

Chapter-II
Performance Audit

CHAPTER-II PERFORMANCE AUDIT

Horticulture Department

2.1 Working of Horticulture Department

Performance Audit on 'Working of Horticulture Department' showed deficient planning, weak financial management, uneconomic and ineffective execution of various horticulture development activities, including creation of infrastructure, supply of improved varieties of plants, post-harvest management and ineffective internal control. While the total financial implication of this audit intervention is ₹ 97.03 crore, some of the significant audit findings are as follows:

Highlights

- *The Department did not formulate State Horticulture Policy/ Strategic Plan with clear milestones for development of horticulture in the State.*
(Paragraph 2.1.6.1)
- *Department was ineffective in controlling overall, as well as, per acre decline in fruit production during 2014-19.*
(Paragraph 2.1.6.2)
- *Twelve per cent of the allocated funds (2014-19) were not utilized while three per cent of the amount booked as expenditure was parked in saving Bank accounts of 19 drawing and disbursing officers and not actually expended.*
(Paragraphs 2.1.7.1 and 2.1.7.2)
- *State Disaster Response Fund of ₹21.60 crore was irregularly diverted towards subsidy, on pesticides, provided to horticulturists.*
(Paragraph 2.1.7.3)
- *In ten out of twelve physically verified Plant Cum Demonstration Orchards (PCDOs), 31 per cent area was without plantation, four PCDOs did not have nurseries and eight had inadequate irrigation facilities.*
(Paragraph 2.1.9.1)
- *The department could not utilise 43 per cent of the funds received under Horticulture Mission for North East and Himalayan States (now a part of Mission for Integrated Horticulture) for supply of imported improved planting material even after 13 years of receipt depriving the horticulturist of the intended benefits.*
(Paragraph 2.1.9.3)
- *Targets to provide training to the field functionaries (who were the first point of contact) were neither fixed nor covered under training programme during 2014-17. Similarly, no training was provided to field functionaries during 2018-19, although targets were fixed.*
(Paragraph 2.1.11)
- *Eight fruit processing units were performing below the target set (Physical performance) to the extent of 60 to 80 per cent during 2014-19. Fruit*

processing Unit, Rajgarh was operating without requisite licence from the Food Safety and Standard Authority of India for approximately 14 years.

(Paragraph 2.1.12 (i))

- *Fruit processing units established utilising subsidy of ₹3.21 crore remained non-functional.*

(Paragraph 2.1.12 (iii))

- *Difference in cost and quantity of pesticides, improper maintenance of data, and non-conducting of internal audit reflected ineffective internal control.*

(Paragraphs 2.1.14.1, 2.1.14.2 and 2.1.14.3)

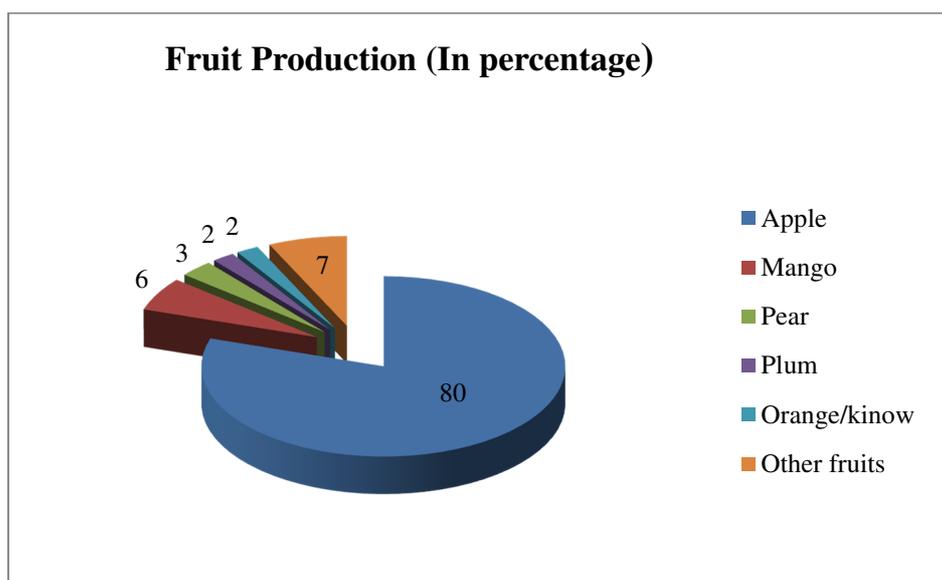
2.1.1 Introduction

Himachal Pradesh is predominantly an agricultural State where agriculture provides direct employment to about 70 per cent of the population. The State's agriculture is dominated by high value horticultural commodities, which account for about 44 per cent of the total cropped area. Horticulture Sector's annual contribution to the State economy is about seven per cent of the State Gross Domestic Product. The area covered under horticulture had increased from 2.24 lakh hectares to 2.32 lakh hectares (four per cent) during 2014-19. However, except for the year 2015-16, fruit production and productivity showed decreasing trend during the years 2014-19.

Expenditure of ₹ 1,686.20 crore was booked by the Horticulture Department during 2014-19 on the State and the GOI schemes. This constitutes one per cent of the total expenditure incurred by the Government of Himachal Pradesh during 2014-19.

The average production of different fruits in the last five years (2014 to 2019) is depicted in **Chart-2.1** below:

Chart-2.1: Average production of different fruits in the last five years



The State Horticulture Department (Department) came into existence in September 1970. The main objectives of the Department included diversification of traditional

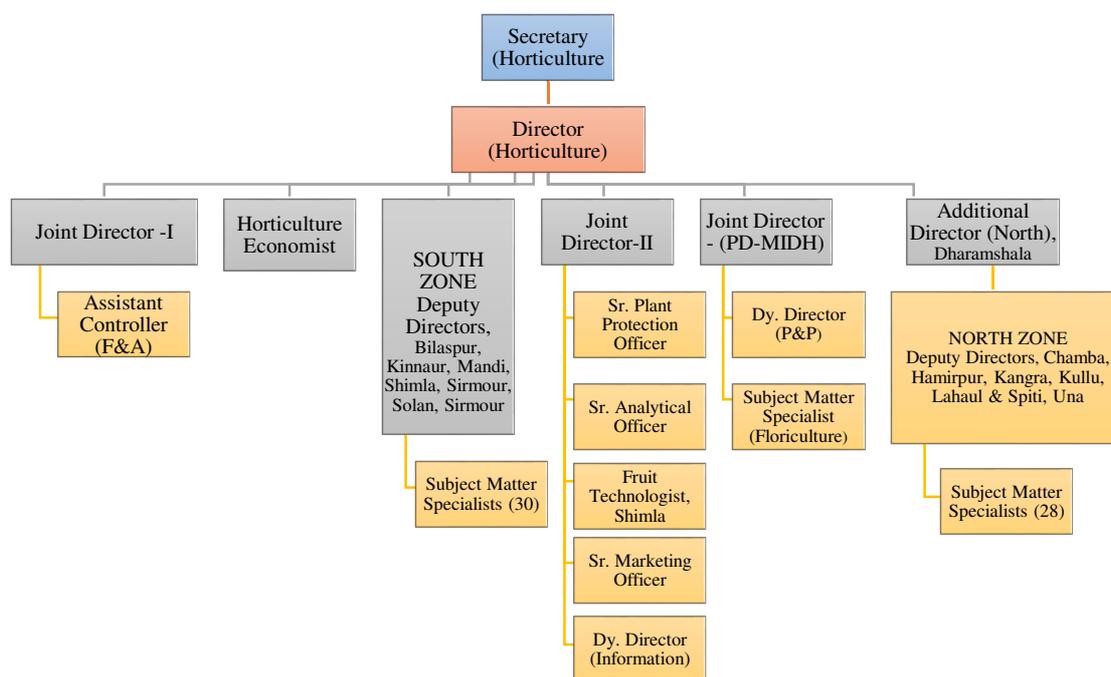
farming or agriculture to commercial market oriented farming¹, promotion of environment friendly farming suitable to agro-climatic conditions prevailing in the State and creating conditions, infrastructure, services and facilities to bring qualitative and quantitative increase in productivity of horticulture crops and promotion of ancillary activities², thereby improving the quality of life of the rural population. To achieve these objectives, the Department implemented 34 State components/ schemes and seven Government of India (GOI) schemes in the Horticulture Sector (**Appendix-2.1**).

The activities of the Department include development of horticulture infrastructure³, area expansion, distribution of improved varieties of plants, horticulture production support services⁴, training and extension services, and post-harvest management.

The 'Performance audit' of the Working of the Horticulture Department included an examination of the elements of planning process, management of finances, execution of horticulture schemes/ activities and internal control system.

2.1.2 Organisational set up

The Department functions under the administrative control of the Principal Secretary/ Secretary (Horticulture). The functionaries include specialists such as Fruit Technologists⁵ and Subject Matter Specialists⁶ (Fruit Canning Units), and the department has presence up to blocks/circle level. Organogram of the Department of Horticulture is depicted below:



¹ Cash crops: Fruits, vegetables, flowers, mushroom, medicinal/aromatic plants, etc.

² Floriculture, Apiculture and Mushroom cultivation.

³ Progeny-cum-Demonstration Orchards/ Nurseries for production of improved plants, establishment of plant health clinics, creation of water resources, buildings for Department, etc.

⁴ Leaf analysis and supply of plant protection material and other inputs to horticulturists.

⁵ Dhaulakuan, Nagrota Bagwan, Shamshi and Shimla.

⁶ Fruit Canning Units: Bilaspur, Rekongpeo, Rajpura and Rajgarh; Mushroom: Palampur and Chambaghat and Apiculture: Kangra and Shimla.

2.1.3 Audit Objectives

The objectives of the audit were to ascertain whether:

- planning for implementation of the schemes, as per guidelines of the State/ Government of India schemes, was adequate and effective in increasing the production and productivity of horticulture crops;
- prudent financial management existed;
- execution of activities was economical, efficient and effective; and
- internal control and monitoring mechanisms were effective.

2.1.4 Audit Scope and Methodology

The Performance Audit, covering the period 2014-15 to 2018-19, was undertaken from June 2019 to October 2019. Audit covered the offices of the Director of Horticulture and nine out of 38 drawing and disbursing officers (Deputy Directors of four (out of 12) districts⁷; Senior Plant Protection Officer, Shimla; Fruit Technologist, Dhaula kuan (out of four) and three (out of eight) SMSs⁸). In addition, 11 (out of 35) blocks⁹ in the selected districts were also selected. The selection was based on SRSWOR¹⁰ method of sampling and geographical categorisation¹¹ of horticulture in the State.

Out of total expenditure of ₹ 1,686.20 crore incurred by the Department during 2014-19, expenditure of ₹ 711.47 crore under above units was test-checked. Records relating to three (out of seven) Government of India Schemes¹² and 11 (out of 34) State Schemes¹³ as well as main activities of the Department were also test-checked.

The 'Entry conference' was held in September 2019 with the Secretary (Horticulture) to discuss the audit objectives, criteria, scope and methodology. Audit findings were discussed in an 'Exit conference' with the Secretary (Horticulture) in July 2020 and views of the Government have been incorporated as appropriate in this Report.

2.1.5 Audit Criteria

The audit criteria used for the conduct of the Performance Audit were derived from the following sources:

- Guidelines of State/ Centrally Sponsored Schemes;
- Notifications and instructions issued by State/ GOI from time to time for implementation of State and Centrally Sponsored Schemes;

⁷ Kangra, Kinnaur, Shimla and Solan.

⁸ Fruit Canning Unit: Rajgarh, Mushroom: Chambaghat and Apiculture: Shimla.

⁹ Kangra: four; Kinnaur: two; Shimla: three and Solan: two.

¹⁰ Simple Random Sampling Without Replacement.

¹¹ Zone-I: Low hills and valley areas near plains (Hamirpur, Solan and Una), Zone-II: Mid hills sub temperate (Bilaspur, Kangra, Mandi and Sirmour), Zone-III: High hills and valleys in the interiors (Chamba, Kullu and Shimla) and Zone-IV: Cold and dry zone (Kinnaur and Lahaul and Spiti).

¹² Mission for Integrated Development of Horticulture, Rashtriya Krishi Vikas Yojana and Pradhan Mantri Krishi Sinchai Yojana.

¹³ Apiculture Development, Buildings, Establishment/ Maintenance of Government Orchards/ Nurseries, Floriculture Development, Fruit Processing, Horticulture Development, Plant Protection, Marketing and Quality Control, Mushroom Development, Plant Nutrition and Training and Extension.

- Departmental Manual/ Policies/ Rules and Regulations and
- Himachal Pradesh Financial Rules, 2009 and Himachal Pradesh Treasury Rules, 2007.

Audit findings

2.1.6 Planning

Planning is the basic framework of a scheme/programme on which the success of the programme depends. Planning covers formulation of policy/ long-term master plan, survey and estimation of requirement, preparation of annual action plan, convergence with other agencies, etc. Audit observed the following deficiencies in the planning process:

2.1.6.1 Non-Formulation of Strategic Plan with clear milestones for development of horticulture

The State did not formulate a horticulture policy to lay down the roadmap for development of the sector. The GOI guidelines on Mission for Integrated Development of Horticulture (MIDH), 2014, provide for preparation of Strategic/Perspective Plan and road map for overall development of horticulture in the State. The Plan was to form the basis for organizing baseline surveys and feasibility studies in districts to determine status of horticulture production, potential and demand, post-harvesting facilities and upcoming challenges for preparing annual action plans.

Audit observed that:

- The Department prepared Annual Action Plans (AAPs) for various State Schemes during 2014-19, however, the desired outcomes were not identified in the plan;
- Data used for plan was relating to average production and area under fruit crops was based on the anticipated achievements/data available of the previous years, however, this was not based on any scientific system;
- Base line survey and feasibility studies to ascertain the status of horticulture production potential and demand, were not conducted (October 2019) and there was no assurance that initiatives proposed in AAPs and selection of beneficiaries and budget estimates were realistic and based on ground realities.

In the absence of a Horticulture Policy/ Strategic Plan, and AAP based on unscientific data, the extent of achievement of the horticulture development could not be measured.

The Director, Horticulture agreed (December 2019) that baseline survey could not be conducted due to non-availability of funds. During the exit conference, the Secretary (Horticulture) stated (July 2020) that State Horticulture Policy was being formulated.

2.1.6.2 Unscientific fruit production data / data collection techniques

The Department collects data of production of apple through departmental staff deputed at three district exit points / barriers¹⁴ and from the field offices on the basis of estimation. The total production is worked out after adding the domestic apple consumption and processing within the State (approximately 10 per cent of the total

¹⁴ Shimla: Kuddu, Solan: Parwanoo, Bilaspur: Swarghat

produce). The data for apple being transported through other exit points¹⁵ of the State was not maintained by the department.

Further, as ascertained from 11 (out of 35) Blocks of four test-checked districts¹⁶, the Horticulture Extension Officers (HEOs) /Horticulture Development Officers (HDOs) did not maintain any actual fruit production data in respect of apple and other fruits. They provide presumptive and visual based data after contacting only the leading/ progressive horticulturists, falling under respective blocks of the districts. The Blocks report the consolidated production data to the Deputy Directors (DDs), the DDs after consolidation, report the data to the Directorate for further compilation. The Director of Horticulture compiles the data reported by the districts without any further validation (as detailed in Paragraphs 2.1.14.2). Resultantly, the data maintained by the Department was not accurate.

Further, during the period 2014-15 to 2018-19, as per departmental figures, the area under horticulture had increased from 2.24 lakh hectares to 2.32 lakh hectares but the production had decreased from 7.52 lakh Metric Tonnes (MTs) to 4.95 lakh MTs. The per hectare productivity also decreased from 4.00 MTs to 2.44 MTs, as depicted in **Table-2.1.1** below:

Table-2.1.1: Area coverage and production under horticulture during 2014-19

Year	Area (in lakh hectares)	Production (in lakh MTs)	Productivity (MTs per hectare)
2014-15	2.24	7.52	4.00
2015-16	2.27	9.29	4.80
2016-17	2.29	6.12	3.12
2017-18	2.31	5.65	2.84
2018-19	2.32	4.95	2.44

Source: Departmental figures.

The Department stated (June 2019) that the decrease in production was due to drought condition, hailstorm and fluctuating temperature as fruit cultivation in the State is done mainly under rain fed conditions and the department was providing 80 *per cent* subsidy to the horticulturists on anti-hail nets.

Audit noticed that the department had not prepared any plan to identify localised challenges or mitigating strategies to overcome natural calamities through adoption of new technology such as provision of drip irrigation and sprinklers, installation of anti-hail guns covering all areas and awareness for installation of anti-hail nets. Further, in the absence of reliable data and data collection techniques as mentioned before, any planning or strategy would not be effective.

During the exit conference (July 2020), the Secretary (Horticulture) while admitting the use of data collection techniques, stated that the Department has started using electronic platform for entry/ exit vehicle data and remote sensing techniques for collection of data related to apple production.

It was further stated that fruit production was less due to meagre research activities and adoption of traditional techniques by the farmers. The Department was importing high

¹⁵ Paonta Sahib, Nalagarh, Mehatpur, Sansarpur Terrace, Indora and Damtal.

¹⁶ Bhedu Mahadev, Indora, Nagroa Surian and Rait blocks in Kangra District, Kalpa and Pooh blocks in Kinnaur District, Mashobra, Chirgaon and Narkanda blocks in Shimla District, and Dharampur and Kandaghat blocks in Solan District.

yielding varieties of seeds/plants of various fruits and research activities were being enhanced through involvement of Dr. YSP University of Horticulture, Nauni and CSK University of Agriculture, Palampur and positive results are expected.

2.1.7 Financial Management

Financial management involves arrangement and utilization of funds according to prioritisation of activities in an efficient and effective manner so as to accomplish the objectives of the organisation. Deficiencies noticed by audit in the financial management are discussed in the following sub-paragraphs:

2.1.7.1 Under-utilisation of State funds

The status of outlay and expenditure under the State schemes, during the years 2014-19, is depicted in **Table-2.1.2** below:

Table-2.1.2: Details of approved outlay and expenditure under the State schemes during 2014-19

(₹ in crore)					
Year	Original Outlay	Additional Outlay	Total	Total Expenditure	Shortfall in utilization
2014-15	178.17	28.10	206.27	189.32	(-) 16.95
2015-16	188.51	107.41	295.92	281.05	(-) 14.87
2016-17	229.60	64.54	294.14	274.80	(-) 19.34
2017-18	355.38	67.42	422.79	305.49	(-) 117.30
2018-19	416.08	29.43	445.51	417.17	(-) 28.34
Total	1,367.74	296.90	1,664.63	1,467.83	(-) 196.80

Source: Departmental figures.

It was observed that:

- (i) Additional outlay of ₹ 67.42 crore made during the year 2017-18 remained entirely unutilised, while overall, 11.84 *per cent* of budget was not utilised during 2014-15 to 2018-19. This reflected unrealistic budget estimation;
- (ii) The expenditure booked by the treasury did not reflect actual expenditure, as ₹ 19.18 crore received under different State Plan Component/ Schemes¹⁷ was parked in saving Bank accounts of 12 DDOs including four test checked DDOs. Possibility of funds parked in savings Bank accounts by the remaining DDOs could not be ruled out.

During the exit conference (July 2020), the Secretary agreed that there was lack of planning at the Directorate level and funds could not be utilised due to having been received late and the issue of land clearances. In respect of parking of funds, it was stated that these funds would be adjusted towards other viable schemes/ works, where required. The contention however, was not supported by any documentary evidence (October 2020).

2.1.7.2 Under-utilisation of GOI funds

Outlines of three GOI schemes being implemented by the Department are shown in **Appendix-2.2**. The Guidelines under the GOI schemes¹⁸ provide for preparation of

¹⁷ Himachal Pushp Kranti Yojna, Mukhya Mantri Madhu Vikas Yojna, Mukhya Mantri Kiwi Protsahan Yojna, Mukhya Mantri Green House/ Poly house Renovation Scheme, Anti hail Net Scheme, Power tiller and Power sprayer.

¹⁸ Mission for Integrated Development of Horticulture (MIDH), Rashtriya Krishi Vikas Yojana (RKVY) and Pradhan Mantri Krishi Sinchai Yojna (PMKSY).

Annual Action Plans (AAPs) based on which funds are released by the GOI. As per the GOI instructions, the implementing agency was to maintain proper accounts of expenditure and submit statement of audited accounts and utilisation certificates (UCs) to the GOI as soon as possible, after the close of the financial year.

Details of utilisation of funds under the GOI schemes during 2014-19 is depicted in **Table-2.1.3** below:

Table-2.1.3: Utilisation of funds available under GOI schemes during 2014-19

(₹ in crore)

Year	Funds proposed			Availability of funds					Funds utilised (per cent)
	Centre share	State share	Total	OB	Receipts				
					Centre share	State share	Interest	Total	
2014-15	90.80	0.80	91.60	4.66	59.41	0.80	0.15	65.02	24.66 (38)
2015-16	49.17	19.46	68.63	40.36	30.51	15.12	0.79	86.78	59.26 (68)
2016-17	46.31	4.59	50.90	27.52	37.27	4.31	0.69	69.79	39.49 (57)
2017-18	51.28	4.49	55.77	30.30	43.29	5.53	0.76	79.88	38.15 (48)
2018-19	45.04	6.38	51.42	41.73	32.90	6.32	0.74	81.69	44.65 (55)
Total	282.60	35.72	318.32		203.38	32.08	3.13		206.21

Source: Departmental figures.

Audit noticed that:

- (i) Though the utilisation of funds under GOI schemes ranged between 38 per cent to 68 per cent, however, GOI consistently short released funds (₹ 79.22 crore) to the extent of 28 per cent during the years 2014-19.
- (ii) Further, the funds shown utilised did not represent the correct picture as:
 - Although the schemes did not mandate retention of scheme funds in Bank accounts, scrutiny of records of the 19 DDOs (out of 39) including four test checked DDOs showed that, ₹ 33.68 crore was lying unutilized in the Banks as of March 2019 under the GOI schemes (**Appendix-2.3**). There was possibility of drawing the funds by the remaining 20 DDOs and keeping the same in their savings Bank accounts.
 - Department had incorrectly submitted UCs to the GOI of ₹ 42.99 crore, against the total funds of ₹ 43.27 crore received under Rashtriya Krishi Vikas Yojana (RKVY) during 2014-19, as there was a closing balance of ₹ 5.68 crore still remaining in the saving Bank accounts of 18 DDOs.

During the exit conference, the Secretary while admitting (July 2020) the lack of planning, attributed the above to delayed receipt of funds (December) and harsh weather conditions hampering utilization of the funds in the respective financial year. The reply did not explain the incorrect reporting of utilization of funds to the GOI, and lack of contingent planning to streamline utilization of funds in advance.

2.1.7.3 Diversion of State Disaster Response Fund towards subsidy on Pesticides

As per the revised norms for assistance under the State Disaster Response Fund (SDRF), the funds provided under National Disaster Response Fund were to be utilised to provide relief to the victims of cyclone, drought, earthquake, fire, flood, hailstorm, etc.

It was seen that the Senior Plant Protection Officer (SPPO), on the directions of the Directorate, diverted ₹ 21.60 crore out of ₹ 26.16 crore under SDRF during 2014-19,

towards providing subsidy on pesticides (Plant Protection Material) to horticulturists in the State, which was not covered under the norms of SDRF.

During the exit conference (July 2020), the Secretary stated that necessary instructions to follow the guidelines have since been issued.

2.1.7.4 Diversion of interest on central scheme towards State revenue

As per the GOI instructions (April 2015), the interest earned on the Grants-in-aid under RKVY from the period 2014-15 was to be taken as part of the GIA and unspent balance was to be adjusted against future year instalments by obtaining revalidation sanction from the GOI. The Director of Agriculture also issued (March 2016) instructions that no interest earned under the RKVY funds was to be deposited in the State Revenue Receipt Head.

Audit noticed that contrary to the GOI instructions, *ibid*, out of interest of ₹ 0.55 crore earned from RKVY funds and available¹⁹, three DDOs²⁰ irregularly diverted ₹ 0.28 crore towards State revenue (2014-19) and deposited in treasuries of State Government, while a balance ₹ 0.27 crore was kept in a Bank account.

During the exit conference the Secretary admitted (July 2020) the facts and stated that Department had been instructed to deposit the interest in proper head of accounts.

2.1.8 Horticulture infrastructure development

For overall development of horticulture including production of plants, providing technical assistance services, post-harvest management, processing and marketing of horticulture produce, etc., a network of infrastructural facilities was to be created. The deficiencies noticed by audit in this area are discussed in the succeeding paragraphs.

2.1.8.1 Establishment of Plant Health Clinics

As envisaged under Mission for Integrated Development of Horticulture (April 2014), Plant Health Clinics (PHCs) were to be set up with facilities to diagnose biotic/ abiotic stress and plant nutritional status besides facilitating eco-friendly control measures, management of diseases and plant health, etc. Accordingly, ₹ 5.75 crore²¹ was received from the GOI including state share during 2014-19 for establishment of 23 PHCs²² (at a cost of ₹ 0.25 crore each) in the State.

Funds were released (2014-19) to the concerned DDs for construction of the PHCs without defining a timeline for completion. Audit noted that out of 23, construction of 14 PHCs²³ was completed at a cost of ₹ 3.50 crore, construction of four PHCs for which ₹ 0.53 crore was released to the executing agency(EA)²⁴ was not started for want of encumbrance free land and revision of estimates by the executing agency due to higher cost of site development, etc. The construction of the remaining five PHCs

¹⁹ Opening balance as on 31.03.2014: ₹ 0.23 crore, Earned during 2014-19: ₹ 0.32 crore.

²⁰ Kinnaur, SMS (Mushroom) Chambaghat, Solan.

²¹ 2014-15: ₹ 2.50 crore; 2015-16: ₹ 1.25 crore, 2016-17: ₹ 0.75 crore, 2017-18: ₹ 1.00 crore and 2018-19: ₹ 0.25 crore.

²² Amb, Anni, Banikhet, Bhoranj, Chamba, Dehra, Dharampur, Ghumarwin, Hamirpur, Kangra, Karsog, Kunihar, Nahan, Nihal, Nurpur, Poanta Sahib, Rampur, Rohru, Sarkaghat, Sulah, Sundernagar, Theog and Una.

²³ Amb, Anni, Bhoranj, Chamba, Dharampur, Ghumarwin, Hamirpur, Kangra, Kunihar, Nihal, Nurpur, Rohru, Sulah and Una.

²⁴ Himachal Pradesh State Industrial Development Corporation.

was in progress, an expenditure of ₹ 0.75 crore had been incurred. Thus, out of total available funds, ₹ 0.97 crore was yet to be utilised (December 2019).

It was seen that only nine PHCs²⁵ of the 14 constructed PHCs were functional, while five PHCs were non-functional due to non-availability of technical staff/ three phase electricity connection and non-handing over of the PHCs by the executing agency. Thus, the department could not create the intended infrastructure.

During the exit conference, the Secretary stated (July 2020) that out of 23 PHCs, 19 were fully functional and four would be constructed within the financial year. However, the reply was not supported (October 2020) with details of 19 fully functional PHCs and it did not explain the delay in construction of remaining 4 PHCs.

2.1.8.2 Blockade of funds

Rule 2.10 (b) (5) of the Himachal Pradesh Financial Rules (HPFRs), 1971 and Rule 5.71 (c) of the Himachal Pradesh Treasury Rules (HPTRs), 2007 stipulate that no money should be drawn from treasury unless it is required for immediate disbursement.

Audit noticed that the Department had released ₹ 11.96 crore (1999-2019) in installments to the executing agencies (EAs) for construction of 38 office and residential buildings in the State at an estimated cost of ₹ 29.82 crore (1999-2019). Status of execution of works is detailed in **Table-2.1.4** below:

Table-2.1.4: Details of execution of works

No. of buildings	Status	Estimated cost	Funds released	Number of buildings		
				Lack of encumbrance free land	Insufficient funds	Funds available / Work not started
26	Not started	23.08	7.92	14	8	4
12	In progress	6.74	4.04	-	7	5
38		29.82	11.96	14	15	9

(₹ in crore)

It was seen that funds released were blocked in projects where land was not encumbrance free, while there were other projects in progress which had insufficient funds. As a result, ₹ 11.96 crore (**Appendix-2.4**) remained blocked without any of the buildings reaching completion. At the same time, the department had incurred expenses for hiring office accommodation and paying house rent to its employees.

During the exit conference, the Secretary agreed and stated (July 2020) that due to lack of land clearances, these works could not be completed and these funds would be adjusted towards other viable works.

2.1.9 Production and distribution of plants

With a view to increase fruit production and productivity, the Department was to bring additional area under fruit cultivation by distributing fruit plants to the fruit growers.

²⁵ Amb, Chamba, Hamirpur, Kangra, Kunihar, Nurpur, Rohru, Sulah, Una.

2.1.9.1 Progeny-cum-demonstration orchards/ nurseries

The Department was maintaining 92 Progeny-cum-demonstration orchards (PCDOs) having 67 nurseries in the State, as of July 2019. The major objectives of these units included demonstration of latest technology; and multiplication and supply of disease free and quality plants to the horticulturists.

During physical verification (July-October 2019) of 12²⁶ (out of 35) PCDOs/ nurseries (**Appendix 2.5**) by audit along with departmental representatives in the test checked districts, it was noticed that against 64.50 hectare area of these PCDOs, 20.05 hectare (31 *per cent*) was lying without plantation in 10 PCDOs.



Dried and non-bearing plants in PCDO, Pooh (Kinnaur) Area without plantation at PCDO Rajhana (Shimla)

It was also observed that during 2014-19, on an average 27 horticulturists had visited the seven PCDOs for demonstration/purchase of plants whereas there was no evidence of any horticulturists visiting the remaining five PCDOs as the records were not maintained (2 PHCs) or there were no plantations (3 PHCs).

Four (out of 12) test checked PCDOs did not have nurseries and eight had inadequate/seasonal irrigation facilities, resultantly, the department failed to multiply and supply disease free and quality plants to the horticulturists of the area. This was also evident in the beneficiary survey (**Paragraph 2.1.16**) as only 48 *per cent* of the horticulturists were satisfied with the planting material availability through the department.

Thus, the main objective of demonstration of latest technology, multiplication and supply of disease free and quality plants to the horticulturists remained unachieved in almost all the PCDOs/ nurseries. During the exit conference the Secretary stated (July 2020) that 37 Detailed Project Reports for providing irrigation facilities in PCDOs had been prepared and to improve the working of PCDOs/ nurseries, the Department had constituted Nursery Management Society for the upkeep of these establishments.

2.1.9.2 High mortality rate in plants distributed to the horticulturists

To cover the additional area under horticulture, improved varieties of fruit plants are arranged and distributed by the Department from private nurseries, production in the departmental nurseries and import from horticulturally advanced Countries. The additional area to be covered under horticulture is calculated by the Department based on overall plantation and distribution of different species of fruit plants and finalised taking into consideration the mortality of fruit plants up to the month of September every year.

²⁶ Kangra: 02, Kinnaur: 03, Shimla: 04 and Solan: 03.

The details of overall achievement against physical targets for coverage of additional area and plants distributed to the horticulturists through departmental/ private nurseries during 2014-19 are depicted in **Table-2.1.5** below:

Table-2.1.5: Details of expenditure incurred and achievement against physical targets for area coverage and plants distribution during 2014-19

Year	Expenditure (₹ in crore)	Coverage of additional area (in hectares)				Plants distribution (in lakh number)	
		Targets	Achievements			Targets	Achievements
			Area covered	Mortality	Survival		
2014-15	3.77	3000	9410	5764 (61)	3646 (39)	22	26
2015-16	2.80	3000	6605	4158 (63)	2447 (37)	22	21
2016-17	2.94	3000	6292	3889 (62)	2403 (38)	22	21
2017-18	3.68	3000	5147	3497 (68)	1650 (32)	22	15
2018-19	2.06	2004	5836	4549 (78)	1287 (22)	17	19
Total	15.25	14004	33290	21857	11433	105	102

Source: Departmental figures. Note: Figures in parenthesis indicated percentage.

Audit noticed that though the coverage was over and above the target, survival rate of plants remained between 39 and 22 *per cent*. This indicates that quality plants were not provided to the growers/ horticulturists.

Further, the department did not maintain post distribution data (like mortality in specific areas or plants) of success and failure of the distributed plants for taking remedial measures for next cycles.

During the exit conference, the Secretary stated (July 2020) that it was only one-time aberration and happened in a particular area due to unsuitable climate. It was further stated that mortality rate had decreased during the last year (2017-18). The contention is not tenable in view of the data on mortality, which shows a consistent increase up to the year 2018-19.

2.1.9.3 Non-utilisation of funds for import of improved planting material

The GOI provides assistance under Horticulture Mission for North East and Himalayan States (HMNEH) (now a part of Mission for Integrated Horticulture) to the State for supply of imported improved planting material.

The Department received (June 2007) ₹ 3.83 crore under HMNEH/ MIDH from the GOI for import of improved planting material from horticulturally advanced countries. Out of this,

- The Department spent ₹ 0.64 crore on import of plants (Apple: 10,000 plants, Walnut: 389 plants) during 2012-13 and 2015-16;
- ₹ 3.06 crore²⁷ was released to Dr. Y.S. Parmar University of Horticulture and Forestry (UHF), Nauni for procurement of planting material from horticulturally advanced countries. However, no Memorandum of Understanding was signed with the UHF;
- The UHF, Nauni procured planting material²⁸ for ₹ 1.41 crore during 2016-17 and refunded (February 2017) the balance to the Department. Out of balance of ₹ 1.78 crore, an amount of ₹ 0.13 crore was utilised for development of Post

²⁷ April 2015: ₹ 0.50 crore and October 2015: ₹ 2.56 crore.

²⁸ Apple: 24443 plants and Pear: 4872 plants.

Entry Quarantine (PEQ) facilities and further maintenance of plant material at the PEQ sites.

The department could not utilise 43 *per cent* of the total amount (February 2020) even after 13 years of receipt, indicating that the department did not identify alternate methodology for procurement of improved planting material, and deprived the horticulturists of the intended benefits.

Further, the department had not made any follow-up or obtained feedback from the horticulturists to whom planting material was distributed during 2012-13 and 2015-16 which would have attained fruit bearing stage, to see the improvement in fruit production and its mortality/survival.

The Project Director (MIDH) stated (February 2020) that the tenders for purchase of imported planting material have been floated (January 2020). However, no specific studies for impact assessment of already distributed plants had been conducted by the Department.

2.1.10 Integrated Pest Management

In order to control pest population while safeguarding human and environmental health and ensuring economic viability, 'Promotion of Integrated Pest Management' was implemented in the State through use of Biological Control²⁹.

2.1.10.1 Non-assessment of impact of Integrated Pest Management

The State Government established Bio-Control Laboratory (BCL) at Rajhana (Shimla) during the year 2002 for rearing, releasing different Bio-agents³⁰ in fields and creating awareness amongst the orchardists of the State by organising training camps at BCL and in the fields.

The details of production and distribution of bio-agents to the horticulturists and training organised by the BCL during the period 2014-15 to 2018-19 are depicted in **Table-2.1.6** below:

Table-2.1.6: Details of production and distribution of bio-agents during 2014-19

Year	Bio-agents (in lakh numbers)		Exp. (₹ in crore)	Area (in hectares)		Horticulturists trained (in numbers)
	Production	Distribution		Target	Achievement	
2014-15	67.67	62.82	0.14	100	80	112
2015-16	75.18	57.67	0.20	100	102	108
2016-17	107.04	68.55	0.17	100	101	114
2017-18	122.13	102.98	0.17	100	143	324
2018-19	210.63	173.77	0.25	100	159	444
Total	582.65	465.79	0.93	500	585	1,102

Source: Departmental figures.

Audit noticed that:

- Although production and distribution of bio-agents increased three times and achievement of area covered doubled during 2014-19, the target area for coverage was not revised. This indicated that department had not planned for phased increase in coverage of area, and that actual coverage of area was achieved without any proper plan.

²⁹ Biological Control is an action of parasites, predators or pathogens in maintaining another organism population density at a lower average than would occur in their absence.

³⁰ Bio- agents are microbes or insects that help in biological control.

- The Department had not fixed targets to train the horticulturists regarding identification, production, utilisation and evaluation of bio-control agents, as such the adequacy of dissemination of technology could not be ascertained.
- Training as well as bio-agents were provided to individual horticulturists instead of covering whole village/cluster, without ensuring that the area, where bio-agents were distributed, was free from usage of pesticides/insecticides.
- The Department had not assessed the impact of biological control in the area covered to ascertain the benefits derived. Feedback was obtained telephonically by the department from the beneficiaries and no record was maintained.
- Level of awareness was dismal, as only three *per cent* of the horticulturists surveyed by audit expressed awareness about bio-control agents and trainings imparted in this regard.

The Senior Plant Protection Officer admitted the facts and stated (March 2020) that the monitoring was not done due to lack of technical manpower, coordination between extension agency and bio-control laboratory. During the exit conference, the Secretary also emphasized (July 2020) over the need for a policy to check usage of pesticides and also stated that this aspect would be included in draft State Horticulture Policy.

2.1.10.2 Short collection of samples of pesticides/insecticides

Under Section 20 of Central Insecticide Act, 1968, Insecticide Inspectors are required to take 12 to 15 samples of any insecticide/pesticide from the registered distributors within the jurisdiction specified in the notification every year in *Kharif* and Rabi seasons. These samples were required to be sent for analysis to the State Pesticides Testing Laboratory at Shimla to ensure quality of the samples drawn.

The Department assigned targets for sample collection every year to the field officers, which were not based on any fixed norms. It was seen that during 2014-19, against the target of 920 samples assigned, only 491 samples (53 *per cent*) were collected. Further, the department did not maintain the results of all samples tested in four test checked districts. Thus, due to short collection of the samples and lack of test result records, assurance on the quality of pesticides/insecticides supplied to the orchardists could not be obtained.

The Senior Plant Protection Officer (SPPO) stated (July 2019) that the targets could not be achieved due to shortage of staff especially Horticulture Development Officer (HDO). The reply was not acceptable as 92 HDOs were in position in the State out of which only 12 HDOs were designated as Insecticide Inspector (one in each district). Moreover, if calculated on average monthly basis, less than two samples were to be collected against which less than one sample was collected which was very less and was not justifiable.

2.1.11 Training and extension activities

Paragraph 7.33 of MIDH guidelines envisaged training of horticulturists, entrepreneurs, departmental field functionaries³¹ for adoption of high yielding varieties of crops and farming system at State level and outside the State.

³¹ Subject Matter Specialists, Horticulture Development Officers, Horticulture Extension Officers, Skilled Grafters, Bee keepers, etc. are the main field functionaries.

The details of achievement against financial and physical targets of training imparted to the beneficiaries/ horticulturists and field functionaries of the Department during 2014-19 are depicted in **Table-2.1.7** below:

Table-2.1.7: Training imparted to the beneficiaries/ horticulturists and field functionaries during 2014-19

A. Training under MIDH (in numbers)										
Year	Training/exposure visits of horticulturists				Training to field functionaries					
	Targets		Achievement		Targets		Achievement			
2014-15	1,452		1,323 (91)		NF		Nil			
2015-16	1,241		1,051(85)		NF		Nil			
2016-17	350		370 (105)		NF		Nil			
2017-18	1,000		590 (59)		1,550		520 (34)			
2018-19	950		220(23)		1,550		Nil			
B. Training to horticulturists under State Plan (Horticulture Training and Extension) Scheme (Beneficiaries in lakh)										
Expenditure (₹ in crore)	2014-15		2015-16		2016-17		2017-18		2018-19	
	T	A	T	A	T	A	T	A	T	A
1.37	0.46	0.74	0.46	0.38	0.46	0.40	0.46	0.52	0.48	0.57

Source: Departmental figures. Note: NF=Not Fixed. Figure in parenthesis indicate percentage.

Audit noticed that:

- The Department failed to achieve the targets fixed for providing training/ exposure visits of horticulturists under MIDH except for the year 2016-17.
- Targets to provide training to its field functionaries (who were the first point of contact) were neither fixed nor covered under training programme during 2014-17. Similarly, no training was provided to field functionaries during 2018-19, although targets were fixed.
- Only 27 per cent of the horticulturists surveyed by audit were satisfied with the training etc. imparted by the department.

The Project Director (MIDH) attributed (June 2019) the shortfall to non-availability of funds during the year 2014-17. The reply is not acceptable as even when funds were available (2017-18), shortfall was observed.

2.1.12 Post-Harvest Management

Apart from raising of fruit plantation and production of fruits, the Department was also responsible for post- harvest management i.e. processing of fruits and taking the produce to the consumers through various marketing processes and channels. It was observed that the department did not implement post-harvest management effectively, as follows:

- Eight fruit processing units³² established for utilisation of marketable surplus fruits and vegetables were performing below the target set (Physical performance) to the extent of 60 to 80 per cent during 2014-19. Reasons attributed by the department were shortage of storage, staff and old infrastructure.
- One Fruit processing unit, FCU, Rajgarh was operating without requisite licence from the Food Safety and Standard Authority of India for

³² Four Fruit Technologists Units (Dhaulakuan, Nagrota Bagwan, Naubahar, Shamshi) and four Fruit Canning Units (Nihal, Rajgarh, Rajpura, Reckong Peo).

approximately 14 years. Reason attributed was rejection of the application, due to issues in the water pollution report. Audit noticed that products (3,446 litres of apple juice sold under departmental brand name 'Himcu' between February 2016 and May 2019) from the same unit were not approved (July 2016) for marketing by the Project Director (Coordination) on the basis of test report of Food Microbiology and Quality Control Composite Laboratory (FMQCCL), Navbahar, owing to its bitter taste. It was further seen that the unit sold off 29 per cent of such stock before obtaining the test result, 36 per cent of the stock was sold, despite the adverse report and balance stock was gradually disposed off for processing of vinegar/sale to public. The department accepted (October 2019) the facts but did not explain the sale of substandard fruit juice failing in quality testing.

- (iii) The GOI, Ministry of Food Processing Industries, had sanctioned (2010-13) subsidy of ₹ 6.41 crore for establishment of three fruit processing units³³ by the entrepreneurs through State Small Farmers Agri-Business Consortium (SFAC) under Horticulture Mission for North East and Himalayan States (now a part of Mission for Integrated Development of Horticulture). First instalment of ₹ 3.21 crore was released³⁴ between 2010 and 2013 and the second instalment was to be released by State Horticulture Mission after receipt of joint inspection team³⁵ (JIT) report of satisfactory completion of the project and commencement of commercial production. The joint inspection (2014-15) found all the units non-functional and ineligible for the subsidy. In spite of the GOI instructions (August 2015), the Department had not initiated action for recovery from the defaulting units. Failure to initiate timely action for recovery of subsidy from the defaulter units, resulted in extension of undue favour of ₹ 3.21 crore to the defaulting entrepreneurs. The Project Director (MIDH) stated (December 2019) that out of three, two units were at the completion stage, while the third unit (M/s Regal Snacks, Una) was still non-functional. Notices were issued (June 2019) to both entrepreneur as well as Banker for recovery of the subsidy. The reply was not acceptable as the subsidy was sanctioned in 2010-13 and the action should have been taken against the defaulter units in time.

2.1.13 Research and Development

2.1.13.1 Non-evaluation of the research and development projects

The State Level Executive Committee (SLEC) approved 20 Research and

³³ Regal Snacks, Una (2010): ₹ 4.00 crore; Belu Fruit Processing Industries Manali (2013): ₹ 1.21 crore and Mangla Fruit Processing Industries, Manali (2013): ₹ 1.20 crore.

³⁴ Regal Snacks, Una (2010): ₹ 2.00 crore; Belu Fruit Processing Industries Manali (2013): ₹ 0.60 crore and Mangla Fruit Processing Industries, Manali (2013): ₹ 0.60 crore.

³⁵ Project Director (MIDH) as Chairman and six members including Refrigeration Engineer (HPMC), Principal Scientist University of Horticulture and Forestry (Post Harvest Management), Deputy General Manager (HPMC), Fruit Technologist/ Senior Marketing Officer and Subject Matter Specialist of Horticulture Department and Concerned Banker.

Development Projects³⁶ for ₹ 4.65 crore under MIDH during 2015-17 and released ₹ three crore to the State during 2015-17. The funds were released to research institutions³⁷ towards 20 Projects.

Audit observed that:

- The Government of India abolished (2017-18) all the projects without citing any reason and the balance funds of ₹ 1.65 crore was not released to the State Government.
- The Department directed (May 2017) the concerned research institutions to close the projects where funds were exhausted and continue other projects till utilisation of the available funds.
- As per Utilisation Certificates received from the Research Institutions for the period 2015-18, all the projects were completed and an amount of ₹ 0.20 crore (out of ₹ three crore) was the unutilised balance.

The Department did not evaluate the outcomes of the completed projects for addressing the issues of the horticulturists. In the absence of evaluation and implementation of research findings, entire funding and research efforts may prove to be a futile exercise.

During the exit conference the Secretary admitted (July 2020) that there was slow progress in execution of the projects and the Department would wait for evaluation reports from the research institutions.

2.1.14 Internal Control Mechanism

Internal control mechanism is a management tool to provide reasonable assurance for efficient and effective operations, reliability of financial reporting and compliance of applicable rules, regulations, etc. The deficiencies noted in this regard are discussed in succeeding paragraphs.

2.1.14.1 Non-reconciliation of cost and quantity of pesticides/insecticides

To save the orchards from pests and diseases, the Horticulture Department arranges supply of various pesticides, insecticides for further distribution to the horticulturists.

The Senior Plant Protection Officer (SPPO), Shimla is the nodal officer for purchase of the pesticides/insecticides and further supply to the other field offices. Audit noticed that the SPPO had not reconciled the data of procurement and distribution of pesticides/insecticides to the field offices. There was huge variation in data in the quantity of pesticide/ insecticide issued by SPPO and quantity received by the concerned Deputy Directors Horticulture (DDsH) as well as in quantity sold by DDsH,

³⁶ Evaluation of nitrogen fertiliser source in apple and their effects on soil properties, plant architectural engineering and drip irrigation schedule for higher productivity and quality, standardisation of agro techniques for re-plantation of declining orchards of apple, development and standardisation of growing schedule for year round cultivation of high value exotic vegetables in low hills, integration refinement and validation of prophylactic and curative management technology white root rot of apple, etc.

³⁷ Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni (13 projects:), Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya, Palampur (three projects), Regional Horticulture Research and Training Station, Mashobra (two projects) and IARI Regional Station, Katrain (two projects).

which ranged between 12 to 43,789 Kg/L and 8 to 63,757 Kg/L respectively. The details are shown in **Appendix-2.6**. The cost of pesticides and horticulturist's share received from field offices during the period 2014-15 to 2018-19 was not being maintained and updated regularly in SPPO, Shimla. Thus, the actual subsidy paid by the Government and the sale amount received from the horticulturists could not be verified in audit. It was deficient internal control as the department did not have accurate figures of receipt and distribution across the test checked units.

The SPPO stated (May 2020) that reconciliation will be done.

2.1.14.2 Improper maintenance of data

In four test-checked districts³⁸, data of additional area covered and plants distribution reported by the Blocks/ Districts and Directorate is depicted in **Table-2.1.8**:

Table-2.1.8: Details of additional area covered and plants distributed during 2014-19
(Area in hectares and plants in lakh numbers)

Year	Data reported by Blocks to Districts		Data reported by Districts to Directorate		Data reported by Directorate to Government	
	Additional Area	Plants	Additional Area	Plants	Additional Area	Plants
2014-15	2686.65	9.94	2884.01	11.60	2927	10.88
2015-16	2279.46	9.03	2725.15	9.80	2601	10.16
2016-17	2477.37	8.76	2473.33	9.21	1930	8.87
2017-18	1841.13	7.46	2344.17	8.28	1871	7.72
2018-19	1881.94	6.52	2065.47	7.13	1281	7.95
Total	11166.55	41.71	12492.13	46.02	10610	45.58

Source: Departmental figures.

As is evident from the above table, figures of additional area covered and plants distributed as reported by the three agencies (Blocks, Districts and Directorate) did not match which shows that either the data was not based on factual position or was manipulated and hence was not reliable. Further, the Deputy Director Horticulture, Shimla had not maintained block-wise records of data of additional area covered and plants distribution. Lack of proper data is indicative of the fact that different methodologies were used to arrive at the data and there was no validation of the data collected.

The reply of the department was awaited (November 2020).

2.1.14.3 Internal Audit

The Department had established Internal Audit Wing (IAW) consisting of one Assistant Controller Finance and Accounts Officer (ACFA) and the Section Officer (SO) who were responsible for conducting internal audit. Audit noticed that against 190 audits³⁹ to be conducted on an annual basis in respect of 38 field units, only four audits of four field units were conducted during the years 2014-19. This shows that assurance on proper maintenance of accounts of expenditure incurred had not been obtained.

The ACFA stated (June 2019) that due to shortage of staff and additional work relating to Projects allotted to the existing officers, internal audit could not be done. The reply was not acceptable as it was the duty of the ACFA and SO to conduct the internal audit, which is an essential assurance mechanism for the management.

³⁸ Kangra, Kinnaur, Shimla, and Solan.

³⁹ 38 DDOs for five years.

2.1.15 Human Resource Management

Against 2,425 sanctioned posts of 62 different categories of staff as on March 2019, the department had 1,639 (68 *per cent*) persons in position. The vacant posts (786) included Class-I (183), Class-II (4), Class-III (256), Class-IV (343). Audit observed that out of 786 vacant posts, there was shortage of 645 (82 *per cent*) technical and support staff⁴⁰ in the department as of March 2019, which resulted in non-functional Plant Health Clinics, improper functioning of Progeny-cum-Demonstration Orchards/nurseries, short collection of pesticides samples, under-performance of fruit processing units, and non-conducting of internal audit of various field offices (**Paragraphs 2.1.8.1, 2.1.9.1, 2.1.10.2, 2.1.12 (i), 2.1.14.3**).

The Director stated (December 2019) that the posts lying vacant shall be filled up after obtaining approval of the competent authority.

2.1.16 Beneficiary survey

Beneficiary survey was conducted (September – October 2019) by Audit as part of Performance Audit, to assess the impact of scheme interventions and extension services provided by the Department, by undertaking field visits in conjunction with departmental officials and use of structured questionnaires. The survey of 700 horticulturists, selected randomly, in 11 blocks of four districts⁴¹ was conducted. As per their responses given in **Table-2.1.9**, the satisfaction level of certain parameters was low.

Table-2.1.9: Details of responses of beneficiary survey

Sl. No.	Parameters	Response (per cent)		
		Yes	No	No response
1.	Satisfied with working of horticulture department	50	31	19
2.	Awareness of horticulture schemes/activities	57	40	3
3.	Availability of planting material, plant protection material	48	44	8
4.	Organisation of trainings, seminars, workshops, exposure visits etc. for beneficiaries	27	48	25
5.	Availability of cold storage	1	82	17
6.	Awareness of usage of bio-agents and trainings thereof	3	76	20
7.	Collection of fruit production data from the farmers by departmental staff	24	70	6

Feedback from the beneficiaries was taken and the following is a summary of key suggestions:

- Need for more awareness camps and hands-on training.
- Regular follow-up visits by departmental officials in the field to fill gaps.
- Creation of marketing infrastructure and market linkage for easy aggregation and accessibility to all.
- Guidance and technical trainings for specialised exotic crops, off season crops, improved variety fruits.

⁴⁰ Horticulture Economist, Subject Matter Specialist, Horticulture Development Officers, Assistant HDOs/Horticulture Extension Officers, Section Officer, Assistant Research Officer, Statistical Assistant, Laboratory Assistant, Junior Technician, Bee-keeper, Head mali/skilled grafter, Beldar.

⁴¹ Bhedu Mahadev, Indora, Nagroa Surian and Rait blocks in Kangra District, Kalpa and Pooh blocks in Kinnaur District, Mashobra, Chirgaon and Narkanda blocks in Shimla District, and Dharampur and Kandaghat blocks in Solan District.

2.1.17 Conclusions

Horticulture, an important component of State's economy of Himachal Pradesh was not given due importance by the State Government. Horticulture Department was working without a State Horticulture Policy and Long Term Master Plan detailing strategies and clear milestones for development of horticulture in the State. The data collection techniques were not reliable and maintenance of records was improper due to which the reliability of the data of actual fruit production, coverage of additional area and distribution of plants could not be ascertained in audit. The Budget estimates were prepared without assessment of the requirement at field units with reference to their utilization capacity which resulted in sub-optimal utilisation and parking of funds in the saving Bank accounts.

There were cases of non-construction and non-operational Plant Health Clinics affecting the benefit of advisory services to the horticulturists. The Department had not procured adequate improved variety plants, in spite of availability of sufficient funds.

Fruit processing units were performing below the set targets. Non-compliance to statutory provision resulted in sale of sub-standard fruit products by Fruit Canning Unit, Rajgarh.

The Horticulture Research and Development projects were shown completed but the benefits were not ascertained as the evaluation of projects was not done.

The Internal control mechanism was not effective as there were instances of non-reconciliation/data mismatch in distribution of pesticides/insecticides, additional area covered vis-à-vis plants distributed between the various field functionaries.

2.1.18 Recommendations

The Government may consider:

- (i) *Formulation of a State policy/ long-term master plan and preparation of annual action plan based on baseline surveys and feasibility studies;*
- (ii) *Studying global practices to identify areas for improvement for increasing the yield, production, variety of fruit plants along with robust and competitive marketing strategy;*
- (iii) *Adopting scientific methods for maintaining data on yield and production of horticulture produce;*
- (iv) *Developing stock of high yielding varieties of fruit plant locally through horticulture and agriculture universities in the State and maintaining Progeny cum Demonstration Orchards / Nurseries effectively as these are crucial for horticulture development;*
- (v) *Strengthening training and extension activities and evaluating/ documentation of the completed research projects and disseminate/ implement the results to the horticulturists; and*
- (vi) *Strengthening of internal audit/control mechanisms by deputing adequate staff, to enforce compliance to statutory obligations, effectively.*

The audit findings were referred to the Government in June 2020, their reply is awaited.

Urban Development Department

2.2 Solid Waste Management in Urban Areas

The responsibility of providing solid waste management services (collection, segregation, storage, transportation, processing, and disposal) in urban areas of the State is vested with Urban Local Bodies and the Department of Urban Development. The Municipal Solid Waste Rules, 2000 and Solid Waste Management Rules, 2016 contain detailed provisions on solid waste management in urban areas. The total financial implication of this Performance Audit on 'Solid Waste Management in Urban Areas' is ₹ 19.06 crore. Some of the significant findings are mentioned in the highlights below:

Highlights

- *Plan documents did not assess resource-gap in institutional and financial capacity, and did not address issues relating to segregation, processing and disposal of solid waste.*
(Paragraph 2.2.5)
- *Inadequate funds were made available for projects of capital nature, while available funds were not fully utilised; and there were shortcomings in collection of user charges.*
(Paragraph 2.2.6)
- *There were shortcomings in door-to-door waste collection, waste collection through community bins and modern under-ground bins in all 16 test-checked Urban Local Bodies resulting in overflow, littering and open dumping of waste.*
(Paragraph 2.2.7)
- *Waste in segregated form was neither being collected from the waste generators nor were there any facilities for segregation at the secondary level or at the time of transport.*
(Paragraph 2.2.8)
- *Deficiencies in the transportation of waste included lack of capacity to handle segregated waste in vehicles used for transporting waste, and 73 per cent of the vehicles were un-covered in the 16 test-checked Urban Local Bodies.*
(Paragraph 2.2.9)
- *Biodegradable and non-biodegradable waste processing plants had been constructed in only 11 Urban Local Bodies and one Urban Local Body, respectively; however, none of the facility was fully functional.*
(Paragraph 2.2.10)
- *Sanitary landfill facilities for safe disposal of solid waste had not been created in any of the 54 Urban Local Bodies of the State, and mixed waste was being dumped in open dump sites.*
(Paragraph 2.2.11)
- *Entities responsible for monitoring of solid waste management were not discharging their functions, resulting in non-adherence to rules.*
(Paragraph 2.2.14)

2.2.1 Introduction

Solid Waste Management refers to the collection, segregation, storage, transport, processing and disposal of solid waste. Solid waste can broadly be divided into three categories: biodegradable, non-biodegradable and domestic hazardous waste. Approximately 342.35 MT¹ (metric tonnes) of solid waste is generated per day in the urban areas of the State.

The 74th Constitution Amendment Act, 1992 has devolved the function of solid waste management in urban areas to municipalities (ULBs). The State Government has enacted the Himachal Pradesh Municipal Act 1994, giving effect to the provisions of the 74th Constitution Amendment Act, 1992 to devolve the function of solid waste management in urban areas to all 54 ULBs in the State. Solid Waste Management Rules, 2016 (previously Municipal Solid Wastes (Management and Handling) Rules, 2000) notified by Government of India (GoI) describe the process to be adopted for solid waste management. Solid waste is to be collected from waste generators in segregated form (i.e. biodegradable waste, non-biodegradable waste and domestic hazardous waste) through door-to-door collection. The collected waste is to be transported through covered vehicles to secondary storage facilities/ materials recovery facility (MRF) to facilitate segregation, sorting and recovery of recyclable material. The segregated biodegradable and non-biodegradable waste are to be then transported to their respective processing facilities such as composting plants or waste-to-energy plants. Finally, the residual solid waste not suitable for recycling or further processing is to be safely disposed of in sanitary landfills, specifically designed to prevent pollution of groundwater, soil or air. The solid waste management process has been depicted diagrammatically in **Appendix-2.7**.

As per Solid Waste Management Rules, the responsibility framework for solid waste management in urban areas involves four entities: waste generators (households and other establishments), local authorities of urban areas (Urban Local Bodies or ULBs), Department of Urban Development and State Pollution Control Board. Waste generators are required to collect waste in segregated form and hand over the segregated waste to authorised waste collectors, paying user fees as may be prescribed by ULBs. The ULBs are responsible for collection, storage, transport, processing and disposal of solid waste and for charging user fees from waste generators. The Department of Urban Development is responsible for strategy formulation and planning for the entire State; and monitoring implementation of solid waste management activities by ULBs. The State Pollution Control Board is responsible for monitoring compliance with standards on quality of ground water, ambient air, leachate, compost, incineration standards, etc. The responsibility framework has been depicted diagrammatically in **Appendix-2.8**.

¹ As estimated by the Directorate of Urban Development, Government of Himachal Pradesh (February 2017).

2.2.2 Audit objectives

The objective of this performance audit was to evaluate performance in respect of the following aspects of solid waste management in urban areas:

- Planning and direction;
- Financial management;
- Collection, segregation, storage, transport, processing and disposal of solid waste; and
- Monitoring.

2.2.3 Audit criteria

The following sources were referred to for deriving audit criteria:

- Municipal Solid Wastes (Management and Handling) Rules, 2000;
- Solid Waste Management Rules, 2016;
- Himachal Pradesh Municipal Solid Waste Management Strategy, 2015;
- Action Plan for Municipal Solid Waste Management in Himachal Pradesh, 2017;
- State Strategy on Solid Waste Management, May 2019; and
- Circulars and orders issued by the authorities concerned.

2.2.4 Audit scope and methodology

The performance audit covered all stakeholders involved in management of solid waste in urban areas – Department of Urban Development, 16² out of 54 ULBs (for examination of various stages of the solid waste management process) and Himachal Pradesh State Pollution Control Board (HPSPCB). The methodology included scrutiny of records, joint physical inspections and survey using standardized questionnaire. The audit was undertaken in two phases – March 2018 to July 2018 and February 2020 to July 2020 (to ascertain updated status and action by the State Government in respect of draft audit findings issued in October 2018). The period covered by Audit was 2014-19.

The 'Entry conference' was held on March 23, 2018 with the Additional Chief Secretary (ACS), Urban Development to discuss the audit objectives, criteria, scope and methodology. The draft report was issued to the State Government in June 2020. Audit findings were discussed in an exit conference with the Secretary, Urban Development in August 2020. The response of the Government has been incorporated, as appropriate in this Report.

² Both Municipal Corporations in the State, *viz.* Shimla and Dharamshala; 12 (Baddi, Bilaspur, Chamba, Hamirpur, Kullu, Mandi, Nahan, Ner chowk, Paonta, Solan, Sundernagar and Una) out of 31 Municipal Councils in the State (39 *per cent* of total Municipal Councils selected on the basis of highest population); and two (Baijnath Paprola and Jawali) out of 21 NPs (10 *per cent* of total NPs on the basis of their population being more than 10,000).

Audit Findings

2.2.5 Planning and Direction

2.2.5.1 Strategy and Action Plan Documents

As per the Solid Waste Management Rules, 2016, Department of Urban Development was required to prepare solid waste management strategy for the State and every ULB was required to prepare a solid waste management plan in line with the State strategy. The Department had prepared a State Strategy on Solid Waste Management (2015, revised in May 2019) and an Action Plan for Municipal Solid Waste Management in Himachal Pradesh (2017) covering all 54 ULBs in the State. All 54 ULBs had prepared (March 2019) their respective solid waste management action plans.

The following shortcomings were observed in the documents:

- (i) *Institutional and financial resources* – The documents did not make any assessment of the institutional and financial resource-gap with reference to existing and required resources for solid waste management. In the absence of this, the additional funding and manpower requirements were not assessed which was reflected in deficient financial management and manpower shortages (detailed in paragraphs 2.2.5.2 and 2.2.6).
- (ii) *Segregation* – The documents did not offer any details on logistical arrangements for segregation of waste such as providing separate bins to waste collectors for collecting segregated waste, facilities for storing segregated waste, vehicles having separate compartments for transporting segregated waste, etc. This was concerning in view of the existing lack of capacity for collecting, storing and transporting solid waste in segregated form (as detailed in Paragraph 2.2.8).
- (iii) *Processing* –The strategy and action plan documents (2015, 2017) prepared by the Department envisaged setting up of cluster-wise waste processing plants. However, the revised strategy document (2019) moved away from the cluster-approach stating that land parcels were not available, and instead envisaged setting up of biodegradable waste processing facilities at ULB-level without specifying whether land was identified/ available. No mention of non-biodegradable waste processing facilities was made. This was a matter of concern in view of the absence of such facilities across the State (as detailed in Paragraph 2.2.10).
- (iv) *Disposal* – The strategy and action plan documents (2015 and 2017) prepared by the Department envisaged creation of cluster-wise sanitary landfills to cater to the needs of all ULBs in the State. However, the revised strategy document (2019) made no mention of sanitary landfills. This was a matter of concern as in the absence of sanitary landfills, waste would be continued to be dumped unscientifically at open dump sites in all ULBs (as detailed in Paragraph 2.2.11).

The above deficiencies in planning inevitably resulted in poor implementation, as detailed in paragraphs 2.2.6 to 2.2.14.

The Government stated (October 2020) that the plan documents provided for sorting of recyclable and combustible dry (non-biodegradable) waste for channeling to recycling industry and cement plants respectively. During the exit conference, the Secretary stated that zero-landfill concept would be introduced. The assertions of the department do not, however, address the issue of processing/ disposal of non-recyclable-non-combustible waste and other residual waste. Further, the other issues raised by Audit were not addressed.

2.2.5.2 Institutional capacity

The Department of Urban Development and ULBs should have sufficient institutional capacity for discharging its planning, directing, coordinating and monitoring responsibilities. As per Solid Waste Management Rules, 2016 Department of Urban Development is required to plan for SWM activities in the State and to monitor implementation of SWM activities by ULBs. At the ULB level, the Himachal Pradesh Municipal Services Act, 1994 provides that a sanitary supervisor and inspector should be posted to monitor work of safai karamcharis deputed for waste collection, street sweeping, etc.

Audit observed the following shortcomings in this regard:

- (i) At the level of the Department, all work relating to solid waste management was being handled by only one official (of the rank of Sanitation Expert) in a project management unit (PMU) created under Swachh Bharat Mission-Urban (SBM-U). This was clearly inadequate and the lack of institutional capacity meant that the Department was not able to properly discharge its planning and monitoring responsibilities as is evident from the deficiencies in the strategy and plan documents (highlighted in para 2.2.5.1), non-receipt of solid waste management action plans from ULBs until March 2018, and non-receipt of annual reports from ULBs.
- (ii) There was significant shortage (March 2020) of manpower/ functionaries in the ULBs as detailed in the following **Table-2.2.1**:

Table-2.2.1: Details of manpower in ULBs

Sl. No.	Name of Post	Sanctioned Strength	In Position	Vacant
1.	Executive Officer	31	15	16 (52)
2.	Secretary	21	10	11 (52)
3.	Sanitary Inspector	33	26	07 (21)
4.	Sanitary Supervisor	43	21	22 (51)
5.	Safai Karamchari	2,794	2,842 [#]	--
	Total	2,922	2,914	

Source: Data supplied by the Director, Urban Development

Note: Position in respect of S.No.1 to 4 is for all 54 ULBs of the State; position in respect of Sl. No. 5 is for the 16 test-checked ULBs

Through contractor: 1,656; Through society (in Shimla): 850; Own staff of ULBs: 336

The significant percentage of vacancies at the supervisory levels, i.e. sanitary inspector (21 *per cent*) and supervisor (51 *per cent*) adversely impacted overall management of solid waste and waste collection in particular (Paragraph 2.2.7).

During the exit conference, the Secretary stated (August 2020) that requisition for filling of vacant posts had been sent to Himachal Pradesh Public Service Commission.

2.2.5.3 Public awareness activities

As per the Swachh Bharat Municipal Solid Waste Management Manual, 2016, ULBs were required to raise awareness of stakeholders through regular meetings with households, establishments, industries, elected representatives, municipal functionaries, media, etc.

Scrutiny of records showed the following –

- (i) During 2014-19, 16 test-checked ULBs had received ₹ 1.38 crore under Swachh Bharat Mission-Urban (SBM-U) for Information, Education and Communication (IEC) activities. Out of this amount, ₹ 0.35 crore (25 *per cent*) was lying un-utilised (April 2019).
- (ii) Most of the expenditure was incurred on one-time events and no sustained mass awareness programme, multi-media campaign or regular meetings with households, establishments, industries, etc. was carried out to educate waste generators about their duties and responsibilities.

The inadequate focus on public awareness meant that stakeholders were not made aware about the key issues of segregation of waste at source, non-littering, etc. This was reflected in the instances of littering and non-segregation of waste at source as detailed in paragraphs 2.2.7.4 and 2.2.8.1.

2.2.6 Financial Management

2.2.6.1 Financing of solid waste management activities

The activities/ projects relating to solid waste management in urban areas were being financed through own funds of ULBs (including user charges), grants received from State/ Central Finance Commissions (SFC and CFC) for delivery of basic services (14th CFC has not distinguished between operation and maintenance and capital expenditure within the component of basic services), Centrally Sponsored Schemes such as JNNURM and SBM-U, and external aid. The detailed ULB-wise status of

finances is shown in the following **Table-2.2.2:**

Table 2.2.2: Detail of funds received for recurring and capital expenditure (2014-19)

(₹ in crore)

Name of ULB	Recurring expenditure				Expenditure on specific works/ projects of capital nature				
	Total Receipts	Total Expenditure	Unutilised funds	Expenditure on Solid Waste Management (SWM)	Source and Purpose	Total Receipts	Exp.	Unutilised Funds	Remarks
Baddi	38.84	38.84	-	11.48 (30)	-	-	-	-	-
Bajjnath	10.45	0.93	9.52 (91)	0.85 (91)	-	-	-	-	-
Bilaspur	15.45	16.67	-	3.40 (20)	-	-	-	-	-
Chamba	25.61	21.51	4.10 (16)	3.94 (18)	13th FC, Construction of composting pits	0.89 (2013-15)	0.69	0.20	Abandoned due to site dispute
Dharamshala	58.63	42.37	16.26 (28)	3.99 (9)	Director, Urban Development, Modern Underground Bins	6.01 (2016-17)	6.01	-	Completed
Hamirpur	8.71	8.71	0	1.66 (19)	-	-	-	-	-
Jawali	6.74	1.72	5.02 (74)	0.58 (34)	-	-	-	-	-
Kullu	34.41	34.35	-	10.16 (30)	-	-	-	-	-
Mandi	46.27	46.17	-	14.46 (32)	-	-	-	-	-
Nahan	13.23	9.51	3.72 (28)	5.37 (56)	-	-	-	-	-
Ner-chowk	14.63	4.98	9.65 (66)	0.48 (10)	-	-	-	-	-
Paonta Sahib	33.06	33.55	-	6.94 (21)	12th FC, Construction of composting pits	0.51 (2005-06)	0.13	0.38	Composting pits constructed on river bank; washed away; new pits being constructed
					Director, Urban Development, Modern Underground Bins	3.44 (2016-17)	1.55	1.89	36 out of 80 bins purchased (28 installed, 8 lying in MC premises)
Shimla	NA	NA	NA	NA	European Union, Construction of waste reduction centre	0.13 (2012)	0.00	0.13	Not Started
					JNNURM, Construction of sanitary landfill	3.00 (2013-15)	0.40	2.60	Not Started
Solan	109.69	109.69	-	27.29 (25)	12th FC, Purchase of machinery and equipment, processing plant, IEC activities etc.	1.60 (2007)	0.81	0.79	Dustbins purchased; boundary wall of dumping site constructed
Sundernagar	34.64	32.07	2.57 (7)	2.22 (7)	Director, Urban Development, Modern Underground Bins	3.44 (2016-17)	3.44	-	Completed
Una	44.84	16.42	28.42 (63)	4.07 (25)	-	-	-	-	-
Total	495.20	417.49	-	96.89	-	19.02	13.03	5.99	-

Source: Departmental figures.

NA – Data not available.

Figures in parenthesis indicate percentage.

The test-checked ULBs had incurred expenditure of recurring nature (payment of salaries, contractor charges, transport charges, etc.) on solid waste management activities to the extent of, on an average, 23 *per cent* of their total expenditure. This figure was particularly high in the case of two ULBs (Bajjnath: 91 *per cent* and Nahan: 56 *per cent*). Further, expenditure had also been incurred out of funds received for specific works/ projects of capital nature.

(i) *Unutilised funds under recurring expenditure –*

Out of the total funds/ income available with the ULBs, funds amounting to ₹ 79.42 crore (ranging between seven and 91 *per cent* of total funds/ income) remained unutilised with 10 test-checked ULBs. These funds could have been either used for meeting recurring expenditure or allocated for capital works/ projects relating to solid waste management.

(ii) *Expenditure on specific works/ projects of capital nature –*

Out of the 16 test-checked ULBs, six ULBs had received funds of ₹ 19.02 crore for capital projects/ machinery and equipment. Further, of the funds received, only ₹ 13.03 crore (of which ₹ 11 crore was spent on modern underground bins) had been spent by these six ULBs whereas the remaining ₹ 5.99 crore remained unutilised. Except for the work of modern underground bins, most of the other works/ projects such as construction of sanitary landfill, waste reduction centre, composting pits were either not started or remained incomplete.

(iii) *Additional sources of funding –*

Additional sources of financing such as 25 *per cent* viability gap funding (VGF) under Swachh Bharat Mission–Urban (SBM-U) for public-private-partnership (PPP) projects, funding under the Corporate Social Responsibility (CSR) from Industries, etc. could have helped support in fiscal outlays on creating infrastructure for management of solid waste. Audit observed that during 2014-19, none of the 16 test-checked ULBs had prepared any Detailed Project Reports for obtaining VGF under SBM-U or funding under CSR for solid waste management projects, indicating lack of initiative on part of the ULBs and the Department.

The above observations indicated that financing of solid waste management activities remained one area of concern, particularly in so far as expenditure on capital projects for solid waste management was concerned.

During the exit conference, the Secretary stated (August 2020) that apart from funding from Central/ State Finance Commissions and Schemes, user charges had also been prescribed in all ULBs to enhance their financial capacity. The reply may be seen in view of the fact that user charges by itself are grossly insufficient to cover requirement of funds for solid waste management activities, particularly for capital-intensive infrastructure-creation projects.

2.2.6.2 Collection of user charges

As per the Solid Waste Management Rules, 2016 and by-laws notified by the Department, ULBs were required to prescribe and collect user fees from waste generators on their own or through authorised agencies.

While all the 16 test-checked ULBs had prescribed user charges, only in 11³ ULBs, the user charges were being collected directly by the ULBs or by the outsourced agencies/ Society responsible for door-to-door waste collection.

Audit observed the following shortcomings:

(i) Non-collection of user charges –

User charges were not being collected by five ULBs (Baddi, Baijnath Paprola, Chamba, Dharamshala and Jawali), thereby foregoing an important source of income.

(ii) Non-assessment of user charges due –

In the remaining 11 ULBs, user charges were being collected without any assessment of amount due/ recovered from waste generators and establishment-wise ledgers (manual or computerised) had not been maintained. Thus, ULBs were not in a position to verify the correctness and completeness of recovery of user charges. This was a matter of concern in case of Hamirpur, Nahan, Shimla and Solan where the ULBs were directly or indirectly involved in collection of user charges and were incurring expenditure on door-to-door waste collection.

In the Municipal Corporation, Shimla, the Municipal Corporation had provided resource gap funding of ₹ 20.37 crore to SEHB Society⁴ responsible for waste collection during 2013-20. However, the Municipal Corporation had been releasing funds to the Society merely on the basis of monthly abstracts of receipts and expenditure submitted by the Society, without any supporting documents. Thus, there was an un-mitigated risk that the Society may under-report its receipts in order to obtain more funds than required from the Municipal Corporation.

(iii) Short-collection of user charges –

In two urban areas (Nahan and Solan), the ULBs had collected user charges of only ₹ 0.71 crore against a minimum realisable amount of ₹ 3.58 crore⁵ (as assessed by Audit on the basis of available records) during 2013-20 (upto December 2019). While the ULBs attributed the short-collection to refusal of households in depositing user charges, it was observed that these ULBs had not assessed the amount realisable and not taken any action against households to recover the user charges.

³ Bilaspur, Hamirpur, Kullu, Mandi, Nahan (since July 2019), Ner Chowk, Paonta, Shimla, Solan, Sundernagar, and Una.

⁴ Shimla Environment, Heritage Conservation and Beautification (SEHB) Society, responsible for door to door collection and lifting of garbage from households in Shimla.

⁵ Amount was calculated on the basis of number of households (i.e. residential households, commercial, government establishments, hotel etc.) multiplied by minimum user charges (₹ 50 in MC Solan and actual user charges in MC Nahan) establishment-wise and number of months.

The Government stated (October 2020) that directions had been issued (May 2019) to all ULBs to ensure that user charges are collected before making payments to the contractor(s) wherever waste-collection work had been outsourced. The fact, however, remains that the ULBs were not in a position to verify the correctness/ completeness of recovery of user charges. It is evident from the above that the ULBs efforts in generating own revenue is poor as they are not enforcing their mandate.

2.2.7 Collection of solid waste

2.2.7.1 Door-to-door collection

As per the Solid Waste Management Rules, 2016, door-to-door collection of solid waste is to be undertaken by the ULBs. A system of door-to-door collection of waste was in operation in all the 16 test-checked ULBs through outsourcing to private agencies/ Society which were to ensure collection of waste by designated waste collectors. Rates and frequency of collection are decided by the ULBs and included in the agreement signed between the Executive Officer and the contractors.

Audit observed the following:

- (i) None of the 16 test-checked ULBs had any mechanism to ensure that the waste collectors (private agencies/ Society) were collecting waste as per the prescribed schedule. No reports on the number, category and frequency of households and establishments covered by waste collectors was obtained from the private agencies/ Society by the respective ULBs.
- (ii) In a survey (March - June 2018) conducted by Audit of 2,156 households in 12 test-checked ULBs, only 84 households (four *per cent*) reported that they were not satisfied with the frequency/ quality of waste collection services. The high degree of satisfaction seemed to suggest that the system was working at an acceptable level. However, despite the apparently satisfactory door-to-door collection services, Audit observed a number of instances of littering and dumping of waste in open as detailed in paragraph 2.2.7.4 indicating that some waste generators and waste collectors were not depositing and collecting waste as per the rules/ prescribed schedule.

During the exit conference, the Secretary stated (August 2020) that 100 *per cent* door-to-door collection of waste had been prescribed. The fact, however, remains that there were several instances of littering and dumping of waste in the open observed during audit indicating that instructions issued by the department were not being strictly implemented/ enforced.

2.2.7.2 Collection through community bins

In 11⁶ out of 16 test-checked ULBs, there was a system of collection through community bins (in addition to door-to-door collection). The Solid Waste Management Rules, 2016 prescribe a schedule for clearing of bins depending on its capacity. A total

⁶ All test-checked ULBs except NP Baijnath Paprola (from September 2019), Bilaspur (from August 2016), Hamirpur (from August 2019), Ner Chowk and Solan (from September 2019).

of 908 community bins were available in these 11 test-checked ULBs. Scrutiny of records and physical inspection revealed the following:

- (i) None of the 11 ULBs had any mechanism to ensure that the bins were being cleared as per prescribed schedule, and no reports on the frequency of clearing of bins had been obtained from the private agencies/ Society or maintained by the ULBs.
- (ii) Audit observed several instances of waste overflowing from bins during the course of joint physical inspection in five urban areas viz. Baddi, Nahan, Shimla, Paonta and Sundernagar indicating that the frequency of clearing of bins was not regular.
- (iii) In four ULBs (Baddi, Chamba, Nahan and Paonta), it was observed that some bins were in broken condition, resulting in waste being littered in the surroundings.
- (iv) Except for dumper bins, other bins were invariably uncovered and the waste was exposed to the open atmosphere creating hazardous sanitary conditions.

Photographs are shown below:



Overflowing bin near ward No.3 near Barber Shop, Hamirpur Road, Una (17.02.2020)



Broken dumper in ward No. 1 Sultanpur, Chamba (11.03.2020)

The Government stated (October 2020) that community bins were being discouraged and phased out gradually and door-to-door collection was being encouraged. The reply does not address the problem of collection of waste from unorganized areas, floating populations (e.g. tourists) and other areas which are not covered by the system of door-to-door collection.

2.2.7.3 Collection through modern underground bins

In three (Dharamshala, Paonta and Sundernagar) out of the 16 test-checked ULBs, there was a system of collection of waste through “modern underground bins”, involving two underground bins for storing segregated biodegradable and non-biodegradable waste. As of March 2020, 248 bins (Dharamshala: 140; Sundernagar: 80 and Paonta: 28) had been installed at a cost of ₹ 10.74 crore (₹ 4.33 lakh per bin) at 124 locations by the contracted agency. Scrutiny of records revealed the following issues:

- (i) **Non-supply, non-installation and non-utilization of bins:** In Paonta, only 36 bins had been supplied against the requirement of 80 bins. Out of these, only 28 bins had been installed (March 2017 - March 2018) but were not being used as tipper truck for clearing the bins had not been supplied (as detailed in point (ii) below).

The other eight bins were lying idle in the premises of the Municipal Council which attributed (February 2020) the same to non-availability of site. This indicated that the system of modern underground bins had been started without analysing feasibility of their installation. Expenditure of ₹ 1.56 crore on the 36 idle bins remained unfruitful.

- (ii) **Non-supply of tipper trucks for clearing of bins:** In Sundernagar, only one tipper truck had been provided by the contracted agency instead of two tipper trucks stipulated in the agreement, thereby posing problems for clearing of bins. In Paonta, tipper truck for clearing of bins had not been provided by the contracted agency resulting in non-starting of services and installed bins remaining idle (as detailed in point (i) above).
- (iii) **Non-installation of bin leveling system and overflowing of bins:** As per agreement, the bins were to have a bin-leveling system to provide real-time information on the level of waste in the bins. However, bin leveling system had not been installed in any of the bins in the three ULBs. Consequently, the level of waste in the bins could be assessed only through physical checks. Further, no record had been maintained by the ULBs to ensure that the contracted agency was clearing the bins at regular intervals. The bins were observed to be overflowing at various places.
- (iv) **Broken/ uncovered bins:** In two urban areas (Dharamshala and Sundernagar), some of the installed bins did not have any covers, thus exposing the waste to the atmosphere thereby creating unhygienic conditions and also posing the risk of stray animals or small children falling into the bins (depth approximately two metres or more).

Photographs are shown below:



Bins lying idle in the yard of Municipal Council, Paonta (06.02.2020)



Overflowing bins in Ward No. 11, Dharamshala (17.03.2018)



Broken/ uncovered bins in Dharamshala (12.03.2020)

The Director, Urban Development did not furnish any plan of action for initiating corrective action.

2.2.7.4 Littering and dumping of waste

The Solid Waste Management Rules, 2016 prohibit littering of waste. As per the by-laws adopted by ULBs, fines can be imposed for littering and dumping of waste. The scrutiny of records and information made available by the department revealed the following:

- (i) Nineteen out of 54 ULBs⁷ had not installed any litter bins at public places, as of March 2020, to avoid littering of waste.
- (ii) In five⁸ out of 16 test-checked urban areas, community bins had been removed which resulted in littering and dumping of waste as floating populations, households and other establishments of these urban areas had no facility except door-to-door collection for depositing waste.
- (iii) Littering and dumping of waste was observed at several locations in 15⁹ out of 16 ULBs during joint physical inspection in February-July 2020.

Photographs are shown below:



Open dumping of waste in ward No. 08, Baddi (13.02.2020)



Open littering of waste in open in ward No. 4 near railway crossing, Una (17.02.2020)

The Government stated (October 2020) that door-to-door waste collection was being ensured in all ULBs from all waste generators to prevent any littering of waste. The reply does not consider the possibility that waste would also be generated by floating populations and areas not covered by door-to-door waste collection services, as is evident from the fact that widespread littering and dumping of waste was noticed during joint physical inspection.

2.2.8 Segregation, storage and material recovery/ recycling of solid waste

2.2.8.1 Segregation at source

As per the Solid Waste Management Rules, 2016, ULBs were responsible for collection of solid waste from waste generators in segregated form. Audit observed the following:

- (i) Waste collectors in 15 ULBs (all test-checked ULBs except Hamirpur) were not collecting waste in segregated form but in single bags. Thus, the waste was being mixed at the point of collection itself.
- (ii) In the 11 test-checked ULBs having community bins, it was observed that the bins had no facility for storing segregated waste. Thus, waste was being deposited in mixed form in community bins.

⁷ Bilaspur, Ghumarwin, Talai, Chamba, Chowari, Bhota, Hamirpur, Dehra, Joginder nagar, Karsog, Ner chowk, Chaupal, Jubbal, Rohru, Theog, Nahan, Baddi, Mehatpur Basdehra and Santokhgarh.

⁸ Baijnath Paprola (from September 2019), Bilaspur (from August 2016), Hamirpur (from August 2019), Ner Chowk and Solan (from September 2019).

⁹ Baddi, Baijnath Paprola, Bilaspur, Chamba, Dharamshala, Jawali, Kullu, Mandi, Nahan, Ner Chowk, Paonta, Solan, Shimla, Sundernagar and Una.

- (iii) In two ULBs (Dharamshala and Sundernagar) where separate modern underground bins were being used, waste was found to be deposited in mixed form (in Dharamshala, during physical inspection) and reported as being deposited in mixed form (in Sundernagar, in a survey conducted by Audit).

The Government stated (October 2020) that the ULBs were being instructed to improve the status of segregation at source while focusing on behavioral change in waste generators through Information, Education and Communication (IEC) activities.

2.2.8.2 Segregation at secondary level –

In view of non-segregation at source as discussed in the foregoing paragraph, facilities for segregation of waste at a secondary level (ward level, locality level, town level, etc.) should have been set up, so that waste could be segregated by informal or authorised waste pickers. Audit observed the following:

- (i) No facility for segregation of waste at secondary level had been set up in any of the 16 test-checked ULBs.
- (ii) In two (Hamirpur and Nahan) out of 16 ULBs, segregation into biodegradable and non-biodegradable waste was being undertaken at dump (waste disposal) sites by waste pickers engaged through outsourcing agencies. Composting pits had been constructed at these sites into which biodegradable waste was being deposited. However, such segregation at the final stage of the solid waste management process was not effective or sustainable as the volume of waste was too huge for proper segregation as discussed in the paragraph 2.2.10.1 (i).

The Government stated (October 2020) that the ULBs covered small areas and no secondary storage/ segregation facility was required as the waste was directly being transported to Material Recovery Facility (MRF). The reply is not acceptable as none of the test-checked ULBs had set up functional MRFs as of date of audit (Paragraph 2.2.8.3 below) and waste pickers were found to be sorting and collecting recyclables at dump sites.

2.2.8.3 Recycling/ Material Recovery –

As per the Solid Waste Management Rules, 2016 every ULB was required to set up material recovery facilities for sorting of recyclable materials by waste pickers. Audit observed the following:

- (i) None of the 16 test-checked (February-July 2020) ULBs had constructed any material recovery facility for sorting of recyclables.
- (ii) Physical inspection (February –July 2020) by audit showed that in 13 ULBs (all except Baijnath Paprola, Jawali and Ner Chowk), waste pickers were sorting and collecting recyclables including plastic, glass, metal and other items from dump (waste disposal) sites. Further, polythene waste was also being segregated at these dump sites and transported to cement factories by the ULBs.

Thus, even though material recovery facilities had not been constructed, some attempts seemed to have been made for sorting and reusing of recyclables.

The Government stated (October 2020) that 41 ULBs had established MRF and were registering rag-pickers/ scrap dealers for sorting recyclables for being channeled to recycling industry, and combustible dry waste was being sorted and channeled to cement industries. The reply is not tenable as it was not clear as to how such facilities had been set up in the short period between February-July 2020 and August 2020. Further, as already pointed out, none of the test-checked ULBs had set up MRF facility as of date of audit.

2.2.8.4 Storage facilities –

As per the Solid Waste Management Rules, 2016, every ULB was required to set up secondary storage facility for temporary storage of waste without exposure to open atmosphere. Audit observed the following:

- (i) None of the 16 test-checked ULBs had constructed secondary storage facilities with provision for storing segregated waste at the ward or street level.
- (ii) In the absence of secondary storage facilities, waste was being temporarily stored in community bins, dumper bins, open bins, open cage-like structures and open areas at the street and ward level in all 16 test-checked ULBs. Except dumper bins which were covered, all the other structures/ areas were uncovered and waste was exposed to the atmosphere. A photograph of open cage-like structures in Shimla is shown below:



A photograph of open cage-like storage structure in Summer Hill, Shimla. While the structure is covered from the top, it remains exposed to rain and wind from the sides, causing foul odour and insanitary conditions. Most of the waste was dumped outside the structure (28.03.2018)

The waste stored temporarily in the structures/ areas caused not only foul odour and unhygienic conditions but was also vulnerable to littering by animals/ birds, rain and wind, thereby posing the risk of vector-borne and other diseases.

2.2.9 Transport of solid waste

The Solid Waste Management Rules, 2016 define transportation of collected solid waste as conveyance of solid waste from one location to another through specially designed and covered transport system.

There were 192 vehicles viz. tractors, tipper trucks, dumper placers, tricycles, three-wheelers, etc. available with the 16 test-checked ULBs for transporting of waste. Audit observed the following shortcomings:

- (i) 191 vehicles were not equipped to handle segregated waste (e.g. through separate compartments). The tipper trucks used for transporting waste from modern underground bins did not have the capacity to handle segregated waste defeating the purpose of providing separate underground bins for storing segregated waste.
- (ii) 141 (73 *per cent*) out of the 192 vehicles (i.e. except 25 pick-up vans, one truck (Solan) and 25 dumper placers) were not covered.

Photographs are shown below:



An uncovered tipper truck transporting waste in Shimla (28 March 2018)



Uncovered tipper truck collecting waste from modern underground bin in Dharamshala (17 March 2018)

The above shortcomings meant that waste was being transported in mixed form and in uncovered vehicles, causing foul odour, littering and unhygienic environment.

The Government stated (October 2020) that all the vehicles used for transporting waste were using tarpaulin covers to transport the waste in covered manner. However, records of the department and photographs taken during joint physical inspection did not support the above contention.

2.2.10 Processing of solid waste

As per the Solid Waste Management Rules, 2016, the ULBs are required to facilitate construction, operation and maintenance of solid waste processing facilities and other associated infrastructure, adopting suitable technology¹⁰ for biodegradable waste, and waste to energy processes¹¹ for combustible/ non-biodegradable waste.

2.2.10.1 Biodegradable waste

Biodegradable waste should be processed through bio-methanation, microbial composting, vermi-composting, anaerobic digestion or any other biological processing method.

(i) Non-availability of processing facility for biodegradable waste

- a) Records of the Director, Urban Development showed that facility for processing of biodegradable waste had not been setup in 43 (80 *per cent*) out of the 54 ULBs.

¹⁰ Using bio-methanation, microbial composting, vermi-composting, anaerobic digestion, etc.

¹¹ Including refuse derived fuel (RDF).

- b) In the 11 ULBs where 11 such facilities existed, it was found that eight were non-functional and three were partially functional, as of March 2020, as shown in **Table-2.2.3**:

Table-2.2.3: Details of biodegradable waste processing plants

Sl. No.	ULB	Year of sanction	Cost (₹ in crore)	Type of Plant	Capacity (MT/day)	Status of plant
1.	Solan	1999-2000	1.60	Aerobic composting	20 MT/ day	Non-functional
2.	Una	1998-99	0.50	Pit composting	5-6 MT/ day	Non-functional
3.	Chamba	2006 and 2008	0.97	Pit composting	8-9 MT/ day	Non-functional
4.	Kangra/ Nagrota	1998-99	0.50	Pit composting	8-9 MT/ day	Non-functional
5.	Dharamshala	1998-99	0.50	Aerobic composting	6 MT/ day	Non-functional
6.	Santokhgarh	2005-06	0.51	Pit composting	8-9 MT/ day	Non-functional
7.	Bilaspur	2010	0.15	Pit composting	6 MT/ day	Non-functional
8.	Manali	2003-04	2.00	Pit composting	20 MT/ day	Partially-functional; non-functional since March 2018
9.	Kullu	1999-2000	1.69	Bio-conversion	20 MT/ day	Partially-functional
10.	Hamirpur	2005-06	0.50	Pit composting	8-9 MT/ day	Partially-functional
11.	Nahan	1999-2000	0.49	Pit composting	9 MT/ day	Partially-functional
Total			9.41			

- Non-functioning of the plants at Sl. No. 1 to 8 of the above Table was attributable mainly to non-supply of segregated biodegradable waste as input. No biodegradable waste had been processed in these plants during 2014-19 (since March 2018 in the case of plant at Sl. No. 8) against an approximate processing capacity of 1.22 lakh MT over the period. Expenditure of ₹ 6.73 crore on these non-functional plants remained largely unfruitful.
- The plants at Sl. No. 9 to 11 of the above Table had been made partially-functional by supplying segregated biodegradable waste from dump (waste disposal) sites as input. However, such segregation at the last stage was not effective as only 0.12 lakh MT (18 per cent) had been processed during 2014-19 against an approximate processing capacity of 0.68 lakh MT over the period.

Thus, there was no fully-functional facility for processing biodegradable waste in the State.

The Government stated (October 2020) that pit composting facility had been developed/ made operational in 37 ULBs (including 11 out of the 16 ULBs test-checked by Audit). However, the veracity of this claim was not supported by any documentary evidence.

2.2.10.2 Non-biodegradable solid waste

Non-biodegradable solid waste is to be processed through waste-to-energy processes such as refuse derived fuel (RDF) for generating energy or supply as feedstock to solid waste based power plants or cement kilns.

(i) Non-availability of processing facility for non-biodegradable wastes

Records of the Director, Urban Development showed that except for one waste-to-energy plant located in one ULB (Shimla), there were no facilities for processing of non-biodegradable waste in the remaining 53 ULBs. Further scrutiny showed that even the waste-to-energy plant in Shimla was non-functional as detailed in point (ii) below. Thus, there was no functional facility for processing non-biodegradable waste in the State.

The Government stated (October 2020) that non-recyclable non-biodegradable waste was being sorted and combustible portion was being channeled to cement plants. However, the reply does not address the issue of processing of the non-combustible portion left behind after such sorting and channeling.

(ii) Non-functional Waste-to-Energy Plant in Shimla

The Municipal Corporation, Shimla signed (March 2016) an agreement with M/s Elephant Energy Private Limited (M/s EEPL) for operating a Waste to Energy Plant in Shimla (at Bhariyal). The plant was to receive solid waste generated from Shimla city as input and convert the same into RDF to be used as fuel to produce gas for generating power. Power generated from the plant was to be purchased by Himachal Pradesh State Electricity Board as per power-purchase-agreement with M/s EEPL.

The scrutiny of records of the Municipal Corporation, Shimla and interview with the Site Manager (M/s EEPL) of the plant showed that the plant was effectively non-functional. Only one out of the two lines for producing RDF was functional (December 2017) and against 90 MT/ day of waste received in the plant, only 60 MT/ day of waste was being converted into RDF. However, even the RDF produced could not be processed by the gasifiers owing to very high oxygen content, attributable mainly to unsegregated waste being received in the plant.

Thus, the plant remained non-functional (as of August 2020) even after lapse of more than 44 months from the stipulated date (16 December 2016) of commissioning of the project. The unprocessed waste and the unused RDF were being dumped at the dump site near the plant and in the plant premises as shown in photographs below:



Unprocessed waste and RDF at dump site and within plant premises at Bhariyal, Shimla (20.12.2018)

The Health Officer, Municipal Corporation, Shimla and the Additional Director, Urban Development confirmed (July and August 2020) the facts.

(iii) Non-start of work of waste processing and disposal facility in Mandi

A project for setting up of waste processing and disposal facility in Mandi was sanctioned (August 2013) for ₹ 2.50 crore by the Central Pollution Control Board (CPCB). The work was to be completed within 18 months from the release of first installment.

The scrutiny of records of Municipal Council, Mandi and Himachal Pradesh State Pollution Control Board (HPSPCB) showed that work had not been started as of May 2018, due to funds not being released by the CPCB for the project. This was due to delayed submission¹² of revised DPR by the Municipal Council to CPCB, non-receipt of authorisation for the site from HPSPCB due to poor site selection¹³ and delay in receipt of environment clearance from the State-level Environment Impact Assessment Authority.

The Executive Officer, Municipal Council, Mandi stated (July 2020) that the work would be started after receiving funds from the CPCB.

Thus, waste being collected in the 54 urban areas of the State was not being processed and was being dumped at disposal sites without processing.

2.2.11 Disposal of solid waste

As per the Solid Waste Management Rules, 2016, the ULBs were required to undertake safe disposal of waste in sanitary landfills in accordance with prescribed specifications and ensure that only non-usable, non-recyclable, non-biodegradable, non-combustible and non-reactive inert waste is disposed of in the sanitary landfills.

¹² Sent in January 2018.

¹³ At a distance of approximately 10 metres from the national highway and 150 metres from the river Beas, whereas Rules stipulated that a landfill site should be at a distance of at least 200 meters from highways and 100 meters from rivers.

2.2.11.1 Non-construction of sanitary landfills

The department of Urban Development was responsible for facilitating establishment of sanitary landfills for towns/ groups of towns.

The scrutiny of records of the Director, Urban Development showed that no sanitary landfill had been set up in any of the 54 ULBs.

During the exit conference, the Secretary, Urban Development stated (August 2020) that the department was planning a zero-landfill framework by reducing waste generation and reusing/ recycling maximum volume of waste. The reply does not address the issue of disposal of non-recyclable-non-combustible waste and other residual waste in a zero-landfill framework.

2.2.11.2 Disposal of waste in open dumpsites

As per the Solid Waste Management Rules, 2016, the ULBs were to stop dumping of waste at dump sites without following principles of sanitary landfilling. The National Green Tribunal order (December 22, 2016) had prohibited open burning of waste and strict action against defaulting ULBs.

- (i) ***Open dumping of waste*** – In the absence of sanitary landfills, solid waste being collected was being dumped unscientifically in the open at dump sites. Data provided by the 16 test-checked ULBs showed that 2.28 lakh MT of unsegregated solid waste was dumped unscientifically in open dump sites during 2014-19.

Photographs are shown below:



Dumping site at Salogra, Solan (31.01.2020)



Dumping site at Kenduwal, Baddi (13.02.2020)

- (ii) ***Burning of waste*** – Joint physical inspections showed instances of burning of waste in six test-checked ULBs (Baddi, Bilaspur, Jawali, Una, Hamirpur and Mandi) as shown in the photographs below:



Burning of waste in ward No. 04, Baddi (13.02.2020)



Burning of waste at dumpsite at Bindravani, Mandi (22.05.2018)

- (iii) **Location of dump sites** – As per the applicable Rules, a landfill site should be at a distance of at least 100 metres from river and 200 metres from the highways. Joint physical inspection (February–July 2020) showed that dump sites, in 13 out of 16 test-checked ULBs, were located near water bodies or highways and in two ULBs near habitations. Details are given in **Table-2.2.4** below:

Table-2.2.4: Details regarding location of dump sites in 15 test-checked ULBs

ULB	Location of dump site
Baddi	Near <i>khud</i> at Kenduwal village.
Bajnath Paprola	Near Bajnath bridge beside <i>nallah</i> which drains into tributary of Beas river.
Bilaspur	At Khairian village adjacent to Govind Sagar lake; dump site has no retaining wall.
Chamba	Old dump site beside Ravi river (site not in use but remains filled with waste).
Dharamshala	Near HRTC workshop on forest land causing public nuisance.
Jawali	Beside the main bus stand causing public nuisance.
Hamirpur	At Dugneri on steep slope descending into tributary of Beas river.
Kullu	At Pirdi near Beas river.
Mandi	At Binderavani, 10 metre away from National Highway, and 50 metre above Beas river.
Ner Chowk	At Binderavani, 10 metre away from National Highway, and 50 metre above Beas river.
Paonta	Beside Yamuna river.
Una	At Rampur village, beside Swan river.
Shimla	At Bhariyal on steep slope descending into <i>nallah</i> from which water body originates; lift water supply, and irrigation scheme (Shilli Baggi), and water supply scheme (Jubberhatti) located about 1.50 km downstream.
Solan	At Salogra, beside the National Highway; NGT order to shift the site 50 metre further away has not been implemented so far; as per HPSPCB report, quality of natural water sources near dump site is poor, and the water is not fit for drinking.
Sundernagar	At Chandpur, near source of water bodies.

The data on ground water quality near these dump sites had not been collected by the ULBs or the HPSPCB. The dumping of waste at open dump sites, posed a high pollution threat to ground water from leachates and surface runoff, and high risk of diseases particularly to waste pickers and workers at these sites.

Neither did the Director, Urban Development nor did the Secretary, Urban Development address the above significant issues, in their reply/ exit conference.

2.2.12 Other types of waste

As per the SWM Rules, 2016, street sweepings and waste from drains are to be transported directly to sanitary landfills and separate provisions are to be made for domestic hazardous wastes and waste from slaughter houses. Audit observed the following:

- (i) None of the 16 test-checked ULBs had made arrangement for direct transport of street sweepings to waste disposal sites and management of domestic hazardous waste. Such waste was being mixed with the solid waste in community bins/ transporting vehicles collected from households/ establishments.
- (ii) 15 test-checked ULBs (except Municipal Corporation, Shimla) had not made any arrangement for separate management of waste from authorised slaughter houses. All such wastes were being mixed with the solid waste being collected from households/ establishments and being dumped at dump sites.

The absence of system for management of other types of waste, as detailed above, resulted in its mixing with the waste collected from households/ establishments which hampered downstream processes of waste management.

The Government stated (October 2020) that the Department was developing domestic hazardous waste collection kiosks for collection of hazardous waste.

2.2.13 Worker welfare and protection

2.2.13.1 Safety of workers

As per Municipal Solid Waste (Management and Handling) Rules, 2000, manual handling of wastes, if necessary, should be carried out under proper precautions for safety of workers. Audit observed the following:

- (i) 13¹⁴ of the 16 test-checked ULBs had not provided personal protective equipment (gloves, gum boots, face masks, etc.) to workers engaged in handling solid waste. Even the other three test-checked ULBs (Baddi, Paonta and Shimla) had provided personal protective equipment to workers only occasionally during 2014-20.
- (ii) In five¹⁵ test-checked ULBs, workers handling solid waste at dump sites were residing within the area of the dump sites, posing serious risk to their health.

The Executive Officers of the test-checked ULBs stated (February-July 2020) that the respective contractors would be directed to provide safety equipment and conduct periodic health checkups of workers.

¹⁴ Baijnath Paprola, Bilaspur, Chamba, Dharamshala, Hamirpur, Jawali, Kullu, Mandi, Nahan, Ner Chowk, Solan, Sundernagar, and Una.

¹⁵ Dharamshala, Hamirpur, Kullu, Solan and Sundernagar.

2.2.13.2 Social security

(i) *Employees Provident Fund (EPF) scheme*

The EPF Scheme, 1952, provides that every eligible employee shall be entitled/required to become a member of the Fund, and employer and employee EPF contribution shall be deposited with the EPF Commissioner.

- ***Non-providing of EPF facility*** – In ten¹⁶ test-checked ULBs, the EPF facility was not being provided to the workers engaged through contractors; these ULBs were releasing payment to the contractors without ensuring the same.
- ***Non-depositing of EPF contribution*** – In one ULB (Shimla), amount of ₹ 0.60 crore¹⁷ had not been deposited with the EPF Commissioner as of March 2018 despite recovery notices issued by the Recovery Officer. In another ULB (Mandi), EPF contribution of ₹ 2.37 lakh¹⁸ had been deducted from wages of outsourced workers by the ULB, but not deposited with the EPF Commissioner.

The Executive Officers of the ULBs stated (February-July 2020) that directions would be issued to contractors for registration of workers under the scheme and deduction and deposit of EPF contributions would be ensured.

(ii) *Employees' State Insurance scheme*

The Employees State Insurance Scheme is designed to protect employees against impact of sickness, maternity, disablement, death due to employment injury and to provide medical care to insured persons and their families. The Scheme is financed by contributions from the employers and the employees.

- ***Non-providing of ESI facility*** – In 14 test-checked ULBs (except Kullu and Shimla), ESI facility was not being provided to contractual workers; these ULBs were releasing payment to the contractors, without ensuring the same.
- ***Non-deduction of ESI contribution*** – One ULB (Shimla) had not ensured deduction of contribution of ₹ 94.38 lakh¹⁹ by the SEHB Society.

The Executive Officers of ULBs stated (February-July 2020) that directions would be issued to contractors for registration of workers under the schemes and deduction and depositing of contributions would be ensured.

(iii) *Public Liability Insurance*

The Public Liability Insurance Act, 1991 provides for public liability insurance for persons affected by accidents occurring while handling hazardous substance.

¹⁶ Baddi, Baijnath Paprola, Bilaspur, Chamba, Dharamshala, Mandi, Ner Chowk, Solan, Sundernagar and Una.

¹⁷ Out of total contribution of ₹1.99 crore (June 2010 to December 2013).

¹⁸ For 2016-17.

¹⁹ For June 2012 to June 2016.

In one ULB (Shimla), workers had been engaged for handling of mixed solid waste (including hazardous substances) at the waste-to-energy plant. However, there was no clause for insuring the workers under the Public Liability Insurance Act in the agreement signed between the Municipal Corporation and the contractor (M/s EEPL). The Health Officer, Municipal Corporation, Shimla confirmed (July 2020) the facts.

2.2.14 Monitoring

2.2.14.1 Monitoring at ULB level

As per the Solid Waste Management Rules, 2016 quarterly review of solid waste management was to be undertaken by the Deputy Commissioner and corrective measures were to be taken in consultation with the Commissioner of the municipal administration, Director of Local Bodies and the Secretary-in-charge of the Department.

Audit noticed that quarterly review of solid waste management had not been conducted in any of the 16 test-checked ULBs, during 2014-19. The Executive Officers of the test checked ULBs confirmed the facts and stated (March-June 2018) that a monitoring committee under the chairmanship of Commissioner would be constituted. Audit observed that starting from January 2020, review meetings chaired by the respective Deputy Commissioners to monitor solid waste management functions were being conducted in all the 16 test-checked ULBs.

The Government stated (October 2020) that a software was being used to monitor monthly progress. The fact, however, remains that despite monitoring as claimed by the department, waste was found to be overflowing in bins, littered in the open, and dumped in open dump sites.

2.2.14.2 Non-monitoring of environmental quality standards by the ULBs and the HPSPCB

According to the Rules, the ULBs were to ensure adherence to standards of water quality, ambient air quality and leachates in/ around landfill sites or dumpsites and standards relating to composting at waste processing facilities. The HPSPCB was required to monitor compliance with standards relating to sanitary landfills, water quality, ambient air quality, composting, leachates, incineration, etc. in respect of waste processing facilities and disposal sites.

Audit noticed that during 2014-19, none of the 16 test-checked ULBs had conducted any quality tests to ensure adherence to the standards specified in the Rules. Further, it was noticed that in spite of open dumping of waste, the HPSPCB had not conducted tests for assessment of water quality, ambient air quality and leachates in any of the test-checked ULBs.

Thus, neither did the ULBs nor did the HPSPCB monitor the adverse environmental impact of open dumping of waste.

The Executive Officers of test-checked ULBs confirmed the facts and stated (February-July 2020) that compliance with quality standards would be ensured in future.

2.2.15 Conclusions

The management of solid waste by the ULBs of the State was not effective in controlling disposal of waste in a scientific manner and keeping the urban areas clean. Data upkeep with respect to frequency and extent of solid waste collection, segregation and disposal was found deficient in some ULBs while it was completely lacking in few other ULBs. Further, in order to finance the regular Solid Waste Management activities, regular fixation, revision and collection of user charges was not consistently followed by the ULBs, while funds available for capital expenditure was not being fully spent, adversely affecting the creation of required infrastructure. The overall performance of ULBs in Solid Waste Management is detailed in **Appendix 2.9**.

Further, the State Government had notified (August 2014, March 2016) ULBs service level benchmarks (SLBs)²⁰ for solid waste management and need for measuring/achieving the SLBs on various indicators for release of performance grant, as per recommendations of Finance Commission. In spite of these instructions, data on achievement on various indicators for the period 2014-19 was available with the Directorate of Urban Development/ published by some ULBs only for some years. The GoI had not released performance grant of ₹ 32.44 crore²¹ for the period 2016-20. Further, as observed from available data for 11 (out of 16 test-checked) ULBs, achievement against six²² indicators (**Appendix 2.10**) was reported by some ULBs to be much higher/ better (instances detailed in footnote²³) than the status observed during audit (**Appendix 2.9**), particularly in respect of the aspects of segregation, material recovery and disposal of solid waste. The variation between the achievement reported by the ULBs and position observed during audit indicated that the ULBs were not acknowledging deficiencies in the various stages of the solid waste management process.

As a consequence of the serious deficiencies in collection, segregation, storage, processing and disposal of solid waste highlighted in this report, unsegregated and unprocessed solid waste was being littered and unscientifically dumped in open “dump sites”, an unsustainable practice posing risks to human health and the environment.

²⁰ Notified by the State Government in accordance with standards specified in Handbook on Service Level Benchmarks (SLBs) published by Ministry of Urban Development (MoUD).

²¹ Against performance grant of ₹ 40.35 crore recommended by 14th Finance Commission for 2016-20 (2016-17: ₹ 7.91 crore; 2017-18: ₹ 8.95 crore; 2018-19: ₹ 10.17 crore and 2019-20: ₹ 13.32 crore), GoI had released performance grant of only ₹ 7.91 crore during 2016-17.

²² Six out of eight SLBs were compared with audit findings, excluding “extent of cost recovery in SWM services” and “efficiency in redressal of customer complaints”.

²³ Extent of segregation of solid waste reported by ULBs (in *per cent*): Kullu (73), Mandi (90), Nahan (50), Shimla (70), Solan (60), and Sundernagar (80) whereas no segregation was observed during audit; Extent of MSW recovered reported by ULBs (*per cent*): Kullu (93), Nahan (100), Shimla (90), Solan (80) and Sundernagar (80) whereas *no* partial material recovery was observed during audit; Extent of Scientific Disposal of MSW reported by ULBs (*per cent*): Baddi (75), Mandi (80), Nahan (75), Shimla (80), Solan (90) and Sundernagar (70) whereas waste was being dumped unscientifically in dump sites.

2.2.16 Recommendations

In view of the observations made by audit, it is recommended that the department may ensure that ULBs:

- (i) *Put in place a mechanism for regular collection of user charges for financing recurring as well as capital expenditure for strengthening infrastructure;*
- (ii) *Strengthen waste collection system with reporting and monitoring regarding collection, segregation and disposal of solid waste;*
- (iii) *Strengthen waste segregation mechanism by collecting waste in segregated form, placing separate waste collection and storage bins for bio-degradable and non-biodegradable waste, and transporting bio-degradable and non-biodegradable waste in segregated form or in separate vehicles;*
- (iv) *Perform in accordance with the Service Level benchmarks (SLBs) for the Management of solid waste;*
- (v) *Consider adopting penal measures as a deterrent against irregular disposal of waste, sensitize public through suitable Information Education Communication campaigns;*
- (vi) *Setup waste processing facilities and sanitary landfills in accordance with the applicable rules and standards.*