bamboo²⁸ restricting the movement of big mammals and leading to poor natural regeneration of oak and other trees. These invasive species and weeds invade the grasslands, particularly during rainy season, and require regular removal. Consequently, MPs of these NPs included removal of these species for proper habitat management. Targets/ achievement with regard to removal of invasive species are detailed in the table 2.2.

²⁶ Through cutback of older fodder grass and over wood removal.

²⁷ *Leea spp.*, *Cassia tora*, *Mikania spp.*, *Eupatorium spp.*, *Lantana camara* and *Clerodendron bengalensis*.

²⁸ An invasive species of bamboo.

Table No. 2.2: Target vis-à-vis achievement in removal of invasive species etc.

Activity	PAs	During the period 2011-12 to 2015-16		
		Targets (in ha)	Achievement (in ha)	Achievement in percentage
Removal of Invasive species/weed	Jaldapara	2000	275	14
	Gorumara	500	110	22
Removal of malling bamboo	Neora Valley	25	5	20

(Source: Management Plan and information furnished by the concerned divisions)

2.7.2.4 Prevention of forest fires

Forest fires adversely affected habitat quality of PAs, caused loss of biodiversity, harmed micro flora and fauna of the habitat, depleted fodder resources for herbivores etc. As per Management Plans, for restricting the spread of fire, fire lines created in the forest areas were to be cleaned twice a year, during the months of November-December and March.

Audit observed that in three²⁹ wildlife divisions containing nine PAs, 1467.89 km of fire lines were existing. The status of clearing/ maintaining these fire lines during 2011-12 to 2015-16 is depicted in the table 2.3.

Table No. 2.3: Status of clearing/ maintaining fire lines

Name of the Protected Area	Total length of fire lines (in km)	Fire lines to be cleaned yearly	Fire lines cleaned during the year (in km)				
			2011-12	2012-13	2013-14	2014-15	2015-16
Jaldapara NP	295	590	45	50	40	25	50
Neora Valley NP	60	120	40	20	20	20	40
Gorumara NP	105	210	40	65	30	65	60
Chapramari WLS	17	34	0	0	4	12	10
BTR (Buxa WLS and Buxa NP)	807	1614	0	0	50.75	152	75
Mahananda WLS	183.89	367.78	163	125	100	37	60
Singhalila NP	Not available	Not available					
Senchal WLS	Not available	Not available					
Total	1467.89	2935.78	288	260	244.75	311	295

(Source: Respective Management Plans and divisional records)

CWLW stated (December 2016) that target of MPs with regards to habitat improvement like regeneration of grass, plantation of fodder, development of water holes, weed removal and maintenance of fire lines could not be achieved due to less allocation of fund and shortage in staff. Audit, however, observed that the Department had failed to submit Utilisation Certificates of first instalment in time to GoI which resulted in short release of nearly 27 per cent of fund under Centrally Sponsored schemes. Further, all the habitat improvement works were being done through members of Eco-Development Committees and not by the departmental staff.

²⁹ Gorumara Wildlife Division, Jaldapara Wildlife Division and Darjeeling Wildlife Division

2.7.3 Removal of human and biotic pressure

PAs needed to be free from human population as well as free from grazing/illegal encroachments to reduce biotic pressure and to preserve the habitats in the best possible natural conditions. This was also essential to reduce and prevent human and wildlife conflict.

National Wildlife Action Plan 2002-16 stated that voluntary relocation and rehabilitation of villages out of PAs needed to be done and that relocation and rehabilitation of villages should be undertaken on a voluntary basis or by persuasion from high conservation value segments of PAs *e.g.* pristine/ old-growth areas or the core segments of NPs.

As per WPA 1972³⁰, core or critical tiger habitats areas of NPs/ WLSs was required to be kept inviolate for tiger conservation and be notified by the State Government in consultation with an Expert Committee constituted for the purpose, without affecting the rights of the Scheduled Tribes and other Traditional Forest Dwellers. The voluntary relocation of people was to be carried out only in the identified core/ critical tiger habitats of a tiger reserve.

Further, as per guidelines for preparation of Tiger Conservation Plan (2007) issued by National Tiger Conservation Authority, a minimum inviolate area of 800-1200 sq km was required for a viable population of tigers (20 breeding tigresses) and an ecologically sensitive zone (buffer/ co-existence area/ multiple use area) of 1000-3000 sq km was required around this inviolate space for sustenance of surplus breeding age tigers and old displaced tigers. NTCA Guidelines (March 2010) prescribed two options for relocation of forest villages-Option I: Payment of the entire package amount (₹ 10 lakh per family) to the family in case the family opts so, without involving any rehabilitation/ relocation process by the Forest Department. Option II: Carrying out relocation/ rehabilitation of village from protected area/ tiger reserve by the Forest Department. In case the cost of relocation including settlement of rights per family exceeded ₹ 10 lakh, State Government has to meet the extra cost.

(a) Audit observed that 15 forest villages³¹ existed in the core zone of BTR. Since these villages existed in the core zone, BTR was required to carry out relocation of people living in these villages. Audit further observed that a State Level Monitoring Committee was formed (April 2010) for relocation of these 15 forest villages from the core area. Audit further observed that 1833 families from nine villages (August 2010) were willing to relocate and the committee decided (September 2010) to sign a Memorandum of Understanding (MoU) with these villagers. Audit, however, observed that no MoU had been signed with villagers opting for relocation till date and no village for core area of BTR had been relocated as of December 2016. CWLW stated (December 2016) that after settlement of rights under Forest Rights Act, willingness for relocation would be obtained from villagers and appropriate package would be adopted.

³⁰ Section 38V 4(i)

³¹ Raimatang, Adma, Chunabhati, Santrabari, Lepchakhawa, Bhutiabasty, Newlands, Kumargram, Sankosh, Pampubasti, Gangutia, 28th Mile and 29th Mile

This reply needs to be seen in light of the fact that the Government had not moved forward the process of signing the MoU with people who had already opted for relocation and thus were willing to move out of the core area.

(b) Audit further observed that till March 2016 no steps have been taken to relocate forest villages from the other five PAs³² despite existence of 18 forest villages in these PAs. PA managers of Jaldapara, Gorumara, Chapramari and Neora Valley stated (May 2016) that no concrete steps had been taken to relocate the villagers in absence of any relocation schemes/ package. This reply needs to be seen in light of the fact that guidelines issued by MoEF&CC regarding identification of Critical Wildlife Habitat in each protected area envisaged that the core area should necessarily be inviolate and the State Government should have taken the prescribed steps to ensure that.

2.7.4 Eco-tourism in and around PAs

As per NWAP, regulated, low-impact tourism had the potential to be a vital conservation tool as it helped win public support for wildlife conservation. However, in recent years, increased numbers of tourists and proliferation of tourist facilities had led to overuse, disturbance and serious management problems for PA managers. NWAP envisaged preparation of Tourism Management Plan, conduct of surveys of accommodation and tourist facilities within the PAs and fixing a ceiling on the number of tourists/ tourist vehicles permitted to enter the PA.

2.7.4.1 Eco-tourism Strategy/ Plans of PAs

As per Guidelines for Eco-tourism in and around PAs (June 2011) issued by MoEF&CC, States were required to develop a State-level Eco-tourism Strategy and also prepare eco-tourism plan as part of the MP for each PA by 31 December 2011. These eco-tourism plans were to be consistent with the State-level Eco-tourism Strategy and to be approved by Local Advisory Committee (LAC) of the PA.

(a) Audit observed that PCCF Wildlife constituted (March 2015) a State-level Eco-Tourism Committee for finalisation of eco-tourism policy/ strategy for PAs by April 2015. Draft Eco-tourism Policy and Guidelines for PAs in West Bengal (2015) prepared by the Eco-Tourism Committee of the Forest Department was forwarded (July 2015) to members of Eco-tourism Advisory Board (ETAB) for their comments. However, audit observed that the eco-tourism policy/ strategy was yet to be approved by the Department.

(b) Further, as per Forest Directorate instructions (July 2015), all concerned divisions were to prepare and submit Eco-tourism Plan for each PA under their control by August 2015 for incorporation in the current MPs of the concerned PA. Audit observed that till May 2016, no separate Eco-tourism Plans had been prepared/ finalised for seven PAs³³, as such these did not form part of MPs of these PAs.

³² Two forest villages in Jaldapara NP, two in Gorumara NP, six in Senchal WLS, seven in Mahananda WLS, one in Singhalila NP

³³ Mahananda WLS/ Senchal WLS/ Singhalila NP/ Jaldapara NP/ Neora Valley NP/ Chapramari WLS/ Raiganj WLS

The CWLW confirmed (December 2016) that the eco-tourism policy for the PAs was yet to be approved by the Forest Department and was under active consideration.

2.7.4.2 Diversion of forest land for eco-tourism

Eco-tourism is a non-forestry activity under the Forest Conservation Act 1980. As such, permission for diversion of forest land for construction of eco-tourism facilities was required to be taken from MoEF&CC before undertaking construction work.

Scrutiny of records of BTR showed that the Forest Department took up the work of construction of camping facilities for eco-tourism purposes at five locations³⁴ without permission from the competent authority for diversion of forest land for construction of these facilities. Work of construction of a total nine cottages at Jayanti and Nimati was completed and the work of construction of nine cottages at Buxaduar, Silbunglow and Raimatang was under progress.

In reply, the CWLW stated (December 2016) that these activities did not fall under non-forestry activities. The reply was incorrect as MoEF&CC in 2010 had clearly stated that eco-tourism was a non-forest activity and these activities required approval under Forest Conservation Act 1980.

Good Practice

The core area of the Pench Tiger Reserve in Madhya Pradesh is inviolate and tourists' activities are permitted to a limited extent. During last 10 years efforts had been made to reduce the tourists inflow by applying strict checking and control on the movement of tourists. Many sought after locations in core zone had been deliberately closed for tourists to avoid undue pressure on habitat.

2.7.5 Introduction of species/ species translocation for effective species Management

2.7.5.1 Introduction of rhino in Gorumara and Jaldapara NPs

As per rhino Census (2015), there were 49 rhinos and 204 rhinos in Gorumara NP and Jaldapara NP respectively. The male-female ratio of rhinos was approximately 1:1 in both these NPs which was much less than the standard sex ratio of 1:3 as prescribed by MP of Gorumara. With a view to gene pool uplifting, avoiding inbreeding depression and to maintain appropriate sex ratio, MPs of Jaldapara NP and Gorumara NP prescribed the introduction of female rhinos brought from natural habitats across India and not from any zoo. Audit, however, observed that re-introduction of rhinos in these PAs was not done as of December 2016. PA Manager Jaldapara stated (July 2016) that efforts were made for re-introduction of rhinos in 1995 but were not successful as the introduced rhinos were not accepted by the native ones as the male rhino was sourced from a zoo. No further efforts had been made since then.

³⁴ Jayanti (6 cottages), Nimati (3 cottages), Buxaduar (3 cottages), Silbunglow (3 cottages) and Raimatang (3 cottages)

CWLW agreed with the audit observation and stated (December 2016) that low genetic diversity of rhino in Jaldapara and Gorumara NPs would be addressed in future while initiating the programme of translocation of gaur to BTR.

2.7.5.2 Re-introduction of Tiger in Gorumara NP

Tiger had been extinct from Gorumara NP since late 80's. Since the implementation of the 1st MP of Gorumara NP, herbivores population, especially that of gaurs, increased very rapidly. So the MP prescribed for the re-introduction of minimum three females and one sub-adult male tiger in Gorumara with a view to bringing biological control over threatening population of gaurs. Audit, however, observed that no such re-introduction project had been taken up as of December 2016.

The CWLW accepted (December 2016) that the MP would be revised in the next opportunity.

Good practice

Panna National Park in Madhya Pradesh had lost all its tigers in 2009 but regained its status in 2012 when tigers were successfully translocated. Panna Tiger Re-introduction Program had facilitated recovery and at present the number of tigers were 23.

2.7.5.3 Overpopulation of wildlife in PAs

Overpopulation of wild animals in a particular PA may result in inbreeding and other health related problems, contamination with diseases along with shortage of fodder. To reduce overpopulation of wildlife in the following PAs, proposals were made for relocation; however, no action had been taken by the Department as of December 2016 as detailed in the table 2.4.

Table No. 2.4: Plan for relocation vis-a-vis current status

Name of PA	Species overpopulated	Plan for relocation	Current status
Bibhutibhusan WLS, Bethuadahari WLS, Ballavpur WLS and Ramnabagan WLS	Deer	Technical Committee of West Bengal Zoo Authority observed (April 2014) that breed and the present stock was of very uncertain genetic/ physical health. So it recommended phasing out the existing stocks by controlled breeding and its release in forested patches of South Bengal including Mayurjharna Elephant Reserve.	Not done
Jaldapara NP	Rhino	State Board for Wildlife approved (January 2010) to translocate overpopulated Rhinos from Jaldapara to Rasomati.	Not done
Jaldapara and Gorumara NPs	Gaurs	CWLW suggested (January 2016) for even distribution of Gaurs throughout all PAs on priority basis to prevent wiping out of the entire population in case of spreading of diseases like Anthrax and FMD. Audit also noticed that Gaur population was wiped out in Mahananda Wildlife Sanctuary on account of some disease.	Not done

(Source: Departmental records)

The CWLW stated (December 2016) that a total of over 1500 spotted deer had been translocated. Audit, however, observed that no translocation of deer took place from these WLSs since January 2012. Regarding translocation of rhinos from Jaldapara and Gorumara NPs, CWLW stated that this issue would be placed before the State Board for Wildlife.

Good practice

In January 2011 and March 2012, 51 gaurs were translocated in Bandhavgarh Tiger Reserve, Madhya Pradesh and are currently doing well.

2.7.6 Man-animal conflict and compassionate payment

Conflicts usually arise out of wild animals straying into habitations. This results in killing of wild animals or death/ injury of human beings and loss of crop/ cattle/ houses.

The CWLW stated (December 2016) that it had taken many steps to reduce conflicts and check animal depredation like identification and mapping of critical elephant migration corridors and routes, electric fencing at strategic locations, driving elephants from human habitations by elephant depredation control squads, eco-development activities in the fringe villages to reduce biotic pressure inside forest areas, indirect measures to mitigate man-animal conflicts *etc.* Scrutiny of documents, however, showed that these steps were not effective as depicted below:

- During 2011-12 to 2014-15, 210 cases of wild animals³⁵ straying were reported in which 339 persons were killed and 908 persons were injured.
- Due to straying of wild animals from their natural habitats, 226 wild animals were killed in various accidents.
- In retaliatory killings by the affected people, eight leopards and 10 elephants were killed during 2011-15.
- ₹ 19.29 crore was paid during 2011-15 towards compensation for injury and loss of human life, livestock killed, hut and crop damage *etc.*, caused by wild animals.

2.8 Availability of resources/ institutional mechanism for protection of forests/ biodiversity

Protection of unique biodiversity was the ultimate aim of setting up and management of PAs. To this end, adequate funds and manpower along with institutional mechanisms needed to be made available to all the PAs for their effective management. Audit observed following deficiencies relating to funding, manpower, institutional mechanisms and availability of other resources which are discussed below:

2.8.1 Financial management

Funds for the management of PAs were allotted by GoI under different Centrally Sponsored Schemes (CSSs) like Project Tiger, Integrated

³⁵ Tigers (80 cases), Rhinos (41 cases), Leopard (21 cases) and Gaurs (68 cases)

Development of Wildlife Habitats (IDWH) etc., and by State Government for State Plan Schemes. CSS was to be released in two instalments by MoEF&CC. The first instalment was usually released at the time of approval of Annual Plan of Operations (APOs) and the second instalment after receipt of Utilisation Certificates (UCs) of the first instalment.

Audit noticed the following instances of deficiencies in financial management:

2.8.1.1 Submission of APOs

Audit observed that APOs of eight PAs³⁶ were submitted regularly to MoEF&CC during 2011-12 to 2015-16 for funding under CSS-Integrated Management of Wildlife Habitat. APOs of two PAs³⁷ were submitted to MoEF&CC in the year 2015-16 for the first time. However, APOs of six PAs³⁸ were not prepared and as a result no Central Assistance was provided by GoI for management of these Wildlife Sanctuaries during 2011-12 to 2015-16.

2.8.1.2 Utilisation of Central Assistance

In respect of the 12 PAs, there was short release of Central Assistance and State Share of ₹ 10.75 crore and ₹ 2.32 crore respectively, as detailed in **Appendix-2.5**. Audit observed that due to non-submission/ delay in submission of UCs of first instalments by the Forest Department, second instalments of Central Assistance were not released by MoEF&CC. This resulted in non-implementation of approved items of work³⁹ in the APOs. Further, there was delay ranging between 21 and 256 days in release of Central Assistance by the Forest Department to the PAs. This hampered protection and conservation work in these PAs.

CWLW accepted (December 2016) that due to non-release of the second instalment by GoI, many activities could not be executed as per APOs. However, they did not address the issue of lapses on their part in non/ delay in submission of UCs which resulted in non/ late release of central funds.

Good practice

Government of Bihar in respect of Valmiki Tiger Reserve, issued single order for release of funds received from GoI in two installments with a rider that the funds meant for second instalment could be spent after the receipt of the second instalment from GoI. This pioneer step would overcome delays in processing the second instalment at the State level in releasing funds. NTCA recommended that this procedure could be followed in other states also.

³⁶ Gorumara NP, Jaldapara NP, Neora Valley NP, Singhalila NP, Mahananda WLS, Chapramari WLS, Senchal WLS and Raiganj WLS

³⁷ Ballavpur and Bethuadhari WLS

³⁸ Lothian Island WLS, Haliday Island WLS, West Sundarban WLS, Chintamonikar WLS, Ramnabagan WLS and Bibhutibhusan WLS

³⁹ These works related to construction/ renovation of anti-poaching towers, nylon net fencing (new) at forest interface, wages to the patrolling staffs, purchase of speed boats, fodder plantation, weed removal and over wood removal, maintenance of fire lines etc.

2.8.2 Utilisation of Forest receipts for conservation of PAs

Successful implementation of wildlife conservation and management programme is dependent to a large extent on the active participation and involvement of local people through formation of Joint Forest Management Committees (JFMCs). At present there are 181 JFMCs in 15 PAs eligible for share (25 per cent) of receipts of tourist/ transport entry, photography and other such related activities in the PA.

State Board for Wildlife had approved (December 2004) to create a special corpus fund with 75 per cent of revenue generated from tourism and 100 per cent of revenue generated from forest produce of PAs. This fund was to be utilised for development of the PA and distribution of share to JFMCs. In this context, Audit observed the following deficiencies:

(a) Corpus Funds named Buxa Tiger Conservation Foundation Trust (BTCFT) and Sundarban Tiger Conservation Foundation Trust (STCFT) were formed in March 2010. No Corpus Fund was created in respect of other 17 PAs as of December 2016. Tourist receipts from PAs having no corpus fund were being deposited into Government account as revenue/ Forest Development Agency Account.

(b) In BTR, receipts from eco-tourism activities like entry fee were being deposited in BTCFT account since March 2010. The accumulated amount of tourist entry fees was ₹ 2.27 crore till 2014-15, but no share was distributed among the JFMCs till date of audit, defeating the objective of welfare of forest dwellers.

(c) As per Hon'ble Supreme Court's order (January 2006) the entire amount of receipts as royalty of boulders supplied from BTR was to be used for the welfare of forest dwellers. As of March 2016 ₹ 4.26 crore received on this account was lying in the BTCFT account; however, no fund has been utilised for the purpose of welfare of forest dwellers.

CWLW stated (December 2016) that utilisation of forest receipts for conservation of PAs other than Tiger reserves was under consideration. The fact remained that collected funds were lying unutilised for the purpose of conservation/ protection and welfare of local people.

Good practice

The money from gate fee of Tadoba Tiger Reserve in Maharashtra earlier used to be deposited with treasury but now goes to Tiger Conservation Fund. Tadoba Foundation generates over a crore of rupees every year. More than ₹1.5 crore has been distributed to Eco-Development Committees in the last three years.

2.8.3 Infrastructure for patrolling in Protected Areas

Patrolling is integral to ensure protection and conservation of wildlife in the PAs. Responsibility of securing the PAs by and large rests with forest guards and foresters as their duties include patrolling and watching, camping at chowkis to facilitate patrolling deep inside the forests etc. NWAP (2002-16) had emphasised the importance of arming forest staff with

sophisticated weapons and other equipment to enable them to combat poaching and control illicit trade effectively.

Audit observed that with shortage of trained manpower and lack of night time patrolling during 2011-12 to 2015-16, 26 wild animals were poached in the State which included eight elephants, seven rhinos, three gaurs, one leopard and seven other animals. Audit further observed that during 2011-12 to 2014-15, 1334 and 20577 cases of illicit felling of tree had occurred in three PAs of Darjeeling Wildlife Division and BTR respectively. Deficiencies in the infrastructure for patrolling were as discussed below:

2.8.3.1 Inadequate patrolling staff

Audit observed shortages in staff engaged in patrolling to combat poaching and illicit felling of trees. Sanctioned strength *vis-a-vis* men in position of the wildlife wing is detailed in table 2.5.

Table No. 2.5: Sanctioned strength *vis-a-vis* men in position as on 31.10.2016

Name of Post	Sanctioned Strength	Men in position	Vacancy	Percentage of vacancy
Forest Ranger	102	65	37	36
Dy. Forest Ranger/ Forester	238	149	89	37
Head Forest Guard	70	43	27	39
Forest Guard	690	398	292	42
Forest Watcher	21	4	17	81

(Source: Information furnished by CWLW)

Audit also noticed that due to shortage of forest guards, patrolling was done by Casual Daily Labourers (CDLs) and Package Daily Labourers (PDLs). But CDLs/ PDLs were engaged for patrolling/ anti-poaching work without giving them any formal training and, till now, there is no recruitment policy/ selection procedure/ physical criteria for their selection for patrolling purposes.

CWLW accepted (December 2016) that shortage of staff was a great limiting factor and influenced all management activities. However, no steps have been taken to address this shortage of manpower.

Good practice

Valmiki Tiger Reserve in Bihar employed 98 plot watchers, including ex-servicemen drawn from downtrodden communities and most backward communities, for patrolling during daytime and 90 trackers from dawn to dusk every day for tracking animal movement.

2.8.3.2 Arms, equipment and vehicles for patrolling

Scrutiny of records showed that there was shortage of vehicles, arms, boats, Radio Transmitter (RT) sets, elephants *etc.*, necessary for patrolling in PAs as detailed in **Appendix-2.6**.

In five PAs⁴⁰, there were shortage of vehicles and RT sets. In four PAs⁴¹, there was shortage of arms/guns. In three PAs⁴², there was only 16 GPS sets against

⁴⁰ Mahananda WLS, Senchal WLS, Gorumara NP, Neora Valley NP and Chapramari WLS

⁴¹ Mahananda WLS, Senchal WLS, Singhlila NP and Neora Valley NP

⁴² Gorumara NP, Neora Valley NP and Chapramari WLS

the requirement of 32. There was a shortage of 11 elephants and five ponies for patrolling in BTR and Singhalila NP respectively.

STR is a maze of estuaries, river channels and creeks where patrolling is done by boats. However, there was shortage of patrolling boats as detailed in the table 2.6.

Table No 2.6: Shortage in patrolling boats

Type of patrolling boats	Requirement	Operational	Non-operational	Shortage
Speed boats	22	4	10	18
Mechanised boats	4	2	2	2
Mechanised dingi	17	12	1	5
Launch	3	2	1	1
Houseboats	10	4	2	6

(Source: Records of STR)

CWLW stated that the process of procuring new vehicles, equipment, boats *etc.* within the ambit of government sanction, replacement of old arms and new equipment for patrolling was a continuous process and was being carried out utilising the allocated budget. However, the replacement/ procurement of equipment has failed to address the significant shortages.

2.9 Conclusions

India's conservation planning is based on the philosophy of identifying and protecting representative wild habitats across all the ecosystems through the creation and maintenance of Protected Area network. In this regard, the Department did not take adequate steps for creation and expansion of PA network to achieve the target of covering 10 *per cent* of geographical area under PA network. All the biogeographic zones were not represented in the PA network. Identified elephant corridors were not notified which resulted in obstruction of natural migratory path of elephants, causing man-animal conflicts. Requisite inviolate spaces were not provided, which would adversely affect the conservation/ protection of biodiversity. Management of PAs were found to be inefficient in many respects. Steps taken to reduce biotic pressure on wildlife were found to be inadequate as the Department had failed to relocate forest villages from the PAs, create Eco-Sensitive Zones around PAs and regulate eco-tourism in and around PAs. Instances were noticed of non-submission of UCs, and non-preparation of APOs which resulted in short/ non-receipt of central funds, affecting protection and conservation work in these PAs. Shortage of patrolling staff as well as equipment was constraining conservation efforts. Institutional measures to conserve biodiversity and forests were not in place which compounded the lackadaisical approach of the Department in conservation and protection of biodiversity in the Protected Areas.

2.10 Recommendations

The Department may consider the following:

- Expansion of the PA network to all bio-geographic regions, marine areas and setting up the Ganga Dolphin reserve.
- Notification of identified elephant corridors to minimise man-animal conflict.
- Demarcation of requisite inviolate spaces to minimise adverse effect on conservation/ protection of biodiversity within the PA.
- Finalisation of State Eco-tourism Strategy to regulate eco-tourism in and around PAs.
- Enhancement of patrolling activities through modern methods, keeping in view the international borders.
- Restriction of extreme ingress of eco-tourists in and around PAs by applying strict checking and control on the movement of tourists.