

## CHAPTER – VI

# Ministry of Environment and Forests

### 6.1 Activities of Zoological Survey of India in exploration, identification and monitoring of faunal diversity

Ministry of Environment and Forests redefined the mandate of Zoological Survey of India (ZSI) to align it with the objectives of the international Convention of Biological Diversity (CBD) to which India is a signatory; and also prepared a comprehensive strategic plan covering the period from 1993 to 2020 for exploration, survey, inventorisation and monitoring of the faunal diversity of the country. As of March 2014, ZSI was lagging behind its targets for fulfilling the country's commitments under CBD in all the planned activities.

Exploration, survey and inventorisation of faunal diversity in the selected states, ecosystems and protected areas were not completed on schedule. There was no standard methodology for carrying out surveys and no system for oversight and assessment of the survey work carried out. Area and species wise monitoring of the faunal species had not commenced and no action plan in this regard had been prepared.

The working strength of Taxonomists was far below its sanctioned number. Scarcity of Taxonomists affected the taxonomic studies as only 34 *per cent* of the species collected were taxonomically identified. Even though Taxonomy was recognised as a highly specialised discipline, ZSI failed to depute its newly recruited scientists for training.

The review of threatened and endemic species was very limited. Of the 10 species targeted for review, status surveys were not initiated for seven species.

#### 6.1.1 Introduction

Bio diversity comprises the variety of all life on earth. India is one of the 12 mega diverse countries of the world. About 1.7 million living species have been described worldwide of which nearly 90,000 species have been described in India. Global concern about loss of species and ecosystems led

to the International Convention on Biological Diversity<sup>49</sup> (CBD) which came into force with effect from 29<sup>th</sup> December 1993. The CBD had three main goals, viz. conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of genetic resources. India is a signatory to the Convention and is committed to fulfilling the objectives of the CBD.

Zoological Survey of India (ZSI) was established in 1916 as a National Research Institute for Zoology to survey and explore the diverse faunal resources leading to the advancement of knowledge of various aspects of animal life of India. ZSI is a subordinate office of the MoEF. ZSI also advises Government of India on all matters relating to wildlife and animal diversity in India. With a view to address the objectives of CBD, a Programme Advisory Committee (PAC) of MoEF prepared (2001) the Strategic Plan of ZSI for the next 20 years and accordingly redefined its earlier mandate of 1987. Under the revised mandate the main objectives of ZSI were:

- Exploration, survey, inventorying and monitoring of faunal diversity in various states, selected ecosystems and protected areas of India;
- Taxonomic studies of all faunal components collected;
- Periodic review of the status of threatened and endemic species; and
- Preparation of Red Data Book (RDB) fauna of India and states.

ZSI is headed by a Director, assisted by scientists and administrative staff. The headquarter of ZSI is located at Kolkata. In addition there are 16 regional centres located in different States/Union Territories of the country, headed by the respective Regional Directors, who report to ZSI headquarters.

### **Budget and expenditure**

The budget allocation and actual expenditure incurred by ZSI during the period from 2005-06 to 2012-13 is detailed in Table 6.

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<sup>49</sup> The Convention on Biological Diversity was signed by 150 government leaders at the 1992 Rio Earth Summit and is dedicated to promoting sustainable development. The Convention recognises that biological diversity, in addition to being concerned with plants, animals and micro organisms and their ecosystems, is also about people and our need for food security, medicines, fresh air and water, shelter, and a clean and healthy environment.

(₹ in crore)

**Table 6: Budget allocation and actual expenditure of ZSI**

Year	Funds sought by ZSI			Funds released by MoEF			Actual expenditure			Percentage of savings on total expenditure
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2005-06	6.81	10.67	17.48	6.81	9.79	16.60	6.59	9.82	16.41	1.14
2006-07	8.39	11.61	20.00	8.39	10.95	19.34	7.82	10.56	18.38	4.96
2007-08	9.15	12.25	21.40	9.00	11.61	20.61	8.80	11.00	19.80	3.93
2008-09	12.07	14.30	26.37	12.07	16.52	28.59	11.74	15.82	27.56	3.60
2009-10	16.49	14.30	30.79	16.49	16.28	32.77	16.30	16.27	32.57	0.61
2010-11	26.67	14.47	41.14	24.46	14.52	38.98	23.81	14.60	38.41	1.46
2011-12	24.26	17.70	41.96	17.99	16.85	34.84	17.21	16.50	33.71	3.24
2012-13	34.71	17.53	52.24	17.41	18.11	35.52	17.27	17.87	35.14	0.38

From the above table it can be seen that funds released by MoEF were lesser as compared to the funds sought by ZSI, except for the years 2008-09 and 2009-10. The actual expenditure incurred by ZSI was however lower than the funds received by ZSI and there were savings in all the years ranging from 0.61 to 4.96 per cent.

ZSI/MoEF agreed (March 2014) that funds released by MoEF were lesser than funds sought by ZSI and stated that although survey, research and scientific publication were the major activities and output of the department, major part of budget was allocated on salaries and routine office expenses. On account of this factor, ZSI was lagging behind in achieving its proposed targets.

### 6.1.2 Audit Findings

Audit reviewed the activities of ZSI in exploration, identification, monitoring and review of status of threatened and endemic species for the period 2005-14 as per the target fixed by PAC on the revised mandate. The audit findings are discussed in the succeeding paragraphs.

#### 6.1.2.1 Exploration, survey, inventorisation and monitoring of faunal diversity in various States, selected Ecosystems and Protected Areas of India

Exploration, survey, inventorising and monitoring of faunal diversity in various states, selected ecosystems and protected areas of the country was identified as one of the primary objectives of ZSI. Although all the mammals and birds and nearly 95 per cent of the reptiles, amphibians and freshwater fishes had been completely surveyed and documented during the last 90

years, it was recognised that assessment of the degree and value of biodiversity and monitoring of health of the ecosystems required more knowledge of the species involved and their ecological processes. With a view to address these concerns and to delineate the action plan perspective for realisation of objectives, the PAC drew up an extensive and time bound plan covering the period from 1993 to 2020 for exploration, studies and preparation of faunal accounts.

**(i) Non-achievement of targets of survey and publication of faunal accounts**

According to the exploration plan prepared by the PAC, survey of faunal resources of 13 states/UT, 25 ecosystems and 46 protected areas were to be completed by 2012. The status of surveys conducted by ZSI and faunal accounts published as of October 2012 is as given in Table 7. The detailed status of each state, ecosystem and protected area is given in the **Appendix X**.

**Table 7: Status of surveys and studies conducted and faunal accounts published by ZSI as of March 2014**

Particulars of geographical area	Completion of Survey				Completion of taxonomic studies					Publication of faunal accounts	
	Target	Actual	Survey not taken up	Details not available	Target	Actual	Study not taken up	Study ongoing	Details not available	Target	Actual
<b>State/UT</b>	13	10	1	2	13	1	1	2	9	12	8
	<p>Of the target of 13 States, survey was conducted in 10 States. In respect of one State, survey was not taken up. Details of period of survey in two States were not available with ZSI.</p> <p>Studies were completed in only one State and ongoing in two States as of March 2014. In respect of one State, study was not taken up. Details of period of studies in nine States were not available with ZSI.</p> <p>Of the target of 12 publications, ZSI showed publication of State Fauna Series in respect of eight States during 2005-12. However in respect of these eight publications, details of period of survey and studies were not available in two cases. In the absence of period during which the surveys and studies were undertaken, Audit could not rule out the possibility that these publications were results of surveys/studies conducted in earlier periods.</p> <p>Audit further observed that as per Action Plan, in the State of Kerala, the planned duration of survey was from 2000 to 2010. ZSI conducted the survey from 1999 to 2002, thereby curtailing the duration from 10 years to three years. However, no faunal account was published as of March 2014.</p>										

Particulars of geographical area	Completion of Survey				Completion of taxonomic studies					Publication of faunal accounts	
	Target	Actual	Survey not taken up	Details not available	Target	Actual	Study not taken up	Study ongoing	Details not available	Target	Actual
<b>Ecosystem</b>	25	10	2	13	25	0	2	5	18	25	4
	<p>Of the target of 25 ecosystems, survey was conducted in 10 ecosystems. Of these 10, survey in respect of one ecosystem was completed even before the recommended date of start of the survey. The details are brought out in Table 8. In respect of two ecosystems, the surveys were not initiated. Details of period of survey in 13 ecosystems were not available with ZSI.</p> <p>As of March 2014, studies were not completed in respect of any ecosystem. In five ecosystems, studies were taken up but not completed as of March 2014. In respect of two ecosystems, studies were not initiated. Details of completion of studies in 18 ecosystems were not available with ZSI.</p> <p>Of the target of 25 publications, four publications were brought out. In two publications, details of period of survey and studies were not available. In the absence of period during which the surveys and studies were undertaken, audit could not rule out the possibility that the publications were results of survey/studies conducted in earlier periods.</p> <p>In respect of 16 ecosystems, though MoEF stated (March 2014) that ZSI had published faunal accounts, audit observed from the 'Catalogue 2014'<sup>50</sup>, published by ZSI in 2014 that these publications did not pertain to the selected ecosystems.</p>										
Particulars of geographical area	Completion of Survey				Completion of taxonomic studies					Publication of faunal accounts	
	Target	Actual	Survey not taken up	Details not available	Target	Actual	Study not taken up	Study ongoing	Details not available	Target	Actual
<b>Protected Area (PA)</b>	46	25	15	6	46	2	16	5	23	41	14
	<p>It was observed that of the 46 Protected Areas, survey of 25 Protected Areas was carried out. Survey in respect of 15 Protected Areas was not initiated. Of the 25 surveys conducted, surveys in respect of four Protected Areas were completed even before the recommended date of start of the survey. These cases are brought out in the Table 8. Details of survey of six protected areas were not available with ZSI.</p> <p>Of the 46 Protected Areas for which studies were targeted, the studies were completed in only two cases. In respect of one Protected Area, though survey was completed, studies were not taken up due to lack of expertise. In five cases studies were ongoing as of March 2014. In respect of 23 protected areas, the details were not available with ZSI.</p> <p>Of the 41 publications targeted, 14 publications were brought out. However, details of period of survey and studies were not available in two</p>										

<sup>50</sup> List of priced publications of ZSI

	<p>publications. In the absence of period during which the surveys and studies were undertaken for the stated publications, audit could not rule out the possibility that these publications were results of surveys/studies conducted in earlier periods.</p> <p>In respect of four other Protected Areas, though publication of faunal account was indicated, Audit observed that the survey was completed even before the recommended date of start of the survey. As such, it is evident that the publications cited also belonged to the earlier period of survey and were not in accordance with the planned objectives of PAC.</p> <p>While accepting (March 2014) that survey was not taken up in one protected area, MoEF stated that survey could not be initiated in respect of 13 Protected Areas due to lack of expertise and survey of one Protected Area was dropped. In respect of nine protected areas, it was stated that the faunal accounts were ongoing.</p>
<p>Source: Data provided by ZSI/ MoEF in March 2014.</p>	

It could be seen from the table that out of 12 states for which faunal accounts were to be published after completing survey and studies, publications were brought out for eight states, indicating an achievement of 67 per cent. However, in respect of 25 ecosystems, publications were brought out for only four ecosystems, which was an achievement of 16 per cent. The achievement in respect of Protected Areas was 34 per cent, as 14 publications on Protected Areas were brought out against target of 41 Protected Areas.

MoEF stated (March 2014) that ZSI could not achieve its targets mainly due to delays in getting permissions to enter various protected areas for exploration/surveys and dwindling of taxonomic expertise.

As mentioned in Table 7, in one ecosystem and four Protected Areas, surveys were completed even before the recommended date of start of survey. These cases are brought out in Table 8.

**Table 8: Ecosystems/Protected areas where ZSI completed survey before the period recommended by PAC**

Name of Ecosystem/Reserved area	Period of survey conducted	Duration of survey planned by PAC
Freshwater ecosystem, Bhoj, Madhya Pradesh	2005-2006	2006-2009
Simlipal, Odisha	2001-2003	2006-2008
Mahatma Gandhi Marine National Park, Andaman and Nicobar Islands	2005-2008	2008-2010
Sariska Tiger Reserve, Rajasthan	2003-2006	2008-2010
Point Calimore Wild Life Sanctuary, Tamil Nadu	2003-2006	2008-2010

Prior to revision of the mandate (1987) the focus of ZSI was on exploration and survey of faunal resources. After promulgation of CBD, the mandate of ZSI was redefined as exploration, survey, inventorisation and monitoring of faunal diversity in various states, selected ecosystems and Protected Areas of India. Keeping in view the additional activities in the revised mandate, PAC planned survey/re-survey of selected areas. In this context, surveys conducted in the above five areas prior to this period were dated.

Thus, though there was a comprehensive time bound plan for carrying out survey, inventorisation and monitoring work in accordance with the revised mandate, ZSI did not keep up with the targeted schedule of work. This impacted the implementation of the objectives of CBD in the area of conservation of faunal species.

#### **(ii) Absence of standard methodologies for conducting survey**

MoEF constituted (July 2009) a Task Force to make recommendations for strengthening the institutional mechanisms of ZSI activities. One of the terms of reference of the Task Force was to review the existing mandate, objectives, organisational structure, manpower and infrastructure of ZSI in order to strengthen its scientific and technical capabilities.

In its report (2009-10), the Task Force recommended updating and standardising the survey manuals of ZSI dealing with different taxa<sup>51</sup> and ecosystems incorporating current quantitative survey techniques through broad-based expert consultations, in the light of modern scientific and technical advances. Audit however, observed that no such manual was prepared by ZSI.

During the period 2005-06 to 2011-12, ZSI undertook a total of 248 tours comprising of 97 and 151 tours relating to Ecosystems and Reserved Areas, respectively. Audit observed that in most cases, the surveys undertaken covered areas other than the areas planned for survey in the PAC's action plan.

Of the 248 tours, survey reports on 20 tours pertaining to the selected states, ecosystems and protected areas were furnished to Audit. Audit observed that:

- There was no standard format of the tour reports.
- There was no standard mechanism for processing the tour reports submitted by the scientists.

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<sup>51</sup> Scientific classification of groups of species

- Though the tour reports were submitted to the Director, ZSI, formal approval of the competent authority was not recorded.
- The basic qualitative and quantitative methodologies adopted in the surveys such as total area to be covered by using toposheets and maps, faunal diversity assessment in the area, importance /risk of the species surveyed, pooling up of survey with previous survey work, techniques used for sample selection, field identification, surveying and preservation etc. were not listed in 18 out of 20 survey reports.

In the absence of approved criteria and a survey manual at ZSI, a comparison of whether the surveys were conducted considering the current quantitative survey techniques, as envisaged by the Task Force constituted by MoEF, was not possible. The absence of a standardised manual or approved methodology for surveying therefore left the actual survey work at the discretion of the scientists concerned, leaving neither scope nor criteria for oversight or assessment of the survey work in quantitative and qualitative terms.

MoEF accepted (March 2014) the audit observation and stated that it had taken various corrective actions such as standardisation of tour report formats and process for submission and checking, incorporating standard methodology for surveying animal groups and other recommendations of Task Force in the survey manual, etc. which would be implemented by ZSI from 2013-14 onwards.

### **(iii) Monitoring of faunal diversity**

Monitoring is regarded as scrutiny of trend of changes, if any, in the faunal assemblage and behaviour of the place under consideration over the years. According to Article 7 of CBD, the objective of monitoring of faunal diversity was to monitor, through sampling and other techniques, the components of biological diversity identified, paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use as well as to identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity and to monitor their effects.

Audit observed that species-wise monitoring was not conducted by ZSI since inception. Further ZSI did not conduct monitoring activities area wise, as it had planned for the survey and exploration activities.

ZSI accepted (October 2012) that species wise resurvey of any particular area of the country was yet to be drawn up. It stated that exploration and

documentation of faunal assemblage of most of the ecosystems and biologically rich areas had only been initiated by early eighties and it was not possible to monitor all the wild fauna since monitoring requires visiting the same area repeatedly. ZSI also stated that to cover the entire country, no target time could be set up. MoEF added (March 2014) that monitoring of faunal diversity or documenting the changes in spatial and temporal distribution of species was a long term exercise that required sufficient manpower and support from forest/wildlife authorities and institutional collaborations. ZSI could not conduct many programmes of Protected Area Surveys as per the proposed schedules due to the non-receipt of permission from the Protected Area managers.

The reply of ZSI/MoEF indicated that ZSI had not prepared any action plan for monitoring of the faunal diversity of the country. This needs to be viewed in the light of the fact that ZSI is the sole subordinate of MoEF and national organisation to ensure compliance with the commitments of CBD in the area of zoological survey and was therefore required to plan and undertake this activity. Further, targets for survey were recommended keeping in view with the available expertise of ZSI. The reply of MoEF also needs to be viewed in the light of the fact that for many of the areas ZSI did not even initiate the survey.

Apart from its activities under regular plan budget, during 2005-12, ZSI undertook three projects funded by MoEF on monitoring of some selected species. Audit observed that none of the three projects were completed, as discussed below:

- ZSI took up a project titled 'Survey and monitoring of health of Coral Reefs in India' sanctioned by MoEF (February 2002) at a cost of ₹1.27 crore for a period of five years to be implemented by Andaman and Nicobar Research Centre, Port Blair (ANRC). The objectives of the project were to survey and monitor the coral reefs of India, investigate the diversity and distribution of coral, carry out studies on the coral reef ecosystem and to prepare a database/publish compendium on the corals of India. Although ZSI procured equipment during 2001-02 at a cost of ₹52.65 lakh, the work could not be continued further due to non-release of funds to ANRC by ZSI. The project was resumed in April 2009 after a gap of seven years and completed in May 2011 after incurring total expenditure of ₹70.99 lakh. Audit observed that though surveys were undertaken in various coral islands, the database/compendium was not published.

ANRC stated (October 2012) that a compendium was submitted (August 2010) to ZSI headquarters for publication followed by

submission of corrected proof in February 2011. MoEF added (March 2014) that six publications on different faunal groups were published between 2010 and 2012. Audit observed that only two of the six publications were relating to corals. The reply is silent on the status of studies and publication of the compendium relating to corals of India.

- ZSI took up (March 2008) a project titled 'Diversity and distribution of coral and their associated fauna of Rani Jhansi Marine National Park' sanctioned by MoEF at a cost of ₹15.05 lakh for period of three years to be implemented by ANRC. The objectives of the project were to carry out studies and continuous monitoring of coral reefs, prepare field guides and to carry out mapping of coral reefs using Geographic Information System. The project was commenced in April 2009 and closed one year before the scheduled year of completion after incurring expenditure of ₹7.51 lakh. The project completion report was not prepared as of October 2012.

Although MoEF stated (March 2014) that the project completion report was submitted by ZSI during the year 2012, the same was not found on records at ZSI. The reply is also silent on the status of preparation of field guides and mapping of coral reefs.

- In respect of another project titled 'GIS based mapping and analysis of ecological variable of reefs around the Little Andaman Island' sanctioned (March 2008) by MoEF for a period of two years at a cost of ₹21.92 lakh, ZSI stated (October 2012) that the project could not be initiated due to some technical problem. However, audit observed that ZSI has already incurred an expenditure of ₹14.96 lakh (March 2011) under the project.

MoEF accepted (March 2014) that the programme was dropped.

Thus, ZSI not only failed to prepare an action plan for monitoring of faunal diversity as per its revised mandate, it also could not complete specific projects undertaken in this regard.

#### 6.1.2.2 Taxonomic studies

One of the primary objectives of ZSI was to conduct taxonomic<sup>52</sup> studies of all faunal components collected. The activity was important as the name is the key to everything that is known about species, being the only link between the organisms and the various sets of data on their attributes and properties. Also, the health of ecosystems could not be monitored without recognising

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<sup>52</sup> *Taxonomy is the science of naming, describing and classifying organisms.*

the presence of individual organisms that are crucial for indication of ecological processes.

Audit observed that huge number of specimens which were collected during exploration/survey were awaiting identification, as discussed below.

### Shortfall in taxonomic description of animal specimens due to shortfall in capacity building of taxonomists

In the year 2005-06, ZSI had an opening balance of 1,11,750 specimens of which 18,033 were vertebrates and 93,717 were invertebrates. During 2005-11<sup>53</sup>, ZSI collected another pool of 8,951 vertebrates and 41,872 invertebrates. However, ZSI was able to taxonomically identify 54,904 specimens only, which was 34 *per cent* of the total specimens collected.

ZSI stated (August 2010) that the low rate of identification of the specimens was because taxonomists were never abundant in relation to the availability/abundance of animal species of varied groups.

Audit observed that the number of taxonomists working in ZSI was far below the sanctioned strength as detailed in Table 9.

**Table 9: Sanctioned and working strength of Taxonomists**

Year	Sanctioned Strength of Taxonomists	Number of Taxonomists available
31-03-2006	146	84
31-03-2007	136	83
31-03-2008	136	78
31-03-2009	136	80
31-03-2010	136	69
31-03-2011	136	75
31.03.2012	136	83

The basic desirable qualification for a taxonomist is a post graduate degree in zoology. However, an aspiring taxonomist has to be trained under an expert over a period of years, gaining experience in field surveys, studying museum specimens, literature and publication in scientific journals. Therefore, building capacity of specialised manpower to conduct taxonomic studies requires considerable investment in terms of time and training.

In view of the scarcity of taxonomists in relation to the availability/abundance of animal species of varied groups, audit examined

<sup>53</sup> Information for the year 2011-12 was not available.

the extent of action taken by ZSI to build its pool of taxonomists and found that:

- While reviewing the functioning of ZSI in 2001, a strategy was proposed for dealing with huge backlog on taxonomical studies which included deployment of scientists from headquarters and regional offices, identification of experts from Universities, engagement of retired scientists of ZSI and training of ZSI scientists abroad. Audit observed that ZSI did not take action on any of the above measures.

ZSI agreed (October 2012) that action on engagement of experts from Universities/Scientific institutions for taxonomic studies was yet to be initiated. ZSI also confirmed that none of the selected scientists were trained abroad.

It was seen that ZSI recruited 27 taxonomists during the last five years. Of the 27 taxonomists, 25 were recruited at the entry level for scientists i.e Scientist C. The number of taxonomists recruited was still insufficient to complete the work. The outlook was even more grim given the fact that ZSI did not depute any taxonomist for training.

- An analysis of the number of taxonomists available with ZSI with the number of specimens identified during the period 2005-11 revealed that on an average, one taxonomist cleared 117 samples during a year. The details are given in Table 10.

**Table 10: Number of specimens cleared by the taxonomists yearly from 2005-06 to 2010-11**

Year	Number of specimens identified	Number of Taxonomists available	Number of samples	Clearance during the year
2005-06	10,347	84	10,347	123
2006-07	10,089	83	10,089	122
2007-08	8,983	78	8,983	115
2008-09	8,482	80	8,482	106
2009-10	7,818	69	7,818	113
2010-11	9,185	75	9,185	122
Average number of specimens identified per Taxonomist per year			117	
Number of years required to complete the backlog of 1,07,669 specimens by available taxonomists working at the same rate			12	

With the accumulated backlog of 1,07,669 specimens remaining to be identified as of March 2011, there is clearly a mismatch between the number of taxonomists available even for completing the taxonomical studies on the material already collected by ZSI.

MoEF accepted (March 2014) that shortage of taxonomists in ZSI hampered the progress of the taxonomic work. MoEF added that the scientists of ZSI, apart from looking after their scientific work, were also doing the administrative work at different levels. MoEF further stated that the Ministry was governed by the decisions adopted by the Conference of the Parties in the CBD held in October 2012 and India's stand and commitment was within the boundary of the decision adopted. Scrutiny of the said document on 'Capacity-building Strategy for the Global Taxonomy Initiative' revealed that among the several year-wise actions envisaged, one course of action to be completed by MoEF by the end of 2013 was to carry out review of taxonomic needs and capacities at national, sub-regional and regional levels, set priorities to implement the Convention and prepare the Strategic Plan for Biodiversity 2011-2020.

MoEF however, remained silent about the status of action taken by MoEF/ZSI.

Thus, though ZSI was aware of the constraints of insufficient trained taxonomists to carry out the identification and description of faunal specimens, the action taken by it to address the issue was not commensurate.

**Recommendation 1:**

*ZSI may review its taxonomic needs and capacities at national, sub-regional and regional levels as envisaged in the Conference of the Parties in the CBD and make efforts to create sufficient capacities to overcome constraints and clear the backlog in taxonomic identification of species.*

**6.1.2.3 Review of status of threatened and endemic species**

A primary objective of ZSI was to conduct periodical status surveys on species which have been identified as endangered. The status survey is undertaken in order to ascertain the status of a particular animal in terms of whether it is extinct, endangered, threatened or stable. After completion of status survey, the results are published in Red Data Book (RDB). RDB gives details of species that are considered to be at risk of extinction. They provide information on the population of the species concerned with an indication of the level of threat (e.g. threatened, critically endangered, etc.). Besides describing the details of the species, the account also includes a section on conservation

measures suggested, which comprises recommendations on the action<sup>54</sup> required to be taken in order to improve the animal's prospects of survival. The proposals are primarily concerned with the protection of the animal and its habitat and elimination of threats to its survival.

The RDB of ZSI was last updated during 1994. Audit observed that periodicity for carrying out the said status survey has not been specified by ZSI. The position of threatened species during the last two years is as shown in Table 11.

**Table 11: Details of number of threatened species**

Category	Number of species identified as threatened as on 31.03.11	Number of species identified as threatened as on 31.03.12	Increase (in per cent)
Mammals	96	123	28
Birds	57	136	139
Reptiles	25	35	40
Amphibians	66	74	12
Fish	40	65	63
<b>Total</b>			
Vertebrates	284	433	52
Invertebrates	111	Not available	

Source: Data provided by ZSI

It can be seen from the above table that total number of threatened species (vertebrates) in India increased from 284 to 433 during 2011-12. Against this, audit observed that RDB carried accounts of 153 species (35 per cent). As such the activities of ZSI in conducting status surveys of endangered species were insignificant.

After redefining its objectives in 2001, ZSI fixed a target of status survey of 10 species to be completed by 2012. The status was as given in Table 12.

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<sup>54</sup> (1) Legal action: (a) to promote new legislation or make better use of powers under existing legislation, (b) to promote a special international convention, (c) to improve law enforcement in regard to conservation areas; (2) to declare new conservation areas; (3) to establish a continuing scientific action plan; (4) to undertake educational/public awareness programmes; (5) to encourage existing conservation efforts; (6) to re-establish a species by translocation/release of captive bred stock or by increasing the food supply or living space by habitat management; and (7) to control feral/hybrid animals.

**Table 12: Status of survey of targeted species**

Sl. No	Name of the endangered species	Scheduled date for duration of survey	Scheduled date for completion of Study	Scheduled date for publication	Status	Audit observation
1.	Birgus Latro (Crab)	1999-03	2005	2007	Not available	Survey undertaken during 1999-05. A publication was brought out in 2005.
2.	Snow Leopard	2003-06	2008	2010	Endangered	Survey not initiated.
3.	Black necked Crane	2003-06	2008	2010	Critical	Survey not initiated.
4.	Coral Reef (Nicobar Island)	2003-06	2008	2010	Not available	Survey undertaken during 2006-09. Publication not brought out.
5.	King Crab	2003-06	2008	2010	Not available	Survey not initiated.
6.	Indian Wild Ass	2004-06	2008	2010	Endangered	Survey not initiated.
7.	Swamp Deer	2006-10	2012	2014	Vulnerable	Survey undertaken during 2006-07. Publication not brought out.
8.	Hangul Kashmir Stag	2010-12	2014	2016	Endangered	Survey not initiated.
9.	Hoolock Gibbon	2004-06	2008	2010	Endangered	Survey not initiated.
10.	Nicobar Megapode, A&N Island	2010-12	2014	2016	Vulnerable	Survey not initiated.

It can be seen from the table that:

- Status survey was not initiated on seven of 10 species.
- In respect of remaining three species, though survey was undertaken, publication was brought out in respect of only one species as of March 2014.

Thus, ZSI failed to achieve the targets set for status survey of endangered species. Instead, Audit observed that ZSI undertook status survey of eight<sup>55</sup> other species during 2001 to 2012 and brought out status reports during the same period. However species accounts of none of the species surveyed was incorporated in the RDB.

ZSI stated (July 2011) that status survey of fauna needed to be undertaken only when a necessity for it emanated and was not a routine job that could be undertaken for all the animal groups every year, since the primary job of ZSI was to survey and document the faunal resources of the areas surveyed. MoEF added (March 2014) that the programmes could not be initiated due to lack of expertise and logistics. With regard to updating of RDB, MoEF stated that ZSI was contributing to the international collaborative effort of global threat assessment of species and provided data for threat assessment of species from India.

The reply of ZSI needs to be viewed in the context that periodical review of the status of threatened and endemic species was a mandate of ZSI. As the reply of MoEF was silent on the status of updating of RDB of ZSI, the fact remained that RDB was last updated in 1994, i.e. 20 years ago. This, coupled with the increasing numbers of threatened species in the country made the review of these species more significant.

***Recommendation 2:***

*ZSI may conduct periodic status survey of threatened and endemic species according to the targets fixed. The status of the threatened species in the Red Data Book may be updated urgently so that conservation efforts can be made more effective.*

**6.1.3 Conclusion**

With the promulgation of the Biological Diversity Act, 2002, MoEF redefined the objectives of ZSI and prepared a comprehensive strategic plan covering the period from 1993 to 2020, for exploration, survey, inventorisation and monitoring of faunal diversity and their documentation. Audit observed that the activities of ZSI in fulfilling the revised mandate were poorly executed. ZSI did not take adequate action to inventorise/identify faunal resources as envisaged and was lagging behind in the targets set for survey and publication of the faunal accounts in the selected States, ecosystems and

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<sup>55</sup> (i) Western Tragopan (ii) Wroughton's Free Tailed Bat (iii) Himalayan Marmot (iv) Edible Nest Swiftlet (v) Himalayan Salamander (vi) Blackbuck (vii) Trochus Niloticus and(viii) Kiang

protected areas. The recommendations of the Programme Advisory Committee for conducting extensive surveys were not adhered to in eight States/UTs. There was no standard methodology either for carrying out surveys or for assessment of the survey reports. As such survey work was practically left at the discretion of the scientists concerned, without any oversight. Audit further observed that ZSI had not commenced work as per revised mandate in the area of monitoring of faunal diversity. Species wise and area wise monitoring of faunal diversity was not done and no action plan had been prepared in this regard.

ZSI was unable to build capacity in terms of trained manpower for carrying out Taxonomic studies. As of March 2012, only 61 *per cent* of the total sanctioned strength of Taxonomists was available. As a result, ZSI was unable to discharge completely its mandate of carrying out taxonomic studies. Of the total number of species collected during the period, only 34 per cent was taxonomically identified.

Training and experience were recognised as important factors in the development of scientists specialising in taxonomy studies. Of the 83 Taxonomists employed in ZSI, 27 were recruited during the last five years. However, none of the scientists were sent on training.

It was also noticed that very limited work was done on the review of status of threatened and endemic species. Status surveys had not been initiated in seven out of 10 targeted species.

Thus ZSI was lagging behind in meeting its targets oriented towards fulfilling the country's commitments under the Convention of Biological Diversity. The pace of work was slow and not commensurate with the volume of the back log involved.

## **6.2 Inordinate delay in setting up of National Botanic Garden**

**Ministry of Environment and Forests failed to enter into a Memorandum of Understanding with NOIDA authority for development of National Botanic Garden on land allotted to it by the latter. Consequently, after incurring expenditure of ₹11.54 crore on development of the National Botanic Garden, status of ownership of the land remained unresolved even after 17 years and the envisaged objective of setting up of National Botanic Garden remained unachieved as of March 2014.**

Ministry of Environment and Forests (MoEF) initiated a proposal to establish a National Botanic Garden (NBG) in the Delhi region during the Seventh Five

Year Plan Period<sup>56</sup>. The objective of the project was to establish a botanic garden of international standards for conservation and propagation of important economic and endangered/threatened plants of the country and serve as a centre of excellence for research and training. The project was however, not implemented due to non-availability of land. Subsequently, NOIDA<sup>57</sup> authority, Government of Uttar Pradesh offered (March 1997) land measuring approximately 200 acres to MoEF for establishment of the garden subject to the understanding that if the NBG did not take shape within a period of five years from the date of possession, the land would automatically revert back to NOIDA authority with whatever construction thereon without any reimbursement of construction/maintenance works undertaken in the intervening period by MoEF.

The proposal was submitted to Expenditure Finance Committee (EFC) which approved (July 2000) the project at an outlay of ₹38.88 crore. Simultaneously, MoEF tried to obtain approval for setting up NBG as an autonomous institution. Although the project was approved by the Planning Commission, it was declined (July 2001) by Ministry of Finance (MoF) on the ground that this would lead to proliferation of autonomous bodies having financial connotations such as creation of posts, recurring costs, etc.

Consequently, MoEF submitted (January 2002) a modified proposal to the EFC to set up NBG by way of a project executed by Botanical Survey of India (BSI), a subordinate office under MoEF. EFC approved (January 2002) the modified proposal at a total outlay of ₹37.78 crore to be implemented during Ninth and Tenth Five Year Plan Period<sup>58</sup>.

In the meantime, NOIDA Authority cancelled (June 2001) the allotment of land due to lack of response from MoEF. Subsequently, during a meeting (August 2001), NOIDA Authority indicated its interest in participating in the project so as to continue upkeep/recurring expenditure on the project with existing or new staff as mutually agreed. It was also agreed that a Memorandum of Understanding (MOU) would be drawn up and signed by both parties.

Audit observed that there was no significant progress in setting up of the botanic garden during 2002 to 2006 and none of the planned works<sup>59</sup> except construction of boundary wall, roads, sewers (at an expenditure of ₹55.56 lakh) were carried out. Subsequently, NOIDA authority again cancelled (July

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<sup>56</sup> 1985 to 1990

<sup>57</sup> New Okhla Industrial Development Authority

<sup>58</sup> Ninth Five Year Plan Period: 1997 to 2002 and Tenth Five Year Plan Period: 2002 to 2007

<sup>59</sup> Construction of office-cum-laboratory building, conservatories, aquatic bodies and storm water drainage, water supply distribution, overhead tank, pump house, etc.

2006) allotment of land due to insufficient development of infrastructure even after more than nine years from allotment. MoEF constituted (September 2006) Multidisciplinary Expert Committee (MDEC) comprising of senior officers of MoEF and NOIDA authority to oversee the implementation of the activities relating to NBG. Audit observed that the MDEC did not meet even once since its constitution in September 2006.



**Undeveloped site of National Botanic Garden**

In view of urgency expressed by MoEF, NOIDA Authority (September 2007) allowed the Ministry to start the physical work for development of the botanic garden. Of the total outlay of ₹37.78 crore, expenditure of ₹11.54 crore was incurred on the project up to 2013 towards capital and recurring expenses.

Audit further observed that the draft MoU was finalised by MoEF only in September 2010. The draft MoU proposed development of Botanic Garden by way of an autonomous Institute jointly managed by MoEF and NOIDA authority. The MoU was, however, not finalised as of September 2013 and the title of the land remained unclear. Further, the proposal for functioning of NBG as an autonomous institution had already been rejected before by the Ministry of Finance.

Thus, failure to resolve the issue of ownership of land or finalise MoU with NOIDA authority even 12 years after the expression of interest by the latter resulted in a situation where title of the land allotted to MoEF remained unclear.

MoEF accepted (September 2013) that pending finalisation of MoU, there was no clarity on the status of land ownership. MoEF added (April 2014) that draft MoU was sent to NOIDA in 2011 but no affirmative response had since been received. MoEF further stated that since land allocation was cancelled by NOIDA, no major development could be initiated by MDEC.



**Entrance of National Botanic Garden**

The reply may be viewed in the context that regular meetings of MDEC, which was composed of senior officers of both parties, might have facilitated

resolution of the disputed title of the land and finalising of the MoU. Further, the fact remained that after incurring expenditure of ₹11.54 crore, title of the land remained uncertain and the objective of development of a National Botanic Garden of international standards, for promoting conservation of threatened plants of representative ecosystems in the country remained unachieved as of March 2014.

### **6.3 Wasteful expenditure on hiring of office accommodation**

**Ministry of Environment and Forests failed to utilise 13 out of 17 rooms in hired premises for nearly 29 months, thereby rendering expenditure of ₹91.12 lakh incurred on renovation and rent largely wasteful, besides incurring a liability of ₹4.43 crore towards outstanding dues of rent and interest.**

The office of Ministry of Environment and Forests (MoEF) is located at Paryavaran Bhawan, CGO complex, New Delhi. MoEF proposed (April 2009) to hire additional office space on the grounds of inadequate space for officers and staff, increase in number of posts in the Ministry and extensive damage caused due to a fire accident. After obtaining a 'non-availability certificate' from the Directorate of Estates (June 2009), MoEF hired (July 2009) 9,755 sq. ft. of office space on 6<sup>th</sup> and 7<sup>th</sup> floors of Palika Bhawan, New Delhi from New Delhi Municipal Council (NDMC) at a monthly rent of ₹100 per sq. ft. plus five *per cent* sanitation charges. As per the terms and conditions of allotment, MoEF was to pay an amount of ₹98.52 lakh, being equivalent to two months of advance licence fee, two months of sanitation charges and eight months of licence fee as security deposit. Accordingly, MoEF issued (July 2009) sanction for incurring an expenditure of ₹98.52 lakh and released ₹50 lakh to NDMC.

MoEF also requested (August 2009) NDMC to undertake renovation of the office space allotted to MoEF at Palika Bhawan. Based on the estimate submitted (November 2009) by NDMC, MoEF issued (February 2010) administrative approval for the renovation at a cost of ₹1.31 crore and handed over (July 2010) the space to NDMC. Between June 2010 and October 2010, MoEF released an amount of ₹1.37 crore to NDMC towards renovation work as well as for installation of furniture and fixtures.

The renovation was completed by NDMC and MoEF took possession (April 2011) of the renovated office space comprising of 17 rooms. However, of the 17 rooms, only four rooms were occupied by two sections of MoEF and the remaining were kept vacant. Thereafter, MoEF directed (May 2011) National

Afforestation and Eco-Development Board (NAEB)<sup>60</sup> to relocate its office to the new premises, but this was not done.

Audit observed that MoEF did not prepare a specific plan for moving its divisions/sections to the new premises either at the time of submitting the proposal for hiring of space or while finalising the premises at Palika Bhawan. Though these premises were hired solely for the purpose of de-congesting its existing office, MoEF was unable to allot the 13 vacant rooms to any of its other divisions/sections.

Subsequently, MoEF was allotted (November 2011) office space by the Directorate of Estates at CGO complex and decided (December 2012) to vacate the office space at Palika Bhawan. MoEF also proposed to leave the unused furniture and fixtures at Palika Bhawan and requested NDMC to adjust the cost of ₹1.37 crore against the dues payable by MoEF towards licence fee and other charges. However, NDMC did not accept the proposal of MoEF and requested (July 2013) MoEF to clear the outstanding dues of ₹4.43 crore (including ₹3.83 crore as arrears of licence fee and ₹60 lakh towards interest).



**Unutilised rooms in Palika Bhawan**



**Unutilised furnished conference hall**

In view of the refusal of NDMC to retain the furniture and fixtures, MoEF formally vacated (October 2013) the premises and moved the furniture, work stations etc. from Palika Bhawan to the additional office space allotted to it at CGO complex (after November 2012) and to a new building of MoEF in Jor Bagh, New Delhi (September 2013).

Thus, the rented office accommodation at Palika Bhawan was not fully utilised by MoEF and remained by and large unoccupied for 29 months (April 2011 to September 2013). Though the exact details of items shifted and their value was not furnished by MoEF, based on an assessment made by MoEF (December 2009) Audit observed that of the total work executed at the accommodation at Palika Bhawan, work done to the extent of ₹41.12 lakh would be non-recoverable. Therefore, failure to optimally utilise hired

<sup>60</sup> A unit under MoEF

accommodation rendered expenditure of ₹91.12<sup>61</sup> lakh incurred on renovation and rent as largely wasteful, as only four rooms were occupied out of 17 rooms. MoEF was also liable to pay the amount of ₹4.43 crore as outstanding dues to NDMC.

MoEF stated (April 2014) that NAEB could not be shifted to Palika Bhawan due to security concerns of female staff. MoEF added that non-shifting of NAEB resulted in savings towards cost of shifting from NDMC premises. The reply needs to be viewed in the context that several Government offices like Central Plan Scheme Monitoring System under Ministry of Finance, IRCON International Limited, a company under Ministry of Railways and NDMC's Office of the Sub-Registrar Birth and Death were already functioning from Palika Bhawan. The reply also corroborates audit observation that MoEF did not have a definite plan for occupying the premises at Palika Bhawan and all its actions towards shifting of its offices were circumstantial.

Thus, lack of advance planning in allotment of rented office accommodation and failure to optimally utilise the same resulted in wasteful expenditure of ₹91.12 lakh and additional liability of ₹4.43 crore on account of outstanding dues to NDMC.

## **6.4 Non-establishment of model facilities for management of Municipal Solid Wastes**

**Model facilities for disposal of solid wastes in 10 states selected under a scheme implemented by Central Pollution Control Board (CPCB) were not set up even after 10 years of initiation of the projects and after incurring expenditure of ₹24.80 crore. There was inadequate monitoring of projects by CPCB and State Pollution Control Boards leading to incomplete work, foreclosure of projects, wasteful expenditure, idling of facilities created and unspent balances remaining idle under the projects. As a result, primary objective of assisting the states and urban local bodies to follow provisions of Municipal Solid Wastes Rules of the Ministry of Environment and Forests remained unachieved.**

### **6.4.1 Introduction**

Ministry of Environment and Forests (MoEF) notified (September 2000) Municipal Solid Wastes (Management and Handling) Rules, 2000 (MSW Rules) which were made applicable to each and every town and to all municipal authorities. As per provisions of MSW Rules, local bodies are required to take following actions:

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<sup>61</sup> ₹41.12 lakh plus ₹50 lakh paid towards rent.

- Improvement of procedure for the collection of waste and setting up of waste storage facilities to meet specified criteria;
- Transportation of waste in accordance with stipulated guidelines;
- Setting up of waste processing facilities (such as compost plants, energy recovery etc.); and
- Improvement of existing waste dumping sites and identification of new sites for waste disposal.

Central Pollution Control Board (CPCB)<sup>62</sup> a statutory organisation under MoEF, had been providing inputs to various State Pollution Control Boards (SPCB) for collaborating with local bodies for management of waste as per MSW Rules. However, it was felt that majority of local bodies were not prepared and needed assistance to follow provisions of the rules. Hence, it was proposed to prepare a scheme under which a model facility could be set up in any one city/ town in each State. Such model facility would serve as a demonstration plant for other local bodies which could further replicate the same. CPCB envisaged that the proposal for setting up these model facilities would facilitate implementation of MSW Rules.

#### 6.4.1.1 Objectives and scope of the project

During March 2003 to February 2007, CPCB sanctioned projects for setting up of Model facilities for demonstration of management of Municipal Solid Wastes for implementation of MSW Rules in 10 States/Union Territories<sup>63</sup>. The objectives of the project were:

- To set up model facilities on demonstration basis for implementation of MSW Rules, 2000;
- To document the entire scheme from implementation to its commissioning and assessment of actual performance;
- To disseminate information to other local bodies in states and at national level; and

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<sup>62</sup> The Central Pollution Control Board (CPCB) was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974 and entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981. It serves as a field formation and also provides technical services to MoEF under the provisions of the Environment (Protection) Act, 1986. The principal functions of the CPCB are (i) to promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution, and (ii) to improve the quality of air and to prevent, control or abate air pollution in the country.

<sup>63</sup> Andhra Pradesh, Arunachal Pradesh, Chandigarh UT, Himachal Pradesh, Maharashtra, Nagaland, Sikkim, Tamil Nadu, Tripura and West Bengal.

- To build up capabilities of local bodies, including management of internal resources, which were expected to improve with better service delivery.

The projects were to be completed within 36 months from date of release of first instalment of funds. The scope of each project was as follows:

Phase-I:

- Undertaking and completion of activities relating to collection, segregation, storage and transportation of MSW and intra city activity;
- Setting up of an effective surveillance squad for MSW management;

Phase-II:

- Setting up of waste processing plant i.e. composting/vermi-composting or any other appropriate technology, of appropriate capacity, including preparation of design, drawing and specification for waste processing plant and its operation and maintenance;
- Development of landfill site(s), including getting detailed engineering site investigation, design, drawing, specification for development of landfill for disposal of rejects from the processing plant and silt or for disposal of mixed wastes, till the time the processing plant becomes operational; and
- Public participation in MSW management through mass awareness.

#### **6.4.1.2 Role of each Agency**

For execution of these projects, CPCB entered into Memorandum of Understanding (MoU) with concerned SPCBs/ Pollution Control Committees (PCCs) and Urban Local Bodies/Municipalities (ULBs). The projects were to be executed by the concerned ULBs. CPCB was to share cost of the projects with States to the extent of 50 *per cent* and upto 90 *per cent* in the case of North Eastern States and Himachal Pradesh. Funds were to be released by CPCB to SPCBs/PCCs, which were responsible for supervision and further release of funds to respective ULBs. SPCBs/PCCs were to obtain quarterly progress reports on activities performed during the period and forward the same to CPCB. SPCBs/PCCs were also required to constitute a monitoring committee comprising of members of ULB, SPCBs/PCCs as well as CPCB for reviewing progress of work done under the projects.

### 6.4.2 Audit findings

CPCB released (between March 2003 to February 2006) an amount of ₹14.80 crore to the SPCBs and total expenditure of ₹24.80 crore (including share of States) was incurred under the scheme. Audit findings on achievement of objectives of the project, fund management and monitoring are discussed in the succeeding paragraphs.

#### 6.4.2.1 Non-commissioning of model facilities

The objective of the projects was to demonstrate implementation of MSW Rules in an integrated manner by creation of model facilities which could be further replicated. It was however seen in audit that as of July 2014, model facilities were not commissioned in any of the 10 selected States and as a result the objectives of the project could not be achieved. The status of establishment of model facilities under each project is shown in Table 13.

**Table 13: Status of establishment of model facilities as of July 2014**

Sl. No.	City	Other stakeholders in MoU	Date of sanction of project	Targeted date of completion	Sanctioned cost (₹ crore)	Funds released by CPCB (₹ crore)	Expenditure incurred (₹ crore)
1.	<b>ANDHRA PRADESH</b>						
	Suryapet	APPCB <sup>64</sup> / SM <sup>65</sup>	Sep 2005	Sep 2007	2.90	0.36	0.72
	Phase I was completed. Though Municipality had established a vermi-compost plant, work for development of landfill site was not initiated.						
2.	<b>ARUNACHAL PRADESH</b>						
	Itanagar and Naharlagun	APSPCB <sup>66</sup> / APUDA <sup>67</sup>	January 2006	January 2009	2.23	0.60	0.66
	Phase I was partially completed. Works relating to setting up of waste processing plant and development of landfill site were not undertaken. The project was closed (January 2011).						

<sup>64</sup> Andhra Pradesh Pollution Control Board

<sup>65</sup> Suryapet Municipality

<sup>66</sup> Arunachal Pradesh State Pollution Control Board

<sup>67</sup> Arunachal Pradesh Urban Development Agency

<b>3.</b>	<b>CHANDIGARH</b>						
	Chandigarh	CPCC <sup>68</sup> / MCC <sup>69</sup>	March 2003	April 2008	13.10	4.18	9.44
Model facility was only partially created. Out of 80 Sahaj Safai Kendras to be constructed, only 35 were constructed. Although landfill site was developed, waste dumping was not commenced.							
<b>4.</b>	<b>HIMACHAL PRADESH</b>						
	Mandi	HPSPCB <sup>70</sup> / MCM <sup>71</sup>	Sep 2005	Sep 2008	1.09	0.98	1.10
Phase I of the project was completed; Phase II could not be taken up.							
<b>5.</b>	<b>MAHARASHTRA</b>						
	Jalna	MPCB <sup>72</sup> / JMC <sup>73</sup>	Jan 2006	Jan 2008	3.00	0.50	0.59
Waste processing plant was set up, but there was no provision for electricity and water supply. Work of landfill development was taken up under another scheme viz. Jawaharlal Nehru National Urban Mission (JNNURM), however status of completion of the same was not available.							
<b>6.</b>	<b>NAGALAND</b>						
	Kohima	NPCB <sup>74</sup> / KMC <sup>75</sup>	Sep 2005	Sep 2008	1.35	0.75	1.37
Phase I of the project was completed; however, development of landfill was not taken up. Work of Phase II was taken up under another scheme through Asian Development Bank (ADB) funding, however status of the same was not available.							
<b>7.</b>	<b>SIKKIM</b>						
	Cluster of towns in South and West Districts, Sikkim	SSPCB <sup>76</sup> / UD&HD <sup>77</sup>	February 2006	February 2009	2.50	1.71	1.96
Phase I was completed. Phase II was not taken up. It was suggested (February 2013) to stop the project, however, further action taken was not available.							

<sup>68</sup> Chandigarh Pollution Control Committee

<sup>69</sup> Municipal Corporation, Chandigarh

<sup>70</sup> Himachal Pradesh State Pollution Control Board

<sup>71</sup> Municipal Council, Mandi

<sup>72</sup> Maharashtra Pollution Control Board

<sup>73</sup> Jalna Municipal Council

<sup>74</sup> Nagaland Pollution Control Board

<sup>75</sup> Kohima Municipal Council

<sup>76</sup> Sikkim State Pollution Control Board

<sup>77</sup> Department of Urban Development and Housing, Government of Sikkim

<b>8.</b>	<b>TAMIL NADU</b>						
	Udumalpet	TNPCB <sup>78</sup> / UM <sup>79</sup>	Dec 2004	Dec 2006	1.50	0.70	1.6
Waste processing facility was installed. However, waste segregation is not being done. Landfill facility was not developed and surveillance squad for MSW management was also not constituted.							
<b>9.</b>	<b>TRIPURA</b>						
	Agartala	TSPCB <sup>80</sup> / AMC <sup>81</sup>	February 2006	February 2009	3.0	2.70	3.05
Phase-I of the project was taken up. However, items procured such as dumper placer dustbins and mechanical road sweeper were not utilised. Work relating to setting up of waste processing plant and development of landfill site were not taken up, as CPCB did not support Phase II of the project due to fund constraint.							
<b>10.</b>	<b>WEST BENGAL</b>						
	North Dum Dum and New Barrackpore	WBPCB <sup>82</sup> / KMDA <sup>83</sup>	Mar 2003	Mar 2009	5.05	2.33	4.31
Both Phase-I and Phase-II were completed and the model facility was inaugurated in February 2009. However, the project was discontinued soon after inauguration due to agitation by the locals in which the entire facility was destroyed.							
<b>Total expenditure incurred</b>							<b>24.80</b>

It would be seen from above table that model facility was created under only one project. However it could not be commissioned due to local disturbances. In nine projects, work was only partially completed. Of these, in seven projects, Phase I was completed, whereas in two projects, Phase I was partially completed. Though Phase II was taken up in only five projects, it could not be completed in any project.

#### 6.4.2.2 Poor monitoring of projects

According to MoUs entered by CPCB, State PCBs were to obtain quarterly progress reports on activities performed during the period and forward the same to CPCB. State PCBs were also required to constitute a Monitoring Committee (MC) comprising of members of ULB, SPCB as well as CPCB for reviewing progress of work done under the projects. The periodicity of monitoring was however, not specified in the MoUs. Audit observed lapses in monitoring of implementation of projects which are discussed in the succeeding paragraphs.

<sup>78</sup> Tamil Nadu Pollution Control Board

<sup>79</sup> Udumalpet Municipality

<sup>80</sup> Tripura State Pollution Control Board

<sup>81</sup> Agartala Municipal Council

<sup>82</sup> West Bengal Pollution Control Board

<sup>83</sup> Kolkata Metropolitan Development Authority

**(i) Andhra Pradesh**

CPCB released (September 2005) funds of ₹36.20 lakh to Andhra Pradesh PCB. Though Suryapet Municipal Council (SMC) had established a vermi-compost plant, work for development of landfill site was not initiated as of July 2014. Audit observed that CPCB entered (February 2008) into an agreement with National Buildings Construction Corporation Limited (NBCC) for preparation of Detailed Project Report (DPR) for construction of landfill facility at Suryapet and Mandi, Himachal Pradesh and released (September 2008) an advance of ₹10 lakh to NBCC without obtaining concurrence of APPCB and SMC. NBCC was yet to submit the said DPR as of July 2014, even after lapse of nearly six years, resulting in blocking of funds of ₹10 lakh as well as holding up of work of development of landfill.

Audit further observed that MC for reviewing the progress of work was not constituted. Though sanctioned duration of the project expired in September 2007, it was continued without obtaining formal extension. Subsequently, APPCB informed (August 2012) CPCB that the project had stagnated from April 2008.

CPCB stated (July 2014) that APPCB had convened a meeting (September 2013) with SMC and CPCB, wherein it was decided that SMC would conclude the project after submitting a final status report. The final report was awaited as of July 2014. The reply is however, silent on the status of Phase II.

**(ii) Arunachal Pradesh**

CPCB released (January 2006) the first instalment of ₹60 lakh to APSPCB. Audit observed that even Phase I of the project was only partially completed. During a site inspection (April 2007) carried out by CPCB, it was observed that progress of the project was very disappointing and coordination and supervision work of APSPCB was found seriously lacking. Audit observed that CPCB did not carry out any further inspection of the project. MC constituted for reviewing the project also met for the first time only in November 2010, after more than four years of sanction of project. In the said meeting of MC, it was agreed that project should be closed considering all factors like cost escalation, time over run, etc. It was also revealed that a similar project on compost plant had already been established in Itanagar under JNNURM scheme. Consequently, CPCB cancelled (January 2011) the project.

CPCB stated (July 2014) that the project was reviewed with Arunachal Pradesh Board in June 2014 and it was decided that although CPCB had withdrawn the project, APSPCB shall ensure implementation of the MSW Rules in Itanagar and Naharlagun. The fact remained that CPCB failed to

effectively monitor the project and remain abreast of the developments under the project so as to make timely and meaningful interventions.

### (iii) Chandigarh UT

CPCB released ₹1.58 crore (three equal instalments of ₹52.56 lakh in April 2003, April 2004 and April 2007) to CPCC under Phase I of the project and ₹2.60 crore (two equal instalments of ₹1.30 crore in April 2007 and September 2008) under Phase II. Though Phase I of the project was originally scheduled to be completed by October 2004, it was extended from time to time up to March 2007. Phase II of the project commenced in April 2007 with scheduled completion in April 2008. However it was not completed on time and was continued thereafter without formal extension.



Stagnant water in landfill site in Chandigarh

Audit observed that model facility was only partially created. Out of 80 Sahaj Safai Kendras to be constructed, only 35 were constructed. Audit further observed that progress of the project was last discussed by the MC in January 2008. Subsequently, CPCB conducted on site inspection of the facility (March 2012) in which it was

found that though landfill site was developed, waste dumping was yet to be commenced. Unspent balance of ₹14.41 lakh was also not refunded by CPCC as of July 2014.

CPCB stated (July 2014) that it had reviewed the project in June 2013 and May 2014 and asked CPCC to prepare documentation on the project and submit the same within a month. CPCB also stated that CPCC had agreed to return the unspent amount after deducting the documentation charge of ₹65,000. The reply is however silent on the status of creation of the model facility and utilisation of landfill.

### (iv) Himachal Pradesh

CPCB released ₹97.87 lakh in three instalments of ₹25 lakh (September 2005), ₹37 lakh (June 2007) and ₹35.87 lakh (August 2008) to HPSPCB under the project. The sanctioned duration of the project was upto September 2008 but project was extended upto June 2010. Audit observed that though Phase I of the project was completed (March 2011), Phase II could not be taken up due to non-finalisation of MoU with NBCC as discussed in (i) above.

CPCB stated (July 2014) that MoU for Phase-II had been signed and sanctioning of funds would be considered after receipt of the required environmental clearance and consent to establish the facility.

The fact remained that the project was not completed even after nearly nine years of sanction.

#### **(v) Maharashtra**

CPCB released (January 2006) the first instalment of ₹50 lakh to MPCB. The project was originally scheduled to be completed by January 2008, but was extended upto March 2009. However work was not completed even in the extended duration and continued further without formal extension. CPCB, MPCB and Jalna Municipal Council conducted (June 2011) joint inspection of the site and observed that waste processing plant was completed, but there was no provision for electricity and water supply. Although CPCB reviewed the project (June 2013 and May 2014), there was no further progress in the project.

CPCB stated (July 2014) that works of developing landfill was undertaken under JNNURM scheme. However, status of the same was not intimated. Thus, CPCB remained unaware of the progress of the project.



**Waste processing facility in Jalna, Maharashtra**

#### **(vi) Nagaland**

CPCB released ₹75 lakh in two instalments of ₹30 lakh (September 2005) and ₹45 lakh (July 2006). NPCB had to constitute MC headed by the Chairman of NPCB, immediately on receipt of first instalment from CPCB for reviewing the progress of work done on regular basis. Though NPCB constituted MC in October 2005, it was observed that the committee never met. Further, the

sanctioned duration of the project expired in September 2008 but the project was not completed and continued without any formal extension.

Audit observed that Phase I of the project was completed however, development of landfill was not taken up as the project was transferred to another MSW project being implemented through funding by Asian Development Bank (ADB). Audit further observed that CPCB was unaware of transfer of the project. Although CPCB was a member of MC, being one of the primary stakeholders in the project, it did not ensure that MC meetings were held. Consequently, CPCB failed to keep itself apprised of the developments under the project.

CPCB stated (July 2014) that the project was concluded in view of ADB funding. The reply was silent on the status of the ADB funded project.

#### **(vii) Sikkim**

CPCB released ₹1.71 crore in two instalments of ₹60 lakh (February 2006) and ₹1.11 crore (April 2010). Phase I of the project was completed. CPCB received UCs for the amounts released in January 2010 and May 2011 respectively.

The zonal office of CPCB at Shillong was to undertake field visit once in two months for monitoring the progress of work done. Audit observed that site inspection was carried out only five times between August 2007 and February 2013. During site inspection conducted (April 2012 and February 2013) it was found that both waste processing and landfill facilities were not developed. The Sikkim Government also did not have any plans to procure, install and operate a waste processing facility. Further, MC constituted for the project also met for the first time only in February 2013. In the meeting it was suggested that to avoid wastage of central funds, the project may be stopped immediately.

CPCB stated (July 2014) that review meeting was convened in May 2014 but Sikkim Board did not turn up for the same. Thus, while objectives of the project remained unfulfilled, inspite of receiving UCs, CPCB remained unaware of the actual utilisation of funds provided by it. The status of the project was also not available as of July 2014.

#### **(viii) Tamil Nadu**

CPCB released funds of ₹70 lakh to Udumalpet Municipality (UM) in two instalments between December 2004 and November 2007. Audit observed that Utilisation Certificate (UC) for the first instalment was received after

delay of 18 months. UC for the second instalment was not furnished by UM to CPCB. As a result, details of expenditure incurred and unspent balance, if any, were not available with CPCB.

Sanctioned duration of the project expired in December 2006. However, CPCB extended the project duration till September 2008. Audit observed that the project was not completed within the extended period and was continued thereafter without obtaining formal extension. Subsequently, TNPCB informed (June 2012) CPCB that though waste processing facility had been installed, waste segregation was not being done. Landfill facility was also not developed and surveillance squad for MSW management was also not constituted. Thus, the objectives of the project were not achieved.

TNPCB was to constitute MC headed by its Chairman immediately on receipt of first instalment from CPCB for reviewing the progress of work done on regular basis. Audit further observed that MC was not constituted.

CPCB stated (July 2014) that it had invited TNPCB in June 2013 and May 2014 for reviewing the project but response was not received. The reply indicated that CPCB was unaware of the status of the project for over two years. CPCB also did not, in the meantime, conduct a site inspection on its own to ascertain the status of activities under the project.

#### **(ix) Tripura**

CPCB released ₹2.70 crore in three instalments of ₹60 lakh (February 2006), ₹1.05 crore (August 2007) and ₹1.05 crore (November 2009) to TSPCB. The sanctioned duration of the project expired in February 2009. It was seen that Phase-I of the project was completed. Though CPCB approved (December 2008) Phase II of the project at a total cost of ₹9.13 crore, it eventually did not support Phase II due to funds constraint. As such works relating to setting up of waste processing plant and development of landfill site were not taken up.

As per MoU, Zonal office of CPCB at Shillong was to undertake field visit once in two months for monitoring the progress of work done. Audit observed that CPCB inspected the project only in March 2012. It was also observed that items procured by Agartala Municipal Council such as dumper placer dustbins and mechanical road sweeper were not utilised.

CPCB stated (July 2014) that the project was reviewed in May 2014 and it was decided that TSPCB would prepare the project completion report and forward to CPCB within a month. The reply was silent on the action being taken for utilisation of the items procured under Phase I of the project.



**Dumper placer dustbins lying abandoned**

**Mechanical Road Sweeper**

#### **(x) West Bengal**

CPCB released ₹95.65 lakh (₹47.83 lakh in April 2003, ₹23.91 lakh in June 2004 and ₹23.91 lakh in August 2005) to WBPCB under Phase I of the project and ₹1.37 crore (₹65 lakh in March 2007 and ₹72 lakh in July 2008) under Phase II. The model facility was completed in February 2009.

Apart from monitoring the progress of the project, performance of the created facility was also to be reviewed over a specified period of time by WBPCB and both the Municipalities. Audit observed that after completion of Phase I, progress of the project was reviewed (November 2006). However, the next meeting of MC was held only three years later (June 2009) to review progress of Phase II. In the said meeting, it was suggested that the stakeholders must meet more frequently to ensure sustainability of the project. It was however seen that no further meetings of MC were held. One of the objectives under Phase II was public participation in MSW management through mass awareness. However, the extent of work done in this regard was not found on record.

West Bengal PCB informed (June 2012) CPCB that though model facility was set up and inaugurated in February 2009, the project had been discontinued soon after inauguration due to agitation by the locals in which the entire facility was destroyed. As a result, the entire expenditure of ₹4.31 crore on the project was rendered wasteful.

CPCB stated (July 2014) that the State Level MC reviewed the project in April 2013 and decided to close the project and suggested the two municipalities to share common facilities under the technical backup of KMDA.

The reply may be viewed in the context that review of the project in April 2013, more than four years after it was reportedly destroyed, was redundant.

Thus, monitoring of the projects was weak, as:

- MC was not constituted in two projects (Tamil Nadu and Andhra Pradesh);
- in eight projects where MC was constituted, the meetings of MC were not held regularly;
- site inspections were not carried out by CPCB as stipulated in three projects (Arunachal Pradesh, Tripura and Sikkim); and
- after being pointed out in audit, CPCB convened review meetings with the concerned PCBs in June 2013 and May 2014.

Although CPCB was responsible for overall implementation of the scheme and was to participate in monitoring of the projects, it failed to implement a sound monitoring mechanism to ensure proper implementation of projects. Laxity in monitoring resulted not only in gaps in availability of information on status of the projects, but eventually, model waste management facility could not be made functional in any of the 10 projects.

#### **6.4.3 Conclusion**

The MSW model facilities were not functional in any of the 10 states selected for setting up the facilities even after more than 10 years of initiation of projects and after incurring expenditure of ₹24.80 crore. Model facility was created under only one project in West Bengal, however it could not be commissioned due to local disturbances. In nine projects, work was only partially completed. Of these, in seven projects at Andhra Pradesh, Chandigarh, Himachal Pradesh, Nagaland, Sikkim, Tamil Nadu and Tripura, Phase I was completed, whereas in two projects at Arunachal Pradesh and Maharashtra, Phase I was partially completed. Phase II was taken up in only five projects at Andhra Pradesh, Chandigarh, Maharashtra, Nagaland and Tamil Nadu, however, it could not be completed in any project.

There were lapses in monitoring of implementation of projects and management of funds. Although CPCB was part of the monitoring mechanism established for reviewing progress of projects, it failed to ensure that monitoring committees were constituted and met regularly. Site inspection was not carried out regularly by CPCB in the states where there was provision

for the same. Failure to monitor projects resulted in incomplete work, foreclosure of projects, idling of facilities created and unspent balances remaining idle under the projects. As a result, the objective envisaged under the scheme to assist states and urban local bodies to follow provisions of the MSW Rules remained unachieved.



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