CHAPTER II

COMPLIANCE AUDIT

Important audit findings that emerged from the test check of transactions of the Economic Sector Departments of the Government of Gujarat are included in this Chapter.

AGRICULTURE, FARMERS WELFARE AND CO-OPERATION DEPARTMENT

2.1 Functioning of Junagadh Agricultural University

2.1.1 Introduction

Junagadh Agricultural University (JAU) came into existence on 01 May 2004 by enactment of Gujarat Agricultural Universities Act, 2004 (GAU Act). JAU was carved out of the erstwhile Gujarat Agricultural University to provide support to the agriculture and allied sectors in the three facets of education, research and extension education[1]. JAU has jurisdiction over ten districts[2] of Saurashtra region (Western Gujarat) covering about 32.74 *per cent* of the geographic area and 30.30 *per cent* of the cultivated area of the State. The important functions of the University are broadly categorised as (A) Education, (B) Research and (C) Extension Education. The organisational set-up of JAU depicting (A) authorities of the JAU (B) functions of the JAU and (C) Officers of the JAU is shown in **Appendix II.**

Status of sowing area and crop production in the state

A comparison of crop-wise sowing area and crop production as in 2003-04 (before establishment of JAU) and 2017-18 is shown in **Appendix III.**

It can be observed from **Appendix III**, that there was no significant increase in sowing area in Saurashtra region between 2003-04 and 2017-18. Crop production in Saurashtra decreased whereas in rest of Gujarat it increased by more than twice. Groundnut and Cotton are two major crops of Saurashtra wherein the sowing area is greater than rest of Gujarat. Further, sowing area of cumin, gram, sesame, garlic and onion in Saurashtra were highest in the state.

Receipts and Expenditure of Junagadh Agricultural University

JAU receives statutory grants from Government of Gujarat (GoG) under Section 47 of GAU Act. JAU also generates revenue by way of collection of tuition fees, examination fees, receipts from sale of farm/ dairy products, interest from bank deposits, *etc*. Besides, the University also gets funds from

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1 Application of scientific research and new knowledge to agricultural practices through farmer education.

2 Amreli, Bhavnagar, Devbhumi Dwarka, Gir Somnath, Jamnagar, Junagadh, Morbi, Porbandar, Rajkot and Surendranagar.

Indian Council for Agricultural Research (ICAR) and other agencies for taking up various activities. The details of grants received from GoG, own receipts of the University and grants from ICAR and other agencies[3] and expenditure incurred therefrom during 2014-19 are shown in **Appendix IV**.

It can be seen from the Appendix that JAU received total ₹ 1,110.39 crore during 2014-19 while it incurred total expenditure of ₹ 1,056.96 crore wherein education, research and extension education accounted for ₹ 613.35 crore (58.03 *per cent)*, ₹ 349.01 crore (33.02 *per cent*) and ₹ 94.60 crore (8.95 *per cent*) respectively.

2.1.2 Scope and Methodology of Audit

The Subject Specific Compliance Audit (SSCA) on Functioning of Junagadh Agricultural University was conducted during March 2019 to August 2019 covering three activities of the JAU *viz.*, education, research and extension education for the period 2014-15 to 2018-19. JAU has eight Undergraduate/ Post Graduate Course Colleges, seven Krishi Vigyan Kendra (KVKs) and 31 Research Stations. Records of all colleges were examined in respect of accreditation, intake numbers and reservations. Under Extension Education, three KVKs *viz.*, Jamnagar (highest expenses), Amreli (medium expenses), and Khapat (lowest expenses) were selected for detailed scrutiny. Besides this, 25 out of 119 works contracts awarded during 2014-19 were selected for detailed review. These 25 contracts covered 72 *per cent* of total expenditure on works contract. During the course of audit, relevant records were examined, discussions were held with the University officials, joint inspections of three colleges[4] were conducted, and audit observations were raised.

2.1.3 Audit objectives

The Subject Specific Compliance Audit (SSCA) on the functioning of the university was undertaken to get reasonable assurance that;

- The education activity was carried out in an efficient and effective manner as per the statutory and regulatory framework of the GAU Act and resulted in fulfilling the objectives of the GAU Act;

- The areas for research were properly identified and research activity was implemented as per relevant standards within stipulated time; and

- The extension education was provided to the agricultural community on regular basis and the extension education mechanism was effective in delivering the desired benefits to the agricultural community.

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[3] Private companies, NGOs, Institutions and other government agencies.

[4] In respect of placement data (College of Agriculture, Junagadh and College of Agricultural Engineering Junagadh) and regarding completion of construction of college building at College of Agriculture (Khapat).

Audit Findings

The observations on Education, Research, Extension Education and other areas are discussed in succeeding paragraphs.

2.1.4 Education

The educational programme in JAU is based on two-tier system. The first tier covers higher education in the areas of Agriculture, Horticulture, Fisheries, Veterinary & Animal Husbandry, Agricultural Engineering and Agri-business management.

The second tier consists of lower education for certificate programmes like Agro-based Industrial Training Institute (I.T.I.), Bakery Training, *Mali* Training and Extension Education Training *etc*. Observations related to education activities of JAU are discussed in succeeding paragraphs:

2.1.4.1 Delay in Accreditation

The National Agricultural Education Accreditation Board (NAEAB) was established (1996) by the ICAR to accredit State Agricultural Universities (SAUs) on completion of five academic years. Accreditation has to be renewed from time to time. Government of India made accreditation mandatory from the year 2016-17 and linked disbursement of grant to the institutions with accreditation. The following **Table 1** exhibits the accreditation status for various colleges under JAU as on 31 May 2020:

Table 1: Accreditation status of various colleges, JAU as on 31 May 2020

Sl. No.	Name of the college	Year of establishment	Due date for renewal/first accreditation	Period of renewal accreditation (for 05 years)
1	College of Agriculture, Junagadh	1960	June 2014 (renewal)	March 2016 to March 2021
2	College of Agriculture. Engineering and Technology, Junagadh	1984	June 2014 (renewal)	March 2016 to March 2021
3	College of Fisheries Sciences, Veraval	1991	June 2014 (renewal)	March 2016 to March 2021
4	College of Veterinary Sciences, Junagadh	2008	June 2014 (First)	March 2016 to March 2021
5	PG Institute of ABM, Junagadh	2008	June 2013 (First)	March 2016 to March 2021
6	College of Horticulture, Junagadh	2012	June 2017 (First)	January 2020 to March 2021
7	College of Agriculture, Mota Bhandaria	2013	June 2018 (First)	January 2020 to March 2021
8	College of Agriculture, Khapat	2015	June 2020 (First)	Due in June 2020

(Source: Information provided by JAU)

It can be observed from **Table 1** that there was a delay of two years (*i.e.*, 2014 to 2016) in renewal of accreditation certificate in cases of colleges mentioned at Sl. No.1 to 3. Further, in case of colleges at Sl. No 4 and 5 there was delay in obtaining accreditation for the first time. In all these five cases (Sl. No. 1 to

5) JAU failed to submit required documents to NAEAB in time which led to delay in accreditation.

In case of Sl. No.6 and Sl. No. 7, JAU belatedly applied for accreditation in March 2019 and November 2018 respectively. Due to this, these colleges neither received any grant nor any students from ICAR during academic years 2018 and 2019.

The accreditation of colleges helps the students to get better placements and better prospects of admission in higher studies at reputed national/international institutes. It also improves ranking of the University. Further, the financial aid and students from ICAR also depends upon the accreditation.

2.1.4.2 Placement of students

JAU has a student Counselling and Placement Cell in each college. The placement of students from various colleges for the period from 2016-17 to 2018-19 is summarised in the following **Table 2** and detailed at **Appendix V**.

Table 2: Placement Data for the year 2016-19

(In number of students)

Particulars	2016-17	2017-18	2018-19	Total
Students passed out (A)	739	740	771	2250
Students seeking placement (B)	230	287	292	809
Students got placement (C)	230	188	142	560
Students got placement in private sector (D)	195	140	113	448
Placement (C) *per cent* compared to (B)	**100**	**65.51**	**48.63**	**69.22**
Placement *per cent* in private sector (D) compared to (C)	**84.78**	**74.47**	**79.58**	**80**

(Source: Placement reports of JAU for the years 2016-17 to 2018-19)

Audit observed that the placement percentage has shown a declining trend during 2016-19. Most of the students (80 *per cent*) got placement in the private sector. As per the Placement Reports published by JAU, the annual salary package offered to these students ranged between ₹ one lakh and ₹ 6.60 lakh *per annum*. Further, Audit visited two colleges[5] and found that supporting documents regarding number of students seeking placement as well as students opting out of placement process were not available with the colleges.

Audit also observed that newly established College of Horticulture (CoH) and College of Agriculture, Mota Bhandaria (CoAM) did not have placement cells to carry out the placement activities and facilitate students seeking placement. During 2016-19, total 174 and 79 students passed out from CoH and CoAM respectively. However, only during 2018-19 three students from CoH and one student from CoAM got placement.

Since JAU follows the same curriculum designed by ICAR along with other SAUs, other parameters like delay in getting accreditation from ICAR

[5] College of Agriculture, Junagadh and College of Agriculture Engineering and Technology (CAET), Junagadh.

(Paragraph 2.1.4.1), and lack of efforts by placement cells were the reasons behind such placement numbers.

2.1.4.3 Enrolment of students

Details of enrolment of students in Undergraduate courses (UG) and Post Graduate Courses (PG) by JAU during 2013-18 are as under:

Table 3: Details of students enrolled into Degree courses during 2013-18

Intake Capacity		Students admitted		Shortfall		Students Dropped out	
UG	PG	UG	PG	UG	PG	UG	PG
2,294	1,802	1,921	1,216	373	586	84	205

(Source: Information provided by JAU)

Details of intake capacity, enrolment and dropout of students during 2013-18 are depicted in **Appendix VI**. Audit observed that:

***In case of UG courses*,** there was a shortfall ranging between 8.51 *per cent* and 23.09 *per cent* in the students admitted against intake capacity. In case of College of Fisheries Science, Veraval, except in 2017-18, vacant seats were more than 30 *per cent* of intake capacity. Further, as compared to 2016-17, in 2017-18 dropout numbers increased in CoAM (from one to three) and CoAK (from none to three).

In PG courses, there was a shortfall in student intake ranging from 17.14 to 48.64 *per cent*. In College of Agriculture, Engineering & Technology, Junagadh, more than 60 *per cent* seats for Ph.D. courses remained vacant during 2013-18. In College of Veterinary Science & Animal Husbandry, Junagadh, except in 2015-16, vacant seats in Ph.D. courses was in the range of 50 to 100 *per cent* and for PG courses more than 50 *per cent* except in 2016-17. In College of Fisheries Science, Veraval, vacant seats in Ph.D. courses were in the range of 37 to 80 *per cent* during 2013-18. The dropout rate for Ph.D. courses in College of Horticulture, Junagadh and College of Agriculture, Junagadh for the period 2013-17 and 2013-18 was more than 25 *per cent*.

It can be observed that the shortfall in intake was more in case of PG/ Ph.D. courses. Students enrolling for higher studies aim at quality education and better placement. Delay in seeking accreditation (**Paragraph 2.1.4.1**) and poor placement record (**Paragraph 2.1.4.2**) would have impacted the intake. JAU may review the college-wise intake scenario and take corrective actions.

2.1.4.4 Delay in construction at College of Agriculture, Khapat

JAU proposed (December 2015) College of Agriculture, Khapat (CoAK) to cater to more students from Saurashtra region. The CoAK started academic activities since 2016-17. Two batches comprising 43 students were enrolled at CoAK and admission process of new students was ongoing in August 2019. As per the work orders, construction of the college building, boys' hostel and girls' hostel were to be completed in June 2019, January 2019 and June 2020, respectively. Audit observed that construction of none of the buildings was

completed (April 2020). Classrooms and hostels are being operated at makeshift arrangement inside the campus of Krishi Vigyan Kendra (KVK), Khapat.

Thus, students who got enrolled at CoAK have to face hardship in educational as well as residential facilities. Such functioning of the college without proper infrastructure may have adverse effect on education of students and reputation of JAU. Audit observed that during 2017-18, CoAK registered lowest intake (80 *per cent*) and highest dropout (12.5 *per cent*) among all the colleges under JAU, which might be an outcome of incomplete infrastructure.

2.1.4.5 Seats reserved for special categories

As per the Common Academic Regulation, there is a provision of reserved seats for students from special categories. The details of seats reserved and admissions given during 2014-19 are shown below:

Table 4: Details regarding filling of reserved category seats in JAU during 2014-19

Category	Seats Reserved	Admissions Given
Physically challenged	70	9
Kashmiri Students	66	6
Defence Category	13	4
Parsi Community	33	0
Total	**182**	**19**

(Source: University Admission Booklets and Information provided by JAU)

It can be observed from the above **Table 4** that against 182 reserved seats only 19 admissions were given during 2014-19. Audit observed that JAU did not create public awareness among the target groups regarding such reservation, benefits of education in the university, higher chances of employability, *etc*. through any effective print/ electronic media. Further poor record of placement (**Paragraph 2.1.4.2**) and non-provisioning/ non-availability of accessible infrastructure to physically challenged students (**Paragraph 2.1.4.7**) also might have contributed to non-filling up of reserved category seats.

2.1.4.6 Agricultural courses offered by other universities

Section 4 of the GAU Act, 2004, *inter alia* states that "no educational institution imparting education in agriculture and allied sciences or conducting and guiding research in agriculture or conducting and guiding programmes of extension education and situated within the University area[6] shall, save with the consent of the University and the sanction of the State Government, be associated in any way with, or seek admission to any of the privileges of, any other University established by law." Section 40 of the GAU Act empowers JAU to lay down various conditions for functioning of institutes within the University Area.

[6] Schedule 1 of the GAU Act, defines "University Area" for the Junagadh Agricultural University consisting of 10 districts of Saurashtra Region *i.e.*, (1) Amreli (2) Bhavnagar (3) Devbhumi Dwarka (4) Gir-Somnath (5) Jamnagar (6) Junagadh (7) Morbi (8) Porbandar (9) Rajkot and (10) Surendranagar.

Audit noticed that two private universities are offering education in the field of agriculture in the University Area without the consent of the University and sanction of the Government. These universities are offering agricultural courses without the consent of JAU. Fifth Dean's committee mandated B.Sc. (Hon) Agricultural course of eight semesters spanning over four years. It was observed that one of the University is offering B.Sc. (Hon) Agricultural of six semesters *i.e*., for three years. This may adversely affect the prospects of further higher study and/or employability of the students who got enrolled in such courses offered by private university. Further, JAU did not furnish any documents in support of steps taken to alert the students regarding ineligibility of these two private universities over the years.

2.1.4.7 Lack of Fire safety norms and Disabled friendly buildings

Gujarat Comprehensive General Development Control Regulation, 2017 (GDCR) was notified (October 2017) by the GoG which is applicable to all the buildings situated in the state. GDCR stipulates that owner/ occupant of existing buildings shall have assessment of fire safety system by an authorised expert and on advice of such expert, necessary retrofitting shall be carried out to comply with National Building Code (NBC). In addition, GoG also directed (14 September 2017) all the offices under the Agriculture and Co-operation Department to implement the provisions of "The Rights of Persons with Disabilities Act, 2016". GDCR too stipulates that all buildings shall be compatible and accessible to *Divyang*/ Disabled persons.

Audit prepared two questionnaires on the basis of provisions of the National Building Code (NBC) related to 'Fire and Life Safety' (Q1) and 'Disabled persons'(Q2) which were issued to JAU. The responses to these indicating the status as on April 2020 were provided by JAU for all 44 buildings (multi-storeyed and/or having area of more than 500 sqm). Compliance percentage for all the 44 buildings in total and for each building individually was worked out (**Appendix VII and VIII**). Further analysis of the compliance level under each of the category in Q1 and Q2 as on 30 April 2020 revealed the following:

In respect of Q1 regarding 'Fire safety' none of the 44 buildings had more than 50 *per cent* compliance and four buildings were totally non-compliant. The average compliance by these buildings is 22 *per cent*. It can further be noticed that there was zero compliance in respect of 'Fire Fighting Equipment' in 36 Buildings, 'Fire Exits' in 37 Buildings and 'Emergency and Escape Lighting' in 43 Buildings.

In respect of Q2 regarding 'Disabled persons' only two of the 44 buildings had more than 50 *per cent* compliance and two buildings were totally non-compliant. The average compliance by these buildings is 27 *per cent*. It can be seen that there was zero compliance in respect of 'Elevators' in 32 Buildings, 'Entrances' in 35 Buildings and 'Specially Designed Toilets for Wheelchair Users' in 31 Buildings.

JAU did not have assessment of fire safety expert as on date (April 2020). Thus, repair/restoration and strengthening/ retrofitting of the buildings as per the provisions of NBC was not carried out.

GDCR classified "auditorium" as "Special Building" and appointment of "Fire Protection Consultant On Record (FPCOR)" and "Fire Men" and opinion of "Chief Fire Officer" for such special building is mandatory. JAU has one Auditorium; however, no such appointment has been made by JAU so far.

This shows that compliance to the fire safety norms of the buildings of JAU is negligible. In case of fire mishaps, the safety of the students, staff, farmers and other persons utilizing the buildings may be jeopardized. It also shows that JAU did not adhere to the instructions of the GoG to make its buildings disabled persons friendly.

It is also pertinent to note here that JAU reserved three to five *per cent* seats for disabled persons in its colleges during 2014-19. As observed at **Paragraph 2.1.4.5** that against 70 such reserved seats only nine disabled persons took admission in JAU affiliated colleges. Better availability of disabled friendly facilities could have improved the intake position of disabled persons in JAU.

2.1.4.8 Incorrect data submitted by JAU for ranking by ICAR

Indian Council of Agricultural Research (ICAR) ranks Agricultural Universities since 2016, based on information furnished by these Universities. JAU was ranked 29 among 57 and 33 among 63 in the year 2016 and 2017 respectively, which improved to 20 among 60 in 2018.

Audit conducted test check of the information provided by JAU in the evaluation proforma for the year 2018. It was found that incorrect information was submitted by JAU in respect of (i) number of faculty members having h-index[7] of more than ten on Google scholar (ii) number of papers having National Academy of Agricultural Sciences (NAAS) rating of more than six and (iii) number of patents secured during the year 2018. This shows that the year in which significant improvement in ranking was achieved, JAU provided incorrect information to ICAR. Audit carried out only test check of above mentioned three parameters in the information provided by JAU to ICAR. Other irregularities in submission which helped JAU in improving its ranking significantly cannot be ruled out. This may mislead students and bring disrepute to the University.

2.1.4.9 Plagiarism checking

In the interactive meet of librarians of agricultural universities (July 2018), it was decided that all Universities would install anti-plagiarism software and a check would be carried out by them before thesis submission. University Grants Commission (UGC) notified regulations (23 July 2018) which provide that every higher educational institute has to declare a policy on plagiarism and implement the technology-based mechanism using appropriate software so as to ensure that documents are free from plagiarism. It was resolved by all SAUs (January 2019) including JAU to ensure implementation of UGC guidelines for prevention of plagiarism.

[7] The h-index is calculated by counting the number of publications for which an author has been cited by other authors at least that same number of times.

JAU published 2,002 theses since its inception (2004). Further, 2,122 research articles submitted by JAU faculty were also published in various journals during 2014-19. Despite such high number of research work, JAU has neither formulated any policy for checking plagiarism nor procured anti-plagiarism software till date (May 2020).

2.1.4.10 Krishikosh repository (E-granth)

Under ICAR's Open Access policy (September 2013), it is mandatory to upload all institutional publications[8] available with the various State Agricultural Universities (SAUs) in the Krishikosh repository. Besides this, M.Sc. and Ph.D. theses /dissertations (full contents) and summary of completed research projects are to be submitted in the Krishikosh repository after completion of the work. ICAR had set time frame of three years *i.e.*, by September 2016 for full compliance of the policy by SAUs. Audit observed that none of the 2,122 research articles published by JAU scholars during 2014-19 were uploaded on Krishikosh.

As mentioned in **Paragraph 2.1.5.6,** citation of research articles published by JAU faculties was not satisfactory. By uploading research articles, citations can be increased which will help improve h-index[9] and i-10[10] index of JAU faculties and ranking of JAU in ICAR rankings. This will also help in widespread and quick dissemination of research work of JAU among the scientific and farming community.

2.1.4.11 Purchase of Journals

The consortium for e-Resources in Agriculture (CeRA) was established (November 2007) by ICAR which provides online access of select journals in agricultural and allied sciences. JAU provides access to the journals of CeRA to all the students and faculty of the University through J-Gate, an online portal. In the meeting of Librarians of SAUs (11 August 2016), it was decided that the purchase/subscription of those journals by Universities which are already subscribed by CeRA was to be discontinued with immediate effect. It was observed that JAU subscribed total 91 journals during 2017-19 of which 77 Journals were available free of cost on CeRA/J-Gate. JAU could have avoided expenditure of ₹ 53.67 lakh on such journals and utilized it for purchase of other important journals/books which are not available on CeRA.

2.1.5 Research

JAU is involved in various research activities in the disciplines of agriculture and its related fields with the main objective of enhancing production and productivity of agricultural commodities and to make the sector competitive.

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[8] Research articles, popular articles, monographs, catalogues, conference proceedings, success stories, cases studies, annual reports, newsletters, pamphlets, brochures, bulletins, summary of the completed projects, speeches and other grey literatures.

[9] It is calculated by counting the number of publications for which an author has been cited by other authors at least that same number of times.

[10] The i-10 index created by Google Scholar shows the number of publications of a scholar with at least 10 citations.

2.1.5.1 Planning, Monitoring and Review of Research Projects

GoG funded projects

JAU prepares new research project proposals on the basis of feedback from farmers through Krishi Vigyan Kendras (KVKs), line departments and its research stations. The approval and monitoring of the projects are carried out directly on the field as well as through presentation of research findings in various Agricultural Research Sub-Committees.

All India Coordinated Research Projects (AICRPs)

AICRP projects are jointly carried out by Government of India (ICAR) and State Government (SAUs). These projects operate on a National Scale at various AICRP centres spread all over India and are coordinated by ICAR. JAU implements 20 AICRPs which are funded by ICAR and GoG (75:25 *per cent*). An umbrella Memorandum of Understanding (MoU) was signed between JAU and ICAR for AICRP in the year 2007. The results of each projects are regularly monitored by ICAR.

Other Research Projects

JAU also undertakes various *ad-hoc* research projects funded by other agencies of GOI, GoG, and private agencies. Overall progress of the research projects is published in the Annual Report of JAU. Audit Observations related to research sector of JAU are discussed in succeeding paragraphs:

2.1.5.2 Research projects undertaken

JAU undertakes research projects funded by various agencies. Under these projects, it carries out various experiments related to crop variety, nutrient management, crop protection, farm implements *etc*. The following **Table 5** shows position of projects undertaken by JAU during 2014-19 as on 31 March 2019.

Table 5: Details of projects undertaken by JAU during 2014-19 as on 31 March 2019

Project Authority	Projects existing on April 2014	New projects proposed	Sanctioned	Total	Completed	Projects as on March 2019
State Govt. (Plan)	58	43	4	62	0	62
ICAR (AICRP)	20	1	1	21	1	20
ICAR (*Ad-hoc*)	29	8	8	37	14	23
Other Agencies	45	106	109[11]	154	53	101
GoI (RKVY)	4	3	3	7	5	2
Total	**156**	**161**	**125**	**281**	**73**	**208**

(Source: Information provided by JAU)

[11] Three projects were bifurcated into six projects by Project Sanctioning Committee. Hence, against 106 projects proposed, 109 projects were sanctioned.

The projects funded by State Government (plan), ICAR (AICRP) and ICAR (*Ad-hoc*) are of continuous nature and majority of them were approved prior to 2014-19. Under these projects, new experiments are undertaken for a minimum period of three years. It can be observed that of the 43 new projects proposed to State Government, only four projects were sanctioned.

2.1.5.3 Major Crop varieties released and their adoption

JAU has 31 research stations with the mandate to develop new varieties of crops and to make recommendations to farming and scientific community. Since its inception (2004), JAU has developed 67 crop varieties and has made 354 recommendations for farmers as shown in **Appendix IX.**

It can be seen in **Appendix III** that during 2017-18, gross sown area as well as production of Groundnut and Cotton in Saurashtra Region of Gujarat is more than four times and 1.5 times respectively as compared to the Rest of Gujarat. From **Appendix IX**, it is clear that JAU has done commendable work in respect of Groundnut by releasing 12 varieties and making 82 recommendations for farmers. In respect of Cotton, though 39 recommendations have been made for farmers, only three varieties have been released. These three varieties are non-Bt[12] varieties though more than 90 *per cent* of the cotton cultivated in India is of Bt Cotton variety. It can also be observed from **Appendix IX** that JAU did not release any variety of fodder despite having grassland research centre at Dhari. Two most important bovine breeds *viz.,* Gir Cow and Jaffrabadi Buffalo are from Saurashtra region and locally developed variety of fodder would have been ecologically more suitable. Anand Agricultural University had released varieties of fodder which are utilised by JAU for front line demonstrations to the farmers of Saurashtra.

Audit analysed data of (a) Foundation seeds/ truthful seeds/ certified seeds produced and sold by JAU directly to the end user *i.e.*, farmers and (b) Breeder seeds indented by seed multiplying agencies (from Gujarat as well as other states) for the period 2014-19 and compared it with the crop varieties developed by JAU. It was observed that out of 67 crop varieties developed by JAU, seeds of only nine varieties were produced and sold to farmers as well as indented by the seed multiplying agencies in each year during 2014-19. On the other hand, seeds of 53 varieties were not sold to farmers and seeds of 50 varieties were not indented by seeds multiplying agencies. These included seeds of 44 crop varieties which were neither produced and sold to farmers nor indented by multiplying agencies. Thus, adoption of JAU released crop varieties was poor.

2.1.5.4 Technologies developed by JAU

Since its inception in 2004, JAU has developed 39 technologies for the betterment of farmer community. Out of the 39 technologies developed by JAU, only 10 were identified as patentable by JAU. JAU has filed patenting

[12] Bt cotton is a genetically modified crop. Bt stands for Bacillus thuringiensis - a soil bacterium which contains a toxic gene called Bt gene.

application for five technologies for which award of patent is still awaited (May 2020). In respect of remaining 29 technologies considered non-patentable by JAU, no efforts were made to commercialize or disseminate the technologies to the farming community, via exhibitions, trainings or demonstrations *etc*. Thus, the efforts and resources utilized in developing 29 technologies did not yield any result.

2.1.5.5 Varieties released/ Seeds certification/PPV&FR certification

The Government of India had enacted "The Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001". Under this Act, exclusive rights to produce sell, market, distribute, import or export the variety registered under the Act are conferred to legitimate owners. Further, the crop varieties can also be registered under Seeds Act, 1966 which is the legal instrument for regulating the production, distribution and sale without providing the proprietary ownership of that variety.

The certificate of registration under PPV&FR Act is valid initially for six years and may be renewed up to maximum period of 15 years. Observations related to registration of crop varieties under PPV&FR Act are discussed below:

a) Non applying for registration under PPV&FR Act

Out of the 67 varieties of crops developed by JAU since its inception, while seven were not required to be registered under the PPV&FR Act, 20 were notified and for 14 the proposals were under submission as on May 2020. For the remaining 26, applications were not made by JAU till date (May 2020). Of these 26 varieties, eight were released more than five years ago. JAU needs to take prompt actions and apply for registration of these 26 crop varieties in order to prevent any other breeder/ agency from registering the same varieties. Registration by breeders/ agencies other than JAU would negatively affect the interests of the farming community as JAU would then not be able to control either the prices or the quality of seeds of such varieties.

b) PPV&FR registration in the name of ICAR

ICAR guidelines for Intellectual Property (IP) Management and Technology Transfer/ Commercialisation (2006) provide that IP rights will be guided by the Umbrella MoU between ICAR and SAUs. The MoU inter alia stipulates that IP rights from AICRP projects would be the joint property. In such cases IP claims/ formalities would be filed/ made by JAU but the benefit would be shared by both.

It was noticed that of the 20 varieties registered under PPV&FR Act, 13 varieties **(Appendix X)** were developed at JAU under AICRP, however, registration certificates were issued only in the name of ICAR while for seven varieties it was registered in the name of JAU. By not securing the joint ownership in these varieties, JAU lost the opportunity of benefit sharing as ICAR is the sole IPR holder and true breeder of these varieties as mentioned in the PPV&FR certificates.

c) Non-renewal of registration

JAU registered seven crop varieties with PPV&FR in its own name. These varieties were given initial registration validity of six years from the date of their registration (**Appendix X**). It was observed that renewal of registration of two[13] crop varieties was due on 05 June 2018. However, JAU did not apply for renewal till date (May 2020) resulting in loss of period of IP rights protection.

d) Registration under Seeds Act

Registration of varieties under Seeds Act, 1966 provides only legal right for sale and does not provide IP rights. Further, if the variety is initially registered under Seeds Act and thereafter under PPV&FR Act, the IP rights of 15 years shall be counted from registration under Seeds Act but the protection is available only from the date of registration under PPV&FR Act. The status of registration of the 67 crop varieties developed by JAU as on 31 May 2020 under both the Acts is tabulated below:

Table 6: Status of registration under PPV&FR Act, 2001 as on 31 May 2020

Comparative statement showing Registration of crop varieties under Seeds Act and PPV&FR Act		Status of Registration under PPV&FR Act, 2001				
		Notified	Proposal submitted	Not Applied	Not Applicable	Total
Status of Registration under Seeds Act, 1966	Notified	19 (a)	9 (b)	14 (c)	7	49
	Proposal submitted	0	2	12 (d)	0	14
	Not Applied	1	3	0	0	4
	Total	**20**	**14**	**26**	**7**	**67**

(Source: Information provided by JAU and website of PPV&FR Authority)

Audit observed that:

a) Of the 19 varieties notified under both the Acts, seven varieties were registered under Seeds Act first, which resulted in loss of IPR period of one to six years. **(Appendix X).**

b) Under Seeds Act, nine varieties were notified in respect of which, later, the proposal was submitted under PPV&FR Act.

c) Under Seeds Act, 14 varieties were registered in respect of which no process to register under PPV&FR Act has been started.

d) In respect of 12 varieties, proposal has been submitted under Seeds Act, however, no process to register under PPV&FR Act has been initiated.

Thus, in case varieties mentioned at (b) to (d) IPR period would be lost to that extent. Thus, out of 67 varieties released, in case of 54 varieties (a to d above) JAU lost IPR period by not registering under PPV&FR Act first.

[13] 1) Sesame – G Til 3 and 2) Sesame G Til 10.

e) Commercialisation of released varieties

JAU entered into an agreement with a private firm and granted license to it to produce seeds of five crop varieties developed by JAU. The prices of seeds were regulated by JAU and the firm pays royalty to JAU on sale of seeds. Thus, only five out of the 67 crop varieties released by JAU were commercialised till date (May 2020).

2.1.5.6 Quality of research publications

During 2014-19, total 2,122 research articles prepared by 360 faculties of JAU were published in 435 journals. Audit analysed the data of above research articles and faculty members with the help of tools like "Google scholar" and "publish or perish" to gauge the quality of research work. The important observations are discussed below:

a) Citation index of research articles

Citation analysis is the process whereby the impact or "quality" of an article is assessed by counting the number of times other authors mention it in their work(s). The following **Table 7** shows details of 472 papers which were cited at least once.

Table 7: Citations received for research papers published by JAU as on 31 August 2019

Number of cites during 2014-19 and number of research papers (RP)				
RP with one cite	**RP with two cites**	**RP with three to nine cites**	**RP with10 or more cites**	**Total RP**
212	101	126	33	472

(**Source: Information provided by JAU**)

Thus, of the 2,122 research papers published during 2014-19 only 472 research papers (22.24 *per cent)* were cited by other scholars. Further, almost 66 *per cent* (313 out of 472) were cited less than three times and only 33 papers were cited more than 10 times.

b) Impact factor analysis

The impact factor (IF) is a measure of the frequency by which the average article in a journal has been cited in a particular year. Impact factor is commonly used to evaluate the relative importance of a journal within its field. Internationally, Clarivate Analytics (CA) measures impact factor.

In India, the National Academy of Agricultural Sciences (NAAS) prepares annual NAAS score of journals under two categories. For those journals where CA impact factor is available, the NAAS score is assigned as six plus CA impact factor. For other journals, NAAS score is assigned between one and six based on information provided by journal publishers to NAAS. NAAS score is one of the important factors to evaluate quality of journals. Summary of NAAS score of journals wherein 2,122 research papers were published by JAU Scholars is tabulated below:

Table 8: Details of NAAS ratings of research papers published by JAU faculties as on 31 August 2019

Six or more NAAS Score		Between one and six NAAS score		No NAAS Score		Total Journals (J) and Research papers (RP)	
J	**RP**	**J**	**RP**	**J**	**RP**	**J**	**RP**
69	142	178	1591	188	389	435	2,122

(Source: Information provided by JAU and website of NAAS)

The **Table 8** above shows that only 6.70 *per cent* research papers were published in the journals having NAAS rating of more than six.

UGC has set up (November 2018) a Consortium for Academic and Research Ethics (CARE) to identify, continuously monitor and maintain "UGC-CARE Reference List of Quality Journals". It was observed that out of 2,122, only 173 (8.15 *per cent)* research papers were published in the journals which are included in UGC-CARE list of quality journals.

Thus, more than 90 *per cent* research articles were published in journals having lower impact factor.

c) h-index and i-10 index of faculties

The h-index attempts to measure both the productivity and citation impact of the publications of a scholar. It is calculated by counting the number of publications for which an author has been cited by other authors at least that same number of times. The i-10 index created by Google Scholar shows the number of publications of a scholar with at least 10 citations.

Audit searched profile of 360 faculty members of JAU on Google scholar and found profile of 237 faculty members. Details of these 237 faculty members were as under:

Table 9: Faculty member wise details of research papers as on August 2019

Sl. No.	Number of Faculty members	Research papers published till date	Total citation	h index
1	17	132	0	0
2	63	542	298	1
3	127	2,858	4,535	2 to 5
4	25	1,755	4,556	6 to 9
5	5	799	2,656	above 10
Total	**237**	**6,086**	**12,045**	

(Source: Information furnished by JAU and taken from Google Scholar)

Number of faculties having h-index more than 10 is one of the evaluation criteria for ICAR rankings. Only five out of 237 faculty members have h-index of more than 10 which adversely reflects on the publication performance.

Details of i-10 index of faculty member of JAU as on 31 August 2019 are tabulated as under:

Table 10: Faculty member wise details of research papers as on August 2019

Sl. No.	Faculty members	Research Papers Published	Total citation	i-10 index
1	144	1,971	1,463	0
2	43	1,129	1,841	1
3	36	1,623	4,270	2 to 5
4	9	564	1,815	6 to 9
5	5	799	2,656	above 10
Total	**237**	**6,086**	**12,045**	

(Source: Information furnished by JAU and taken from Google Scholar)

It can be observed that only five faculty members have i-10 index of more than 10. Total 144 faculty members published 1,971 research papers but have zero i-10 index which shows none of these research papers was cited for more than 10 times. Thus only five out of 237 faculty members have i-10 index and h-index above ten which suggests that the quality of these research publications was not impressive.

2.1.5.7 Manufacture, Stock and Sale of Insecticides by JAU

Insecticides Act, 1968 was promulgated to regulate the import, manufacture, sale, transport, distribution and use of insecticides. To regulate insecticide use in India, Central Insecticides Board and Registration Committee (CIB&RC) was constituted (1970). CIB&RC is mainly responsible for (a) recommending uses of various types of the insecticides depending on their toxicity and suitability and (b) registering insecticides after verifying applicant's claims related to the efficacy and safety. The Act further provides that the applicant has to obtain license to manufacture, sell, stock or distribute the insecticide, from the State Licensing Authority after the issuance of Certificate of registration from CIB&RC. Sale/ Distribution of "Misbranded" and/or unregistered insecticides is an offence under the Act. Insecticides Rules, 1971 specify that the packaging of insecticides must bear a "label" and include a "leaflet" duly approved by CIB&RC.

JAU is presently producing five insecticides[14]. Observations related to license from Licensing Authority and compliance to provisions of the Act and the Insecticides Rules are discussed below:

a) Non-Registration with CIB&RC & non-obtaining license

Department of Agriculture & Cooperation (DAC), Ministry of Agriculture, GoI apprised (25 March 2009) SAUs that all the producers of Bio-pesticides, are required to have registration from CIB&RC and license from the Licensing Authority of the State under the Act. Deputy Director of Agriculture (Pesticide), Gujarat grants License to manufacture insecticides in the state.

[14] Beauveria Bassiana, Trichoderma Harzianum, Metarhizium Anisopliae, Helicoverpa Nuclear Polyhedrosis Virus (HNPV) 250 ml, Spodoptera Nuclear Polyhedrosis Virus (SNPV) 250 ml.

Audit observed that JAU obtained (October 2014) temporary registration from CIB&RC for only one insecticide *i.e.*, Trichoderma Harzianum. In case of remaining four insecticides, JAU has not even applied for registration with CIB&RC till date (May 2020). However, JAU manufactured and distributed other four insecticides also under the brand name of "SAVAJ" without mandatory registration. This makes them "misbranded" insecticides under the provisions of section 17 and 18 of the Act which is punishable by law.

Audit also observed that JAU did not obtain manufacturing license for any of the above five insecticides till date (May 2020) from licensing authority of the state. Production of insecticides without a valid manufacturing license, is illegal and punishable under law.

b) Violation of CIB&RC directions – Recommendations made by JAU for use of Insecticides

The registration of a formulation of insecticide is granted for specific crop(s) and/or pest(s) which is always mentioned in the conditions stipulated in the Certificate of Registration. The CIB&RC publishes from time to time the updated list of approved formulations of Insecticides which also specifies the crops and pests on which it is to be used. DAC advised (02 May 2013 and 20 February 2014) to all Agricultural Departments and the SAUs to desist from making recommendations regarding use of pesticides which are not in consonance with the terms of registration with CIB&RC.

The recommendations made by JAU in the labels of five insecticides manufactured and distributed by JAU *vis-a-vis* CIB&RC approved usage to any manufacturer (published by CIB&RC) is shown in **Appendix XI**. It can be observed that JAU is violating the guidelines of CIB&RC by distributing and recommending the specific formulation of pesticides for a greater number of crops and/or pests for which CIB&RC has not granted its approval. This may have adverse effect on crops, soil, animals and human life. Therefore, JAU should make only such recommendations for usage, which are in consonance of CIB&RC guidelines.

Further, JAU decided to (31 July 2015) withdraw 60 out of 101 recommendations made by it for other crop varieties/ insecticides during 2004-2014. However, during the visit (August 2019) of Krishi Vigyan Kendras (KVKs), it was observed by Audit that no efforts were made to sensitise the farmers about withdrawal of these recommendations through training, awareness campaign, messaging through M-KISAN application and Display on website *etc*. This may have adverse effect on crops, soil, animals and human life as farmers might continue using such pesticides based on previous recommendations of JAU.

c) Use of non-approved Label and Leaflets for the sale of Insecticides

JAU has obtained (October 2014) temporary registration for only one insecticide *i.e.*, Trichoderma Harzianum 1.0 *per cent w/w.* till date (August 2019). The Label and Leaflet were approved by CIB&RC for the sale of this insecticide and no change/alteration were to be made on it. Audit

noticed that the Label and Leaflet printed by JAU do not match with the approved Label and Leaflet **(Appendix XII)**. Thus, JAU violated provision of the Act by altering approved Label and Leaflet.

2.1.5.8 Land Management

JAU owns land in ten districts of Saurashtra region to be utilised for education, research and extension education. Total land and cultivated land available with University (other than 149.19 hectare (ha.) of university campus) as on 31 May 2020 is shown below:

Table 11: Details of total land and cultivated land possessed by JAU as on 31 May 2020

Campus	Total land (in ha.)	Cultivated land (in ha.)	Cultivated land (in *per cent*)
Mahuva Research Station	431	130	30.16
Dhari Research Station	638.35	84.80	13.28
Krishi Vigyan Kendra's	153.30	114.79	74.88
Other Research and education centres	1,444.39	849.88	58.84
Total	**2,667.04**	**1,179.47**	**44.22**

(**Source: Information provided by JAU and website of UGC)**

It can be observed from the above **Table 11** that more than two-third land at Mahua Research Station (MRS) and Dhari Research Station (DRS) is not cultivated. The observations related to land management are discussed below:

a) Dhari and Mahuva Research station

The University undertakes crop/ seeds production in the cultivated land for research and marketing purpose. Irrigation Department, GoG took possession (2009) of 205.45 ha. of land at MRS for Bandhara Schemes. However, no compensation or alternative land in lieu of above was demanded by JAU till date (May 2020). As such, the land available at MRS for use by JAU reduced considerably from 431 ha. to 226 ha. In case of DRS, 394.26 ha. land falls under protected forest which is utilised by JAU for fodder production and research purposes. Out of the remaining, 24 ha. land is occupied by District Panchayat and 129.35 ha. land falls under hilly area where cultivation or research is not possible. However, DRS did not demand alternate land from the Government till date (August 2019).

b) Land given to build temporary helipad

District Administration, Junagadh instructed JAU (30 November 2017) to handover agricultural land (3.74 ha.) inside JAU campus to Roads and Buildings (R&B) Department for construction of helipad. JAU was given assurance by the District authorities that the land was required for an event in December 2017 and would be returned in original cultivable state within two days of completion of the event. The land was being utilised by JAU for production of seeds in all three seasons of Kharif, Rabi and Zaid. Audit observed that though total six cultivation seasons of last two years have passed; however, the land has not been returned by R&B Department/ District Administration. JAU has approached the District Administration three times

till date (May 2020) but could not get the land back for utilisation for seed cultivation.

2.1.6 Extension Education

JAU has constituted Extension Education Council to consider and recommend the extension education programs/activities of the University. The main activities of Extension Education of JAU are being conducted through Krishi Vigyan Kendra (KVKs).

Krishi Vigyan Kendra

A Krishi Vigyan Kendra (KVK) is an agricultural extension centre which serves as the link between the ICAR and farmers and aims to apply agricultural research in a practical and localized setting. JAU has seven KVKs associated with it. The major responsibilities of KVKs include implementation of Front-Line Demonstrations (FLDs), On Farm Trials (OFTs), conducting trainings for farmers and extension functionaries of line departments and providing various advisory services to farmers.

Of the ten districts under the jurisdiction of JAU, in six[15] districts, seven KVKs are managed by JAU, in two districts two KVKs[16] are managed by Non-Government Organizations and in the remaining two[17] newly formed (2013) districts KVKs are still not established (May 2020).

Main activities undertaken by KVKs are as under:

Front line demonstration

Front Line Demonstrations (FLDs) demonstrate the productive potential of newly/ to be released technologies and/or crop varieties to the farmers on their fields. Critical inputs and training are provided by KVK and remaining inputs are arranged by the farmers themselves. During 2014-19, against the targeted FLDs in 5,609.88 ha. of land of 13,506 farmers, KVKs conducted FLDs in 5,648.60 ha. of land of 13,469 farmers respectively.

Training of Farmers and Extension functionaries

KVK imparts training to farmers at KVK as well as at village level on various issues. It also trains the trainers of extension functionaries of the State Government who in turn train the end users or disseminate information to farming community. During 2014-19, against the target of 1,910 trainings to 61,207 participants, KVKs conducted 1,998 trainings for 84,125 participants. This indicates the appreciable efforts put in by JAU for training of farmers and extension functionaries of the State Government.

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15 Amreli, Jamnagar, Morbi, Porbandar, Rajkot (two KVKs) and Surendranagar.

16 Bhavnagar KVK is managed by Lokbharti Gramvidyapith and GIR Somnath KVK is managed by Ambuja Cement Foundation.

17 Devbhumi Dwarka (split from Jamnagar district) and Junagadh district.

On Farm Trials (OFTs)

On Farm Trials are aimed at testing multiple proven technologies evolved at Research Station on farmers' field for treating farmer/area specific problems. Through OFT, KVKs conduct comparative studies in farmers' fields to come to conclusion as to which of the technologies tested is more effective and economical. Best technology identified in OFT can be adopted in FLDs for large scale diffusion. During 2014-19, against the target of 223 OFTs in 902 fields of farmers, a total of 208 OFTs in 861 fields were conducted.

Audit observations related to extension activities are discussed in subsequent paragraphs:

2.1.6.1 Front Line Demonstrations not given for major crop varieties released

JAU has developed 67 varieties of various crops. A total of 15 major crops (five each of cereals, oilseeds and vegetables) were identified for each of the six KVKs. The details of varietal FLD undertaken by KVKs on new varieties developed by JAU and other SAUs is shown in **Appendix XIII**. It can be seen from the **Appendix XIII** that for 15 major crops, 60 varietal FLDs were required to be conducted during 2014-19 against which only 25 FLDs were conducted. JAU developed 50 new varieties of crops which were sown in the KVK district. FLDs for only 22 varieties were conducted. Conducting such FLDs would have motivated farmers to consider replacing old varieties with the improved varieties.

2.1.6.2 Non conduct of soil test

KVKs also conduct FLDs such as Integrated Nutrient Management (INM) and Integrated Crop Management (ICM) under which specific chemical nutrients fertilizers are provided to enrich the deficient macro and micronutrients in the soil. Three[18] primary nutrients, three[19] secondary nutrients, seven[20] micronutrients and three[21] organic elements are generally considered essential for plant growth. These nutrients interact with each other and have positive or adverse effect on each other and this phenomenon is known as Nutrient Antagonism. Plants and varieties are also different in their sensitivity to a particular nutrient deficiency. Therefore, proper soil test/analysis could verify the deficiency in the soil that is responsible for lower crop yield and can provide a scientific basis for recommending additions of a nutrient source to soil. Application of the nutrients without conducting a proper soil test may negatively affect the sowed crop and also subsequent season crops.

Audit visited Amreli, Jamnagar and Porbandar KVKs and found that all 37 FLDs on INM and ICM in the field of 576 farmers (234.40 ha.) were conducted during 2014-19 without carrying out comprehensive soil test. Such arbitrary application of micro and macro nutrients may result into increase in

[18] Nitrogen (N), Phosphorus (P), and Potassium (K).
[19] Calcium (C), Magnesium (Mg), and Sulfur (S).
[20] Boron (B), Chlorine (Cl), Copper (Cu), Iron (Fe), Manganese (Mn), Molybdenum (Mo) and Zinc (Zn).
[21] Carbon (C), Hydrogen (H), and Oxygen (O).

yield in short term but can adversely affect the soil profile and yield in long term.

2.1.6.3 No FLDs/ permanent display of farm implements developed by JAU

As discussed in **Paragraph 2.1.5.4,** JAU developed 39 technologies out of which 19 were on farm equipment. However, it was observed that FLD for only one out of these 19 farm equipment was given by one of the seven KVK during the review period of 2014-19. Thus, JAU missed the opportunity to showcase and disseminate benefits of farm implements developed by it.

2.1.7 Other areas

2.1.7.1 Annual rate contracts

JAU awarded Annual Rate Contract (ARC) for construction work. Audit collected data of all the 281 ARC contracts for construction given by JAU during 2014-19. Instead of awarding the ARC contract to the L1 bidder, JAU asked all the participants of the tender to match the L1 rate and then empanelled all contractors who gave consents. This was in violation of CVC guidelines which prohibits negotiation with bidder's post opening up of tender. Year wise empanelled contractors and works allotted to them is as under:

Table 12: Details of empanelled contractors and work allotted to them

Particulars	2014-16	2016-18	2018-19
Total number of ARC works	119	152	10
Number of Empanelled contractors	26	39	35
Work given (no. of contractors)	17	19	5

(Source: Information provided by JAU)

It can be observed that some contractors were given multiple ARC work orders, and some were not given any contracts during the ARC period. This shows that JAU acted in a prejudiced manner with the contractors.

Further, GoG resolution mandated that all contracts above money value of ₹ five lakh shall be awarded through e-tendering process. It was observed that 53 works of more than ₹ five lakh were split into 189 smaller contracts and given as ARC to empanelled contractors instead of inviting fresh bids as per GoG order. This shows that JAU did not adhere to GoG as well as CVC directions in awarding contracts. Further, it split major works into smaller works to allot the work order without inviting tender.

2.1.7.2 Parking of Surplus funds with Banks

GoG directed (September 2014) to deposit excess funds with Gujarat State Financial Services Limited (GSFS) instead of banks. It was observed that JAU parked its surplus funds of ₹ 57.23 crore in 61 fixed deposits with Public Sector Banks and renewed them from time to time during 2014-19. Thus, JAU violated GoG directions and received lesser interest. Audit worked out

lesser receipt of interest of ₹ 1.93 crore[22] during 2014-19.

2.1.8 Conclusion

The applications for obtaining/renewal of accreditation for its colleges were not made in time. There is lack of fire safety mechanisms and special provisions for disabled/ *Divyang* persons in the JAU buildings. Incorrect data was provided by JAU to ICAR for the purpose of ranking. 67 crop varieties released by JAU received poor response from farmers and seeds multiplying agencies and JAU commercialised only five varieties. Deficiencies were found in registration of seed varieties released by JAU under PPV&FR Act leading to loss of Intellectual Property Rights. JAU has been manufacturing and selling insecticides in violation of the provisions of Insecticides Act and Insecticide Rules. Overall quality of publication of research work is poor as can be gauged from various measurement indicators of research work.

2.1.9 Recommendations

For better achievement of its objectives of education, research and extension education, JAU may:

- ***make necessary retrofitting/ construction to make its building NBC compliant;***
- ***submit correct data to any ranking authorities;***
- ***bring about systemic changes to improve its performance on release of commercially viable crop varieties, and encourage farmers and seed multiplying agencies to adopt these improved varieties;***
- ***act promptly to register/renew its new released crop variety under PPV&FR Act to protect its IP rights;***
- ***manufacture and sell insecticides only after complying with statutory provisions.***

INDUSTRIES AND MINES DEPARTMENT

2.2 Implementation of welfare programmes for salt workers

2.2.1 Introduction

Salt is one of the most essential and common household compounds used in food and also in industries. Salt[23] is a Central subject, listed in the Union list. India is the third largest producer of salt in the world after China and USA

[22] Difference between actual interest earned on Fixed Deposit with banks and interest receivable on the funds parked with GSFS for the similar amount and period.

[23] Commissioner of Salt under the Ministry of Commerce and Industry (Department of Industrial Policy and Promotion), Government of India (GoI) has been entrusted with the task of manufacture, supply and distribution of salt by Union Agencies and regulation and control of manufacture, supply and distribution of salt by other agencies.

with an average annual production of about 300 lakh ton[24]. Gujarat is the highest producer of salt, with around 81 *per cent* of the total salt production of the country. Salt-production in Gujarat is carried out in 15[25] out of 33 districts but mainly concentrated in Amreli, Bharuch, Bhavnagar, Devbhoomi Dwarka, Jamnagar, Kachchh, Patan and Surendranagar districts.

Salt workers are either independent marginal salt producers or hired labourers for salt lease units lease holders. In Gujarat there are around 1.10 lakh salt workers[26]. The State Government leases land to individuals, co-operative societies and private firms for production of salt. There were around 2,508 (2017-18) salt manufacturing units in Gujarat varying in plot sizes from less than 10 acres to more than 100 acres. The total land registered under salt cultivation ranged between 4.28 lakh acres (2014-15) to 4.66 lakh acres (2017-18). Salt production normally starts from October and extends up to June next year during which period the salt workers with their families stay at the salt manufacturing sites in the arid desert or coastal areas. Various study reports[27] have highlighted the precarious conditions of salt workers and lack of basic infrastructure facilities like drinking water, food, housing, health and education. Further, due to typical geographical conditions of the desert, direct contact with inhalable salt dust *etc*., and glare due to intense reflection of sun light by salt crystals causes various health disorders. As per a study[28] by National Institute of Occupational Health (NIOH), Ahmedabad there is high prevalence of work-related health hazards *viz*., fissures, ulcers, wound infection, callosities and eye problems among the salt workers.

2.2.2 Organisational Set Up

The Industries and Mines Department (IMD) headed by the Principal Secretary is the nodal department for implementation of welfare schemes for salt workers. The Principal Secretary is assisted by Industries Commissionerate (IC). At District level, District Industries Centres (DIC) headed by General Managers (GM) act as the nodal office for implementation of welfare schemes for salt workers.

For providing necessary infrastructural facilities for salt industry and welfare of salt workers in the state, the Government of Gujarat (GoG) established (July 2000) a State Level Empowered Committee (SLEC) under the Chairmanship of Minister (Salt Industries). In the districts, a District Level Empowered Committee (DLEC) functions under the Chairmanship of District

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[24] Source: Annual Report 2018-19, Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Government of India.

[25] Amreli, Anand, Bharuch, Bhavnagar, Devbhoomi Dwarka, Jamnagar, Junagadh, Kachchh, Morbi, Navsari, Patan, Porbandar, Surat, Surendranagar and Valsad.

[26] As per data of Labour and Employment Department, Government of Gujarat.

[27] Like (i) Report prepared by Justice M. B. Shah, Former Judge, Supreme Court of India and Chairman, Gujarat State Law Commission named "Salt Production at the cost of health of Agariyas & their family members – A need for special legislation –In the State of Gujarat" in May 2014, (ii) Report prepared by CARE INDIA named "A Pinch of Salt-A study of Salt workers of Kachchh, Patan, Rajkot and Surendranagar Districts of Gujarat", (iii) Report: Evaluating Overall social and health status of salt workers in experimental salt fields at Bhavnagar, Gujarat based on a pilot survey conducted in March 2015 with support of CSMCRI-CSIR and Medical College, Bhavnagar.

[28] Prevention and control of occupational health hazards among salt workers working in remote desert areas of Gujarat and Western Rajasthan.

Collector and General Manager, District Industries Centre as Member Secretary.

The proposals for welfare works are forwarded by the district offices to the respective DLEC which recommends them to the SLEC for approval. The IC receives proposals approved by DLECs or directly submitted by the line departments, Associations and Non-Governmental Organisation (NGOs) and puts up before SLEC for approval. Subsequent to its approval, proposal for budget provision is made and fund is received by the IMD. IC passes the fund onto the respective line departments/NGOs, Associations which had submitted the original proposal. The line departments take up execution of the works/schemes following procedures/rules of their respective departments.

2.2.3 Audit Scope and Coverage

The implementation of welfare programmes for salt workers was audited between January 2019 and July 2019 covering a period of five years from April 2014 to March 2019. Audit covered all the seven districts[29] where welfare works were taken up during the period 2014-19. Audit examined records of the IMD and the line departments responsible for providing road connectivity, water supply, housing, health, Integrated Child Development Services (ICDS), education, rationing, hygiene, protection against natural disasters, *etc.* Audit also undertook (between February and August 2019) joint site visits to salt manufacturing sites, Anganwadi Centres (AWCs), Primary Health Centres(PHCs)/ Community Health Centres (CHCs), schools and residential hostels for children of salt workers in the seven districts with the staff of the concerned line departments, IMD.

2.2.4 Audit Objectives

The audit was carried out to obtain a reasonable assurance as to:

- Whether any baseline survey was conducted and adequate planning was made for execution of welfare schemes/programmes for salt workers;
- Whether the works/schemes were executed economically, efficiently and in an effective manner;
- Whether the programme was successful in fulfilling basic needs of salt workers; and
- Whether proper monitoring of schemes/works was done and any evaluation/impact assessment was carried out.

[29] Amreli, Bharuch, Bhavnagar, Kachchh, Morbi, Patan and Surendranagar.

Audit Findings

Audit observations are discussed in succeeding paragraphs.

2.2.5 Planning

2.2.5.1 Survey and baseline database for salt workers

For effective implementation of welfare scheme, it is necessary to conduct a baseline survey and have a database of the population of salt workers and their location, facilities available and required by them. Such a survey and database are a pre-requisite for the IMD to prepare a long-term plan and set up priorities for works.

During the course of Audit, it was observed that no comprehensive facility survey[30] was conducted by IMD or any other agency of the State to ascertain the kind of facilities available to salt workers and their requirements in salt producing districts. The line departments carried out works based on limited survey conducted for their work requirement. There was a lack of holistic approach at the state level to take up schemes for welfare of salt workers and piece-meal works/ schemes are taken up on *ad-hoc* basis as per the proposals received from the district level authorities/ associations/ NGOs. This deprived the department of an opportunity to

- identify the location wise availability *vis-à-vis* requirement of basic amenities so as to focus and put coordinated efforts on such identified clusters/villages of salt workers

- adopt a bottom up approach[31] and make a long-term perspective plan for undertaking welfare works for salt workers.

The fall out of this can be seen in the deficiencies in providing basic amenities as discussed in succeeding paragraphs. All DICs accepted (February 2019 to August 2019) that survey was not carried out.

2.2.6 Financial Management

The GoG provides fund to the Industries and Mines Department for implementation of welfare activities for salt workers. During 2000-2014, ₹ 305.20 crore was spent on various schemes for salt workers. Out of this, the major amount (₹ 206.86 crore) was on construction and maintenance of roads in salt producing areas followed by provision of drinking water through pipelines and tankers (₹ 27.91 crore), educational facilities (₹ 22.47 crore), provision of safety kits, identity cards/family cards, cycles and conduct of awareness camps (₹ 8.94 crores), health facilities (₹ 5.26 crore) and Others (₹ 33.76 crore) including money sanctioned to NGOs, Associations of Salt Manufacturers *etc.*

[30] Survey showing nature and extent of the facilities available and required.
[31] Planning from bottom level based on ground level requirement.

During the period 2014-19, the details of grant provided by the Government and expenditure incurred on schemes for salt workers are given in **Table 1 below**:

Table 1: Details of grant allotted and expenditure incurred for implementation of welfare schemes of salt workers during 2014-19

(₹ in crore)

Year	Grant allotted	Expenditure incurred							Saving
		Roads	Water Supply	Health	Education	Housing	Safety kit, Solar Pumps and Others	Total	
2014-15	30	5.01	0.00	8.09	0.19	0	1.71	15	15
2015-16	30	0.61	0.00	12.08	15.27	0	2.04	30	0
2016-17	31	1.80	1.36	0.13	11.69	0	0.03	15.01	15.99
2017-18	30	15.37	3.41	4.57	0.00	0	2.95	26.30	3.70
2018-19	7.46	0.00	0.07	0.00	1.57	0	5.82	7.46	0
Total	**128.46**	**22.79**	**4.84**	**24.87**	**28.72**	**0**	**12.55**	**93.77**	**34.69**

(Source: Information provided by Industries and Mines Department, Gandhinagar, Figure for 2018-19 as per revised estimate)

Audit observed that despite the fund availability, these remained unutilized in three out of five years during 2014-19 mainly due to non-adoption of bottom up approach besides lack of long-term perspective plans as discussed in the preceding paragraph. Further, it was also due to lack of co-ordination with the line departments leading to holding up of proposals at various levels and lack of sufficient proposals as discussed later.

2.2.7 Provision of Basic Amenities for Salt Workers

2.2.7.1 Drinking water supply

The working season for salt workers is from October to June. Availability of drinking water at salt pans in desert/ coastal areas is limited and therefore, it is necessary that timely arrangements are made for supply of water in desert areas as its delay may causes severe health, hygiene and survival problems for salt workers and their families. Gujarat Water Supply and Sewerage Board (GWSSB)[32] is responsible for providing drinking water to the salt workers. GWSSB supplies water though pipeline-based schemes or through water tankers. Where there is no water supply by GWSSB, the salt workers depend on private water suppliers paying a huge amount of their earnings. The details of works related to water supply sanctioned by SLEC during the period 2014-19 and their status are given in **Table 2** below:

Table 2: Details of water supply works sanctioned during 2014-19 as on August 2019

Year	District for which sanctioned	Name of the work	Fund sanctioned (₹ in lakh)	Work status
2014-15	Surendranagar	Construction of water tanks in Odu village	31.40	Completed
2016-17	Surendranagar	Construction of water storage tank at Kharaghoda village	32.81	In progress
	Morbi	Supply of drinking water to salt workers through tankers	23.27	Completed

[32] Under the Narmada, Water Resources, Water Supply and Kalpsar (NWRWSK) Department, GoG.

Year	District for which sanctioned	Name of the work	Fund sanctioned (₹ in lakh)	Work status
2017-18	Patan	Supply of drinking water to salt workers in Santalpur Taluka through pipeline	340.70	Not yet started

(Source: Information provided by Industries and Mines Department)

The overall scenario of water supply to salt workers was as shown in **Table 3** below:

Table 3: Details of water supply status by GWSSB during 2014-19 as on August 2019

District	Water supply through	Whether functioning and water was made available to the salt workers
Patan	1. Garamadi Group Water Supply Scheme. One water supply scheme-Santalpur Taluka Group water supply scheme sanctioned by SLEC in 2017-18 at a cost of ₹ 3.40 crore could not be taken up as it was to pass through Forest Area 2. Water tankers	Garamadi Group water supply scheme was functioning and in other areas, water was supplied through tankers
Bhavnagar	1. Vallabhipur Zone Water Supply Scheme (VZWSS) and 2. Bhavnagar-Ghogha Water supply scheme (BGWSS) 3. Water tankers	VZWSS and BGWSS are functioning partly. Water supply through tankers.
Surendranagar	1. Narmada Based Regional Water Supply Schemes 2. Water tankers	Narmada based Water supply schemes are functioning. For salt workers in areas not covered under these schemes water is provided through tankers.
Kachchh	1. In Gandhidham Taluka, through Vira Sanghad Group Water Supply Scheme 2. Water tankers	Vira Sanghad Group Water Supply Scheme was only partly functioning. In Bhachau and Rapar taluka, salt workers were provided water through tankers.
Amreli	No Water supply	
Bharuch	Water tankers	Water was supplied through tankers
Morbi	1.Lavanpur-Navlakhi Area Salt Cess Water Supply Scheme and Bagsara-Jaydeep Vistar Water Supply Scheme 2. Water tankers	Both the schemes are functioning. Other areas are covered through water tankers.

The audit findings in respect of water supply schemes in five salt producing districts are discussed below.

Water supply in Surendranagar District

Lack of planning and co-ordination among departments

GWSSB submitted (June 2016) a proposal to SLEC for water supply to salt workers through water tankers in Kharaghoda Range and Jesda-Kuda Range desert area for the period 2012-13 to 2016-17 at a cost of ₹ 5.09 crore (for water already supplied during 2012-16 and for supply planned for 2016-17). In the SLEC meeting (June 2016), GWSSB proposed to provide 60 *per cent* of cost sharing for expenditure incurred by it every year for supply of water to the salt workers. The SLEC did not accept the proposal and stated (June 2016) that GWSSB should have separate plan for water supply on permanent basis in it budget. Audit observed that GWSSB had not made (September 2019) separate provision for water supply to salt workers in its budget. Audit also observed that subsequently, the SLEC also did not pursue the matter with GWSSB and thus the matter remained unresolved.

GWSSB stated (September 2019) that being a policy matter, the decision was required to be taken by the Water Supply Department. Thus, even after more than three years (since June 2016) due to lack of planning and co-ordination between the departments, basic framework issue remained unsettled and no water supply scheme was planned.

Water supply in Kachchh District

Failure of Vira-Sanghad Water Supply Scheme

In coastal areas near Sanghad village, (Anjar Taluka), large number of salt workers face lot of difficulties in getting drinking water and depend on available wells in nearby areas for their water needs, which contain high level of Total Dissolved Solids.

GWSSB undertook (August 2007) Vira-Sanghad Water Supply Scheme for supply of water through pipeline to nearly 4,000 salt workers in 14 salt units near Sanghad village at a cost of ₹ 99.39 lakh. The project mainly included drilling of tube well at Sinogra village as a source, laying of pipe lines, construction of underground sump at Nagalvadia village and storage reservoir at Kanta weigh bridge of 1.6 lakh litre capacity each. Water was to be pumped from Nagalvadia sump to reservoir at Kanta (Weigh Bridge) for further supply to various salt units. Under the scheme, daily 1.6 lakh litre water was planned to be supplied. As water could not reach the reservoir at Kanta (Weigh Bridge), additional work (construction of sump at Jogninar, laying of pipes, electrification of sump, *etc*.) was taken up between 2012 and 2018. However, the scheme could not deliver water as envisaged in the scheme. Against the requirement of 3.95 crore litres[33], only 59 lakh litre water was supplied between June 2018 and 2019. Thus, even after spending ₹ 72.11 lakh, the salt workers were forced to make their own arrangements for drinking water.

[33] There are 395 days between June 2018 and June 2019 and 1,00,000 litre water is required per day.

GWSSB stated (July 2019) that due to less rainfall in Kachchh district, local source was dried and hence people of Vira village did not allow to draw enough water from the water tank. It also stated that only if water supply from Narmada is increased, water could be provided to Vira-Sangad salt area from Vira village. The reply of GWSSB was not convincing as poor technical planning of the scheme and non-management of source of water, led to non-achieving of the desired benefits. Further, water was also not supplied by GWSSB through tankers. This suggests lack of monitoring over the schemes by GWSSB and by IMD.

Water supply in Bhavnagar District

In Bhavnagar district, water is supplied by GWSSB to salt worker through Vallabhipur Zone Water Supply Scheme (VZWSS) and Bhavnagar-Ghogha Water supply scheme (BGWSS). VZWSS executed in 2009 was to provide water supply to 37 salt units of Vallabhipur and Bhavnagar taluka.

Complaints regarding non-functioning of pipe lines and non-availability of water at the salt units were put up before DLEC, Bhavnagar in January 2016. In September 2018, DLEC directed GWSSB to take up survey for identification of areas where water was not available and report thereon. However, no progress was reported thereafter (May 2020).

Office of the Public Health Division, GWSSB, Bhavnagar stated (May 2019) that only four to five units get water through tankers from Vallabhipur Water Supply Scheme as the pipe line network was disturbed due to widening of Adhelai-Nari National Highway and less availability of water due to corrosion of the pipe line. The Division also assured that pipe line network would be re-laid for the scheme. Further, the Division also informed that Vallabhipur Augmentation Water Supply Project was sanctioned by GWSSB to provide adequate water to Madhiya Sub Head works for which tenders have been floated.

For BGWSS**,** the Division stated that the scheme executed in 2008 was to provide water supply to 14 units of Ghogha and Bhavnagar Taluka. However, only nine units get water under the scheme while five units could not get water due to technical problem since 2009. It further stated that additional pumping station at village Avaniya would be constructed to provide water to remaining five units. During the joint site visit of salt units by Audit with the DIC staff (May 2019) at five[34] lease holders (10 acres) near Bhavnagar, it was noticed that availability of drinking water was a major issue.

Thus, even after a lapse of four years, GWSSB failed to take remedial actions and provide water to salt workers.

Proposal for providing Water tanks and storage tanks not finalized for years

Audit noticed that two proposals relating to water supply to salt workers in Bhavnagar district were put up before DLEC. One related to purchase of truck

[34] Akwada Khar Vistar near Jat School, Akwada Salt pans, Avaniya, Ghogha Ganeshgadh and Kumbharwada.

chassis and water tankers (₹ 16.21 lakh), which was placed before DLEC in July 2015 while the other for purchase of 264 water tanks (₹ 21.12 lakh) for providing water to salt workers in 47 salt units, which was placed before DLEC in January 2016. DLEC recommended (March 2016) both proposals to SLEC. However, none of the proposals were taken up in any meeting of SLEC held during 2016-19. This shows lack of urgency towards development of basic infrastructure for water supply.

DIC, Bhavnagar stated (May 2019) that the matter would be followed up.

Water supply in Amreli District

In Amreli district, there was no water supply scheme run by GWSSB for salt workers. Gujarat Majoor Sangh, Chanch, an NGO associated with the welfare of salt workers put up a request for supply of water to salt workers of Amreli District in November 2013. DLEC directed (November 2013) GWSSB to undertake a survey and prepare a water supply scheme for salt workers. GWSSB, Amreli Division submitted (October and December 2014) a plan and estimates of ₹ 73.77 lakh to the Construction Circle, GWSSB, Bhavnagar for the same. However, the plan and estimates remained under protracted correspondence among, Public Health (PH) Works Division Amreli, PH Circle GWSSB Bhavnagar and Chief Engineer Office, GWSSB and was not yet finalised (August 2019). Thus, the scheme could not be taken up even after six years since November 2013. As a result, the salt workers were deprived of basic amenity of drinking water.

Office of the PH Division Amreli stated (September 2019) that the estimates were at approval stage. The reply suggested lack of monitoring over the progress of the schemes by GWSSB and IMD.

Water supply in Patan District

GWSSB provides water through tankers in Patan District to around 1,631 salt workers families staying in desert areas and villages near the desert as there were no pipeline-based Water Supply Schemes.

Audit observed that no water was supplied during 2014-15. Further, there was delay/short supply of water in all other years during 2015-18. Only during 2018-19, water was supplied timely to the salt workers but not supplied for the entire working season.

Office of the PH Division, GWSSB, Radhanpur stated that non supply and delay in supply was due to non-finalization of tenders for supply of water through tankers or delay in issue of work order to the agency. Reply was not convincing as the tendering process could have been started well in advance to ensure water supply to salt workers from beginning of their working season.

2.2.7.2 Road Connectivity

Proper road connectivity in the salt pan areas is important not only for the mobility of salt workers but also for delivery of other essential services to

them. The Panchayat divisions under the Roads and Building Department are responsible for construction and maintenance of approach roads to the salt lease site/ salt units. Details of road works sanctioned by SLEC during 2014-19 are shown in **Table 4** below:

Table 4: Details of road works sanctioned by SLEC during 2014-19

Year	District	Name of the work	Fund sanctioned (₹ in lakh)
2014-15	Morbi	Construction of causeway for approaches to salt units in Bagsara area in Maliya- Miyana Taluka	87.68
2015-16	Surendranagar	Construction of CC road from house of Karsanbhai Gandubhai to High School in Tikar (Desert)	2.62
	Amreli	Construction of Approach road and pitching for road joining salt unit Shri Jay Chamunda Nimak Utpadak Sahakari Mandli Limited, Chanch village Ta. Rajula to Chanch–Khera-Patva-Samdhiyala road km 0/0 to 2/0	58.19
2016-17	Amreli	(1) Construction of seven cc roads in salt workers areas in Chanch village (2) Construction of nine roads in the District	(1) 23.74 & (2) 155.86
	Kachchh	Construction of nine roads joining salt works in Anjar, Gandhidham and Bhachau Taluka	2,600.73
2017-18 & 2018-19	Nil		

(Source: Information provided by Industries and Mines Department)

Out of the seven districts checked in Audit, the audit findings relating to conditions of roads connecting the salt units in three districts and their subsequent impact are discussed in succeeding paragraphs:

Health service to salt workers affected due to bad roads

Medical services are provided to the salt workers through Mobile Health Units (MHUs) in far off salt pan areas in salt producing districts.

The office of the Chief District Health Officer, Bhavnagar operates one MHU under PHC, Adhelai to cover all the salt workers and their families in 27 salt units around Bhavnagar. However, during monsoon the health services through MHU could not be operated in 22 salt units due to damaged condition of the approach roads. Similarly, the salt workers in Patan, Morbi, and Kachchh districts are also affected as roads in salt producing areas were not maintained properly as detailed in **Appendix XIV.** Office of **t**he Additional Director, Public Health has taken up (September 2019) the issue of bad roads with R&B department, Gandhinagar. No action was taken by the R&B department (September 2019).

Road maintenance not attended in Bhavnagar district

Based on the proposal of District Salt Manufacturers' Association, DLEC, Bhavnagar recommended (January 2016) to SLEC a proposal for maintenance of 16 approach roads costing ₹ 43.90 crore for salt units in Bhavnagar district. The District Panchayat was to bear 20 *per cent* of the cost *i.e.*, ₹ 8.78 crore and

Industries & Mines Department to bear 80 *per cent* of the cost *i.e.*, ₹ 35.12 crore.

SLEC instructed (June 2016) DIC, Bhavnagar to fix priority of roads and re-submit the proposal. The matter remained under correspondence and was discussed again in DLEC meeting held on 24 September 2018, where the Association represented that maintenance of these roads was very important as in its absence, production of salt and transportation was badly affected. Based on this, DLEC instructed (September 2018) Member Secretary to send the proposal to IC/ SLEC for reconsideration. The DLEC again instructed (26 February 2019) R&B District Panchayat to take up the matter with the IC. However, no progress was found on records thereafter. Thus, work of maintenance of these approach roads to salt units could not be taken up.

Road works in Amreli district

SLEC approved (June 2016) a proposal of Panchayat Division, Amreli of R&B Department (Division) for construction of nine roads for salt units in Amreli district costing ₹ 1.55 crore. The fund was released by DIC to the Division in March 2017. However, even after lapse of two and half years, the work is still at estimate stage (May 2019). This shows lack of urgency by the line department and need for monitoring over execution of sanctioned proposals by IMD.

Road works in Kachchh district

In Kachchh district, Audit visited (12 and 16 July 2019) along with the officials of DIC Bhuj at various approach roads[35] joining salt pans with main road in Anjar Taluka and observed that all these roads connecting upto 10 acres salt workers sites to main road were in bad condition.

Approach Road connecting NH to salt units in village Moti Chirai District Kachchh Photo taken in July 2019	***Approach Road connecting NH to salt units in village Nani Chirai District Kachchh, photo taken in July 2019***
	

Office of the Panchayat Division, Bhuj of R&B Department stated (July 2019) that works on these roads were carried out during 2009-10 and guarantee

[35] Road connecting (i) NH to Nani Chirai salt units and from salt units to 10 acres salt workers sites, (ii) NH to Moti Chirai salt units and TM salt works, (iii) TM Salt Works to Chirai Salt Works, and (iv) Bajaj Salt Private Limited to Chirai Co-operative Mandli, Sahajanand Salt Works, Yadav Salt & Chemicals Works, Chamunda Salt Work, Shri Ram Salt Works, Saraswati Salt Work, Shiv Shakti Salt Works (Bhachau) and connecting to 17 10 acres agariyas.

period of these roads had already expired. It was further stated that proposal for maintenance of these roads would be taken up.

2.2.7.3 Housing Facilities

The salt workers make temporary huts/shelter during their stay of eight months in remote locations having harsh weather conditions. The accommodation is often not good enough to protect them and their families against extremities of temperature and high velocity of winds. The Central scheme Namak Mazdoor Awas Yojna was in operation up to end of 12th Five Year plan *i.e.*, 2012 for providing proper housing to salt workers. SLEC considered (July 2012) the fact of closure of the scheme and accorded in principle approval to state housing scheme for the salt workers. The Government's commitment to provide houses to the salt workers was again reiterated in the subsequent meeting of SLEC (January 2014).

Audit noticed that even after five years of decision of SLEC, no housing scheme was launched for salt workers. Audit visited (May-July 2019) houses of salt workers at salt leases in Bhavnagar, Kachchh and Bharuch districts with the staff of DICs and observed poor condition of houses of salt workers.

As shown in **Table 1,** funds of ₹ 34.69 crore remained un-utilized during 2014-19 and no provision was made for housing facilities during this period.

No condition in salt lease for housing to salt workers

The administration of salt leases is carried out by the IMD. The IMD has also laid standard terms of salt leases in October 2010. Audit observed (February 2019) that there is no condition in the salt lease that salt units should provide proper houses at salt lease site to the salt workers. As a result, the salt workers were either left at the mercy of salt unit owners for their basic housing requirement or have to manage themselves.

In reply, the IMD stated that the matter has been noted for making a provision in the lease agreement.

Houses of salt workers in Kachchh district: Photos taken in July 2019

At Chamunda Salt, Shikarpur, Taluka Bhachau District Kachchh	*At salt lease sites at Vandhiya village, District Kachchh*
	

Temporary Shelter facilities: Delay in decision making in providing tents to salt workers

In the SLEC meeting (June 2016), a proposal by Gujarat Gram Shram Yogi Kalyan Board (GGSYKB) for providing 1,000 water proof tents at the cost of ₹ 90 lakh to salt workers during 2016-17 was discussed. The SLEC approved purchase of 100 tents on trial basis at a cost of ₹ nine lakh. Audit noticed that no fund was released by the IMD and the purchase could not be made. In January 2018, the SLEC again instructed GGSYKB to carry out a market survey for tents suitable for the weather conditions in which salt workers work. In June 2018, an NGO (Agariya Hit Rakshak Manch) informed SLEC that students of Nirma University and Centre for Environmental Planning and Technology (CEPT) have carried out research on tents. Though SLEC instructed GGSYKB to study the matter, the purchase of tents is yet to be taken up (August 2019) even after lapse of three years since submission of the first proposal.

2.2.7.4 Health facilities

Due to geographical conditions and nature of work, salt workers suffer from many health hazards specifically eye morbidities, skin and musculoskeletal disorders. Office of the Commissioner of Health (CoH) and Health department of District Panchayats provide health services to the salt workers through Community Health Centres (CHCs), Primary Health Centres (PHCs) and Sub Centres (SCs), established in various talukas and villages. In the remote villages (coastal or desert areas) where PHCs/SCs are not available, medical facilities are provided through Mobile Health units (MHUs). There are 13 MHU operated in 13 Talukas in seven districts checked in Audit. Besides this, medical camps are organized for providing services of specialists. As per the details of diagnostic and curative services provided through MHU (Agariya) furnished by the office of CoH, Gandhinagar, 57 to 61 *per cent* of salt workers were suffering from various diseases.

The details of works sanctioned for providing health facilities to salt workers during 2014-19 are given in **Table 5** below:

Table 5: Details of works relating to Health facilities sanctioned during 2014-19

Year	District for which sanctioned	Name of the work	Fund sanctioned (₹ in lakh)
2014-15	Surendranagar (one PHC and 15 SCs)	Construction of one PHC, 70 SCs and prefabricated structure	2,004.85
	Morbi (19 SCs)		
	Kachchh (34 SCs)		
	Bharuch (2 SCs)		
2015-16 & 2016-17	Nil	Nil	Nil
2017-18	Various Salt Producing districts	Operation of 20 Dhanvantri Arogya Raths in salt producing areas in the state	456.60

(Source: Information provided by Industries and Mines Department, Gandhinagar)

The work of construction of 44 SCs was completed by December 2018 and construction of 13 SCs was in progress (October 2019). In case of 10 SCs, the work could not be taken up due to problem of land acquisition and three SCs were dropped from the list. The work of PHC at Surendranagar was yet to be

started (October 2019). In respect of Dhanvantri Arogya Raths, IC placed fund of ₹ 4.56 crore with Health Department in August 2017 for procurement of vehicles which was in progress (November 2019).

The observations relating to health facilities to the salt workers are discussed in succeeding paragraphs.

Arrangement of Medical Health Unit and Medical Camps in salt areas

As medical facilities are normally not available at remote locations, health services are provided to the salt workers by office of the Chief District Health Officer (CDHO) in each district through operation of MHUs attached with PHCs/CHCs. Further, due to non-availability of services of specialist doctors, SCs, PHCs and CHCs, medical camps are arranged periodically at the salt pans in coastal/desert areas. The frequency of operation of MHUs is critical considering far off locations of work sites from the PHCs/SCs.

Audit observed that good efforts were made by CDHOs to provide medical services to salt workers in five districts (Bhavnagar, Surendranagar, Kachchh, Amreli and Bharuch districts) out of seven districts checked in Audit despite limited staff and other resources. However, no medical camps were held in Bharuch and Amreli districts during 2014-19. In Morbi and Patan districts, the services of MHU were provided once or twice in a month in various villages of salt workers due to absence of MHUs coupled with vacant post of medical staff.

The DLEC, Morbi recommended (November 2016) a proposal for procurement of three vehicles for MHUs at a cost of ₹ 38.86 lakh. Though the proposal was approved by SLEC and forwarded to IMD, the same was not yet finalised for want of compliance to remarks of IMD. DLEC (February 2019) again instructed DIC to complete the procedure for procurement of MHU.

Office of the CDHO, Morbi stated (August 2019) that frequency of MHU would be increased after getting vehicle. Office of the CDHO, Patan stated that medical officer and paramedical staffs were required to be appointed to increase the frequency of MHU on weekly basis.

No condition for medical facilities to salt workers working in salt units

The IMD has prescribed standard terms for salt leases in October 2010. Audit observed that the standard terms do not provide for medical facilities to salt workers by the lease holders. As a result, the lease holder was not made responsible to provide medical aid or first aid treatment at the work site to any salt worker in the event of any medical exigency. Further, there is no provision for providing group medical insurance for them. In addition, the lease conditions do not provide for ensuring the salt workers and their families inoculated against cholera, plague or other epidemic diseases and vaccinated against smallpox at the time of employment; if they are not inoculated/ vaccinated within the specified period.

It is notable that these conditions are explicitly provided in the standard contract of the State (R&B) Department.

2.2.7.5 Integrated Child Development Services

Integrated Child Development Services (ICDS) is a centrally sponsored scheme operated through Anganwadi and focuses on six services aimed at children in the age group of 0-6 years and pregnant/lactating mothers[36].

As per various study reports mentioned in **Paragraph 2.2.1**, nutritional status among the children of salt workers is very low. Special focus is needed for their immunization and health check-ups. As the children of salt workers spend their childhood in salt pans away from the mainstream area, an early education about health and hygiene is also necessary.

During audit, it was noticed that:

- During 2014-19, not a single proposal was put up in the SLEC by District Programme Officers (DPO) for providing ICDS services for children, pregnant women and lactating women of salt workers.

- While most of the salt clusters in villages are covered under ICDS, the salt clusters located in the desert areas in Patan, Amreli, Surendranagar and Kachchh Districts were left out of ICDS.

- In Patan, take-home ration was provided weekly to the children of salt workers in the desert areas through special van. No such facility was provided in other three districts (Amreli, Surendranagar and Kachchh).

- In the five meetings held between July 2016 and July 2018, DLEC, Patan directed District Programme Officer (DPO), ICDS to start ICDS activities and Anganwadis in Mobile vans/ tents in desert area for benefit of children and mothers of salt workers suffering from malnutrition. However, the Woman and Child Development Department did not explore the possibility of operating mobile Anganwadis in these desert areas.

DPOs (ICDS) at, Patan, Kachchh and Bharuch agreed to cover children working in deserts also. DPO, ICDS, Patan and Bharuch also agreed to plan mobile Anganwadi.

2.2.7.6 Education facilities

Sarva Shiksha Abhiyan (SSA) is a Government of India's flagship programme for achievement of Universalization of Elementary Education. For children of salt workers living in extremely remote, inaccessible or scattered habitations, education facilities are not easily available. Special strategy and efforts are required to identify and provide them with minimum elementary education. State Project Director, Sarva Shiksha Abhiyan (SSA) has undertaken various

[36] ICDS focusses on six services *viz.*(i) Supplementary nutrition (ii) Pre-school non-formal education (iii) Nutrition and Health Education (iv) Immunization (v) Health check-up and (vi) Referral services.

initiatives such as establishment of seasonal hostels for children who stay in villages when their parents migrate for salt manufacturing, arrangement of Day Care schools (tent school) at work sites in various districts and provision of transportation facilities to children who have to travel beyond a specified distance. SSA has also developed online Migration Monitoring System to track and monitor migrating students from one cluster/ block/ district to another cluster/block/ district.

The details of works sanctioned by the SLEC for providing education facilities during 2014-19 are given in **Table 6** below:

Table 6: Details of works relating to education facilities sanctioned by SLEC during 2014-19 alongwith their status as on January 2020

Year	District	Name of the work	Fund sanctioned (₹ in lakh)	Latest status as on January 2020
2014-15	Surendranagar and Bharuch	Providing uniforms, Construction of school building, Prayer hall, Computer halls, Library, Water tanks in various schools in Surendranagar and Bharuch district and providing educational facilities in five residential schools in Surendranagar district.	193.68	Completed
2015-16	Surendranagar	Providing uniforms, Construction of school building, Prayer hall, Computer halls, Library, Water tanks	389.54	In Progress
2016-17	Kachchh and Amreli	Proving school bus, Providing benches in Ashramshala, construction of rooms	30.14	Completed
2017-18	Nil	Nil	Nil	Nil
2018-19	Surendranagar	Providing concrete block at school M. B. Patwari, Village Bajana	5.25	Completed

(Source: Information provided by Industries and Mines Department, Gandhinagar)

The overall quality of water in Amreli, Bhavnagar, Kachchh, Patan and Surendranagar districts is saline as per Central Ground Water Board (CGWB). Thus, special focus is needed to provide safe drinking water to the students in the schools in these areas. During joint site visits (April to July 2019) of 30 schools and four SSA residential hostels along with officials of DICs in villages near the salt workers clusters in these districts, Audit observed that RO water facility was not provided in 12 schools and four SSA residential hostels. In 18 schools though RO water facility was provided, these were not functional. Further, computer labs constructed in 31 schools were not functional in Surendranagar, Bhavnagar, Kachchh and Amreli Districts.

Good Practice

Audit visited seasonal hostels for children of migrating parents constructed by SSA authorities in various salt producing districts and found that the hostels were providing intended benefits to the children of salt workers.

"School on Wheels" in desert area of Patan District

GoG also launched (July 2018) an innovative pilot project of "School on Wheels" for children of salt workers staying with their parents in desert areas. Under this project, 30 scrap buses of Gujarat State Road Transport Corporation were modified with PVC flooring, writing desks, and a writing board to be used for teaching children. Audit visited two such Schools on Wheels in remote desert area of Surendranagar and Patan districts and observed that the children of salt workers were benefitted from the project.

2.2.7.7 Rationing facilities

In the remote areas where the salt workers spend most part of the year, regular supply of essential commodities including food is practically non-existent. SLEC sanctioned (January 2014) ₹ two lakh to Gujarat State Civil Supplies Corporation Limited, Gandhinagar for operation and maintenance of mobile rationing van for salt workers for the year 2013-14. However, it also decided (January 2014) to close mobile rationing van and hand it over to Labour Department or Social Welfare Department or any other Department. No reasons were recorded by SLEC for this decision. After 2013-14, no work for providing ration facility to salt workers was sanctioned by SLEC.

Thus, abrupt closure of mobile rationing van facility without making alternative arrangements resulted in deprival of rationing facilities to salt workers at a fair price. The matter was taken up by Audit (November 2019) with the office of the Director, Food and Civil Supply, Gandhinagar. Their response was awaited (June 2020).

2.2.7.8 Sanitation facilities

As per various study reports[37], hygiene is a serious issue for salt workers as toilet facilities are normally not available for salt workers at salt pans.

Audit observed that, due to lack of proposals there was little progress in providing sanitation facilities to salt workers. During 2014-19, SLEC received only two proposals for sanitation (one in Kachchh District and one for

[37] Study Report: Evaluating Overall social and health status of salt workers in experimental salt fields at Bhavnagar, Gujarat based on a pilot survey conducted in March 2015 with support of CSMCRI-CSIR and Medical College, Bhavnagar.

Bhavnagar District). Of this, SLEC approved (January 2018) one proposal of Gandhidham taluka in Kachchh District for providing of 100 number of toilets for salt workers at the cost of ₹ 27.25 lakh. The work was completed (December 2019). In case of proposal for Bhavnagar district, the SLEC approved bathrooms and toilet blocks in 10 salt work pans (against 47 proposed) on trial basis with sanction of ₹ 34.40 lakh (80 *per cent* of total cost of ₹ 43 lakh). SLEC instructed (June 2016) the District Salt Manufacturers Association, Bhavnagar to bear the remaining 20 *per cent* share (₹ 8.60 lakh). The proposal was not implemented so far for want of pending details sought by IMD from the Association (October 2019). Thus, issue of sanitation was almost left uncovered under the welfare programme for salt workers.

Further, there was no coverage of salt workers under the Swachchh Bharat Mission[38] launched by GoI in October 2014. During joint site visits (May-July 2019) of the lease site of 17 salt units in Bhavnagar District and nine units in Kachchh district, it was observed that none of the salt units provided toilet facilities to salt workers. Thus, the salt workers and particularly women faced difficulties and were deprived of their privacy and hygiene. Panchayat and Rural Development Department accepted (December 2019) the observation.

In case of salt units, providing toilet facility to salt workers do not directly fall under the functional area of any line department. The Industries and Mines Department and the Panchayat and Rural Development Department were required to take initiative for providing toilet-hygiene facilities. Audit observed that the condition of providing toilets and bathrooms for hygiene and sanitation were not prescribed in the standard salt lease agreements prepared by IC/ IMD in October 2010. Thus, it was not mandatory for lease holders for construction of toilets and bathrooms. IMD accepted the audit observation.

Gujarat Matikam Kalakari and Rural Technology Institute, an agency under IMD endeavours to promote the concept of appropriate technology for the rural development and for the benefit of rural artisans and cottage industries. However, the IMD did not involve the institute and utilize its procurement or providing movable toilets to salt workers.

2.2.8 Non-utilization of Departmental resources or use of modern technologies

Innovative, low cost modern technologies may bring many solutions to rural problems. There are a number of Central Government organizations like National Institute of Rural Development, Council for Advancement of People's Actions and Rural Development, National Environmental Engineering Research Institute (NEERI), Structural Engineering Research Centre (SERC) working on low cost rural development technologies, like low cost toilets (NEERI), Low maintenance fuel efficient stove (NEERI), Small wood gasifier (Indian Institute of Science, Bengaluru) for providing domestic and street lights in remote areas *etc*. No such initiative has been taken to improve lives of salt workers through low cost modern technologies.

[38] The main objectives of the mission *inter alia* were construction of individual and community toilets, to eliminate open defecation and make India Open Defecation Free (ODF) by 2019.

Good Practice

With a view to reduce fuel expenses of salt workers on withdrawal of underground brine or sea water and encourage use of renewable source of energy, GoG launched (October 2017) a subsidy scheme for salt workers on purchase of solar pump. Under the scheme, salt workers having land of less than 10 acres, were provided a subsidy of 80 *per cent* by the government and balance 20 *per cent* was to be borne by the salt workers. The scheme received positive response and during 2017-20 (up to October 2019), GoG sanctioned total 778 applications for solar pumps and granted subsidy of ₹ 15.82 crore.

2.2.9 Monitoring of lease conditions for ensuring safety, security and welfare of salt workers

The salt leases are issued by the District authorities for which the IC has prescribed (October 2010) standard lease agreement. For salt workers working at big salt units (above 10 acres), their welfare can be ensured through monitoring of salt leases issued by the concerned District authorities. As per the standard agreement, Salt unit owners have to (i) make arrangements for drinking water, (ii) develop cyclone early warning system with light and sound and construct sound cyclone relief shelter for salt workers and shift them to safe places in case of cyclone, (iii) provide safety kit like gum boots and goggles to the salt workers. During audit of office of IC and DICs, it was noticed that no inspection of these salt units was carried out by the IMD during 2014-19 with a view to check compliance of the above lease conditions. Thus, compliance of lease conditions by salt unit owners could not be ensured.

2.2.9.1 Non-inclusion of lease conditions for payment of minimum wages, PF and insurance to salt workers

The welfare of the salt workers who are hired by big salt units (above 10 acres), their protection against economic exploitation can be ensured through provision of condition for minimum wages, provident fund and insurance by the unit owners in their lease agreement and monitoring of compliance to the lease terms. Audit observed that the standard lease condition does not include any such provision. On the other hand, these conditions are provided by the R&B Department, GoG in all their contract agreement for ensuring housing facility, medical aid, hygiene and sanitation of labourers deployed by the contractors in their works. Inclusion of such terms and conditions and their monitoring by the IC office can greatly improve the working and living conditions of salt workers.

2.2.10 Functioning of DLECs

For successful implementation of the salt welfare scheme, it was necessary that meetings of DLECs are held regularly, proposals are submitted by the line departments, NGOs, Association of Salt manufacturers and finalised by DLEC/SLEC promptly. During audit of DICs, the following were noticed:

Meetings of DLEC not held regularly

The meetings of the DLECs were not held regularly as shown in **Appendix XV.** DLEC, Amreli held only one meeting during 2014-19. DLEC, Morbi, did not hold any meeting during 2014-15 and 2015-16 and DLEC, Bhavnagar did not hold any meeting during 2014-15 and 2016-17. The matter of regular quarterly meetings of DLEC and sending sufficient proposals to SLEC was taken up (February 2017) by the IC with the Chairmen of DLECs. However, situation did not improve. In response to audit observation, DICs agreed (August 2019) to hold meetings regularly.

Less receipt of proposals

The work proposals are drivers for the implementation of the programme. More proposals during a year results in more welfare works. In Districts/Talukas for which proposals are not received, welfare works are not carried out. During 2014-19, meetings of DLECs in the districts except Surendranagar were held without many proposals (**Appendix XV**). As discussed in preceding paras, this resulted in gaps in creation of infrastructure and providing basic amenities for the salt workers and their families. During 2014-19, proposals were received in the seven test checked districts relating to drinking water supply, education, tents and road connectivity. However, no proposals were received for health, housing, ICDS, shelter houses, *etc*. Further, for road connectivity and education facilities, proposals received were stray proposals without any comprehensive coverage in salt manufacturing areas.

Deficiencies in functioning of DLEC

The functioning of DLEC was not result oriented. Audit observed that 36 out of 73 proposals received in meeting of various DLECs were held up at various levels[39] due to reasons like proposals with incomplete details, non-compliance of remarks raised by IC, *etc*. This indicated lack of co-ordination among IC, DIC, line departments, District Associations of Salt Manufacturers, *etc*., (**Appendix XVI).**

Audit also noticed that there was no follow up, compliance of instructions was not watched and progress was not reviewed in subsequent meetings. The matters remained unresolved and no outcome could be achieved. Most of the proposal for welfare works brought before DLECs remained pending and not finalised for long periods. As a result, the proposed welfare works could not be carried out.

After this was pointed out, DICs stated (February 2019 to July 2019) that the observations were noted for future.

[39] Various levels such as DIC/IC, DLEC and Implementing agency.

2.2.11 Formation of SLEC: Important functionaries not included

The SLEC formed by the Government includes 34 members like Secretaries of line departments, Associations of Salt units, NGOs, *etc*. Audit observed that following Departments of the State Government shown in **Table 7** though having functional jurisdiction over area of the salt workers were not included in SLEC:

Table 7: Departments having functional jurisdiction over the area of salt workers but not included as a member in SLEC

Department	Important area in execution of welfare scheme for salt workers
Panchayat, Rural Housing and Rural Development Department	As desert or coastal area of working for salt workers fall under the jurisdiction of Panchayat Authorities, the Panchayat, Rural Housing and Rural Development Department has a key role to play in the planning and implementation of the scheme.
Social Justice and Empowerment Department	Many of the salt workers belong to nomadic tribe (*Vichrati Jati*)/SC/ST. As the Social Justice and Empowerment Department allots funds and executes various schemes/works for welfare of these communities, it needs to involved in planning and implementation of the schemes.
Food and Civil Supply Department	As salt workers work in desert/ area far from towns/cities, availability of grocery items is a major issue of concern. Thus, Food & Civil Supply department has important role to play.

Non-inclusion of these functional departments deprived IC of their assistance in improving planning and implementation of the welfare programme and making them more effective.

Industries and Mines Department (IMD) replied (October 2019) that Panchayat, Rural Housing and Rural Development Department and their district offices send the proposals for welfare of salt workers, when required. However, Audit found that in spite of sanitation being a key requirement for salt workers, there was no proposal in DLEC for providing sanitation /toilets (barring two proposals submitted by NGOs in Kachchh and Bhavnagar) during 2014-19.

IMD further stated that Social Justice & Empowerment department covers salt workers under their schemes**.** Audit observed base level works regarding water supply, housing, sanitation *etc*., are yet to be taken up. Regarding involvement of Food and Civil Supply department, it was stated that salt workers bring the items as per their requirements at the time of going to desert and Food and Civil Supply Department operates rationing van. However, no details were furnished by IC in support of this.

Participation of these departments in SLEC would aid planning, coordination, convergence and cost sharing of the welfare schemes.

2.2.12 Economic condition of salt workers

The salt workers are the backbone of the salt industry. However, they do not have access to formal credit for meeting salt production expenses and depend on private money lenders/ traders for finance, ration supply, crude oil supply, water supply *etc*. In turn, they lose bargaining power in deciding the cost of salt produced and do not get profit at the end of the season. They receive only one to two *per cent* of market price of salt they produce while the rest is taken away by the traders. Further, low access to information and illiteracy prevent them from adopting alternative livelihood options. In view of the above, financial assistance through nationalized banks, other Government financial institutions is necessary to keep them away from the debt trap of private money lenders and to ensure improvement in their economic conditions.

During audit, we noticed that there were no efforts on improvement of economic condition of salt workers and they continue to live in a hand-to-mouth position.

2.2.13 Conclusion

Gujarat is the leading producer of salt in the country. The salt workers are either independent marginal salt producers or hired labourers for salt lease units. Audit reviewed the implementation of welfare programmes for the benefit of salt workers. Audit observed that the welfare schemes were implemented without conducting survey and proper database on clusters and amenities required for salt workers in the state. No long term or short-term plan for welfare schemes were formulated. The meetings of District Level Empowered Committee (DLEC) were not held regularly. There was lack of coordination among DLEC, IC, line departments, *etc*., which led to non-finalisation of proposals for works such as water supply and roads. Housing and sanitation did not get priority. The line departments did not submit sufficient proposals and their involvement was very limited. No monitoring mechanism was in place to oversee the welfare of salt workers by salt unit owners. The inspection of lease was not carried out to ensure compliance of conditions relating to safety of salt workers. The lease agreements did not include conditions for providing of houses, sanitation and medical facilities to salt workers. As a result, the extent to which the programmes helped improve the lives of the salt workers was not ascertainable.

2.2.14 Recommendations

The Government may:

- ***undertake a complete location wise survey on population, facilities available vis-a-vis required and plan to undertake the welfare works for salt workers accordingly;***

- ***complete the approved works like drinking water supply schemes, construction of roads, etc., in a time bound manner.***

- ***bridge the gaps by including terms in the lease agreements relating to conditions like providing drinking water facilities, housing, health, hygiene and sanitation, etc.***

- ***strengthen the monitoring mechanism for compliance of lease conditions by the salt unit owners.***

- ***Launch a scheme for providing credit to salt workers.***

FORESTS AND ENVIRONMENT DEPARTMENT

2.3 Compensatory Afforestation

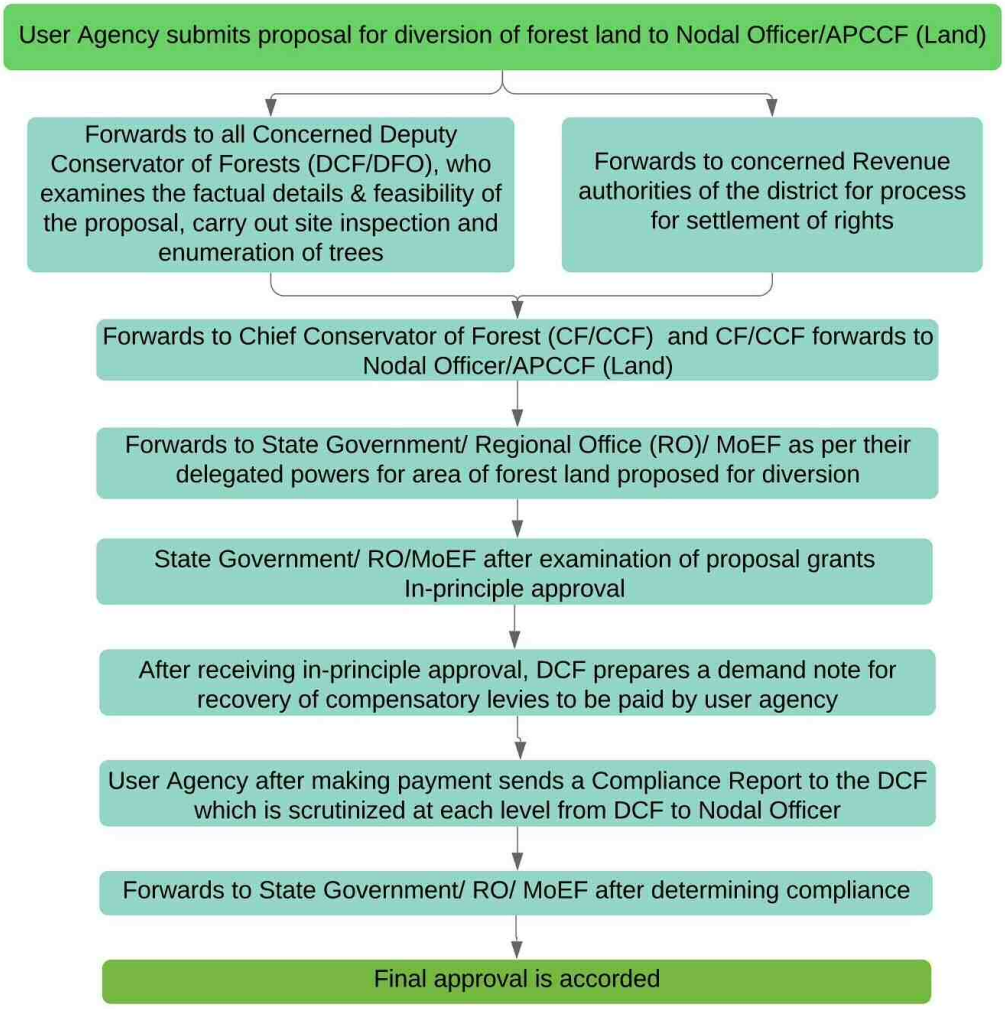
2.3.1 Introduction

Deforestation or degradation in our forests is an important factor in creating ecological imbalance. The Forest (Conservation) Act, 1980, was enacted with the objective to conserve the forests of the country and develop ecological security, environmental stability and sustainable development. The Act restricts de-reservation of forest or use of forest land for non-forest purpose. The Act provides a framework whereby if no alternatives are available and demand for forest land arises for non- forestry purposes, minimum forest land is diverted. Under this Act, Compensatory Afforestation (CA) is one of the important conditions stipulated by the Union Government while approving proposals for diversion of forest land for non-forest purposes. CA refers to afforestation and regeneration activities to compensate for the forest land diverted for non-forest purposes and is an additional plantation activity other than plantation activities normally carried out by the Forest Department. As per the Guidelines (2004) of the Ministry of Environment and Forests (MoEF), GoI, CA shall be done over equivalent area of non-forest land (NFL) received from the user agency or in exceptional cases CA may be raised over degraded forest land (DFL) twice in extent of the forest area being diverted.

Process of diversion of forest land

At the state level, the Land wing of Forest and Environment Department (F&ED), GoG headed by the Additional Principal Chief Conservator of Forest (APCCF) is responsible for scrutiny of the proposals for diversion of forest land for non-forest purposes. Subject to the fulfilment of the conditions specified in the in-principle approval, the land is diverted after getting permission from Ministry of Environment, Forest and Climate Change (MoEF & CC), GoI or from F&ED, Government of Gujarat (GoG) as the case may be. The process of diversion of forest land is shown in the flow chart below:

Figure 1: Flow-chart showing process of diversion of forest land



2.3.2 Compensatory Afforestation Fund Management and Planning Authority (CAMPA)

The Supreme Court of India (October 2002) directed that a Compensatory Afforestation Fund be created in which all the money received from the user agencies towards CA, additional/penal CA, NPV[40] of the diverted forest land shall be deposited. Further, it observed (May 2006) that since the Government did not constitute CAMPA, an *Ad-hoc* authority (*Ad-hoc* CAMPA) be constituted till CAMPA becomes operational. All money recovered on behalf of CAMPA lying in the States may be centrally pooled into the *Ad-hoc* CAMPA. The MoEF&CC circulated (July 2009) guidelines on State Compensatory Afforestation Fund Management and Planning Authority (State CAMPA) establishing CAMPAs in the States and putting in place a funding mechanism for enhancing forest and tree cover and conservation and management of wildlife. The State CAMPA would receive the money collected from user agencies towards CA, additional/ penal CA, NPV and other amounts recovered under the Forest (Conservation) Act, 1980 and lying with the *Ad-hoc* CAMPA. The State CAMPA would utilize it for undertaking

[40] Net Present Value of the forest land classified on the basis of their ecological role and value.

CA, assisting natural regeneration, conservation and protection of forests, infrastructure development, wildlife conservation and protection and other related activities[41].

2.3.3 Scope of Audit and Coverage

The Audit of Compensatory Afforestation was carried out to assess the process of diversion of forest land for non-forest purposes, implementation of the CA and fulfilment of other conditions subject to which the approvals were accorded for diversion during 2014-15 to 2018-19. Audit examined the cases where final approval was accorded during the period from 2014-15 to 2018-19. Audit also reviewed various activities proposed to be carried out from NPV funds in the Annual Plan of Operations (APOs) of the State CAMPA and utilization of funds released by the *Ad-hoc* CAMPA. Out of the 290 cases[42] comprising an area of 3,022.07 ha. where final approvals for diversion of forest land were granted during 2014-19, Audit checked 52 cases of diversion involving total area of 2,336.85 ha. (77 *per cent* of the total area diverted in 2014-19) in 13 divisions where more than 50 ha. aggregate forest area was approved for diversion. The individual forest area diverted in these 52 cases **(Appendix XVII)** ranged between 1.26 ha. and 1,058.51 ha. Besides, Audit also scrutinized eight[43] cases **(Appendix XVIII)** where the works commenced without obtaining the final approval for diversion of forest land.

2.3.4 Audit Objectives

The audit was carried out to get a reasonable assurance that:

- the diversion of forest land was in accordance with the provisions of Forest Conservation Act, 1980 and instructions issued by GoI and GoG and the conditions specified for diversion were adhered to;
- the amount for Net Present Value (NPV), Compensatory Afforestation (CA) *etc*., were appropriately assessed, demanded, collected and remitted in accordance with the relevant rules, provisions and instructions;
- the Annual Plan of Operations (APOs) were timely prepared; were realistic and the expenditure from CAMPA funds was incurred in accordance with the extant guidelines and instructions; and
- proper survey and planning were carried out for compensatory afforestation before execution of the scheme.

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41 GoI notified (August 2016) the Compensatory Afforestation Fund Act, 2016 to provide for the establishment of funds under the Public Accounts of India and of each State for crediting all the monies received from the user agencies under the Forest (Conservation) Act, 1980. A National/ State Compensatory Afforestation Fund and a National/ State Compensatory Afforestation Fund Management and planning authority at the national level and in each State/Union territory for administration/ utilization of the funds is to be created. GoI notified (August 2018) the Compensatory Afforestation Fund Rules, 2018 under the CAF, Act, 2016. However, the rules were not applicable during the audit period as the date was extended upto September 2019.

42 Cases pertained to Gas pipeline, Transmission Line, Optical-fibre cable, Approach Road, Irrigation, Water Pipeline, Road widening, Petroleum Pipeline, Drinking, Drainage, Pipeline, Protection Wall, Railway and Wind Power.

43 Two violation cases are also included in 52 diverted cases hence not included here.

2.3.5 Forest Statistics of the State

Forest Area, Forest Cover and Tree Cover of Gujarat state

As per Forest Survey of India (FSI), 'Recorded forest area (RFA)' is an area recorded as forest in Government records. 'Forest cover' includes all lands more than one hectare with a tree canopy density of more than 10 *per cent* irrespective of ownership and legal status. Such lands may not necessarily be the RFA. 'Tree cover' comprises of tree patches outside the RFA exclusive of forest cover and less than the minimum mappable area (1 ha.).

The National Forest Policy, 1988 envisaged that the national goal should be to have a one-third of the total land area of the country under forest or tree cover. A biennial assessment of forest cover is carried out by the FSI to ascertain the extent and locations of the country's forest cover, irrespective of its origin, species, ownership, land use or legal status.

The overall status of the Forest Cover and Tree Cover of India and that of Gujarat in 2006 and 2017-18 is shown in **Table 1** below**:**

Table-1 Forest cover and Tree cover of India *vis-à-vis* Gujarat

(Area in thousand Sq. km.)

India State of Forest Report	Data Period	Geographical Area	Forest cover	Tree cover	Total Forest and tree cover	*Per cent* of Geographical Area		
						Forest cover	Tree cover	Total forest and tree cover
Forest cover and Tree cover of India								
2009	2006	3,287.26	690.90	92.77	783.67	21.02	2.82	23.84
2019	2017-18	3,287.47[44]	712.25	95.03	807.28	21.67	2.89	24.56
Forest cover and Tree cover of Gujarat								
2009	2006	196.02	14.62	8.39	23.01	7.46	4.28	11.74
2019	2017	196.24	14.86	6.91	21.77	7.57	3.52	11.09

(Source: India State of Forest Reports, Forest Survey of India)

From the above table it can be noticed that there is an increase in both the forest and tree cover at national level during the period 2006 to 2017-18. In Gujarat, though there is increase in the forest cover, tree cover reduced during the same period. Further, as per the Gujarat Forest Statistics[45] 2018-19, GoG, the RFA of Gujarat State with reference to its geographical area (1,96,244 sq. km.) remained almost same in terms of percentage during the period 2014-15 (21,820.107 sq. km; 11.12 *per cent*) to 2017-18 (21,859.20 sq. km; 11.14 *per cent*). As compared to the country's forest cover of 21.67 *per cent*, the State has a forest cover of 7.57 *per cent* of its geographical area. It is also pertinent to mention that the approval of the diversion of forest land for non-forest purposes is only a "right to use" granted to the user agency without change in the ownership and legal status of the forest land. Thus, the land which though diverted for non-forest purposes is still considered as RFA.

[44] FSI report states that as per Census 2011, there is an increase of 206 sq. km. in the total geographical area of the country.

[45] Published by the Principal Chief Conservator of Forest and Head of the Forest Force.

2.3.6 Audit Findings

Audit examined and analysed the system of diversion of forest land, undertaking of compensatory afforestation, preparation/submission of APOs, fund release by *Ad-hoc* CAMPA and State CAMPA, utilisation of funds collected from the user agencies and adherence to rules and regulations by the Department. These audit findings are discussed in the following paragraphs.

Non-availability of information on status of Compensatory afforestation

Compensatory afforestation (CA) is one of the important conditions while approving proposals for diversion of forest land for non-forest purposes. CA shall normally be done over equivalent area of non-forest land (NFL) or in exceptional cases CA may be raised over degraded forest land (DFL) twice to the extent of the forest area being diverted/ de-reserved. The details of non-forest land (NFL)/ degraded forest land identified for undertaking CA against the forest land diverted during 2014-19 are given in **Table 2** as under:

Table 2: Area of forest land diverted and lands identified for compensatory afforestation

Year	Forest Area diverted (ha.)				Area of diverted land under exempt category	Land identified for CA (ha.)				
						Degraded forest land			NFL	Total
	RF	PF	Un-classed Forest	Total		RF	PF	Un-classed Forest		
2014-15	116.19	602.87	0	719.06	0.24	953.41	291.55	0	110.14	1,355.10
2015-16	75.98	344.94	15.91	436.83	0.06	623.81	92.06	1.36	84.70	801.93
2016-17	150.74	280.74	0	431.48	30.79	515.27	4.00	0	148.57	667.84
2017-18	126.50	126.60	4.61	257.71	32.81	409.46	13.00	16.00	15.66	454.12
2018-19	1,084.68	92.30	0	1,176.98	17.34	118.00	14.00	52.72	1,111.12	1,295.84
Total	**1,554.09**	**1,447.45**	**20.52**	**3,022.06**	**81.24**	**2,619.95**	**414.61**	**70.08**	**1,470.19**	**4,574.83**

(Source: Information provided by the F&ED)

The Supreme Court of India directed (March 2014) that the backlog of CA, if any, should be tackled on priority basis for which adequate provision should be made in the APOs. In view of this, the *Ad-hoc* CAMPA directed (June 2014) the States to prepare backlog of CA along with an action plan for completing the backlog in the next five years. The *Ad-hoc* CAMPA also asked (September 2014) the States for figures of total target of CA (since the year 1980 and till then) and the figures of CA completed till then.

Audit observed that the F&ED has not created any database till date (March 2020) on the backlog of the CA even after passage of more than five years since the orders were passed. In absence of consolidated information, the F&ED could not provide the same to *Ad-hoc* CAMPA though it was repeatedly sought by it (August 2019). This led to reduction of ₹ 30.78 crore (**Table 5**) in the fund released by the *Ad-hoc* CAMPA for taking up the activities proposed in the APOs.

As informed (May 2019) by the F&ED to Audit, the backlog of CA as per orders of Supreme Court is under preparation. Having a centralized database of the diverted cases and its related CA would have effectively aided the

monitoring and evaluation of the CA activities. The CA was undertaken based on the proposals made by the divisions for inclusion in the APO. However, in the absence of a database there was no long-term action plan to clear the backlog of CA. In view of this, Audit could not ascertain whether the F&ED undertook the intended CA. Audit noticed that of the 52 cases selected in Audit, there were nine cases where CA was not carried out.

Non-notification of Non-forest land

The purpose of CA is to compensate loss of 'land by land' and 'trees by trees'. The user agency is required to compensate for the diversion of forest land with NPV, CA and by giving NFL to the State Forest Department (F&ED) for afforestation. The NFL is to be transferred and mutated in favour of the F&ED for the purpose of CA and to be declared as RF/PF under the Indian Forest Act (IFA), 1927 so that the plantation raised can be maintained permanently. The final approval of diversion of forest land is given by MoEF&CC and forest land handed over to the user agency only after the NFL is mutated in favour of the F&ED. The Nodal Officer must report compliance of notification of NFL under section 4 (for RF) or Section 29 (for PF) of the IFA, 1927 as the case may be to the MoEF&CC within a period of six months from the final approval and send a copy of the original notification. After due procedure, the NFL is finally to be notified under Section 20 as RF or Section 29 as PF under the IFA, 1927.

The details of the NFL received and notified as RF/ PF between 2014-15 and 2018-19 in Gujarat is given below:

Table 3: Information on NFL notified under Section 4 of IFA, 1927

(Area in Ha.)

Year	NFL transferred and mutated	NFL notified as RF	Pending to be notified
Period prior to 2014-15	The F&ED did not provide the information and stated (May 2019) that information is being collected from field offices		
2014-15	110.14	47.05	63.09
2015-16	84.70	84.70	0.0
2016-17	148.57	148.57	0.0
2017-18	15.66	7.65	8.01
2018-19	1,111.12	1,078.10	33.02
Total	**1,470.19**	**1,366.07**	**104.12**

(Source: Information provided by the F&ED)

As observed from the above table, NFL of 1,470.19 ha. (32 cases) was transferred and mutated by the user agencies in favour of the F&ED during the period 2014-19. Out of the 1,470.19 ha., the F&ED notified NFL of 1,366.07 ha. as RF under section 4 of IFA, 1927 (August 2019) and 104.12 ha. remained to be notified. The NFL of 71.10 ha. transferred and mutated between 2014-15 and 2017-18, required to be notified within six months was still pending (November 2019). Further, out of 1,366.07 ha. notified as RF, 189.88 ha. (eight cases) were notified at the instance of audit after delay of 6 to 54 months (excluding the six months' period). However, against the NFL of 1,470.19 ha., none was finally notified by the F&ED as RF under Section 20 of the IFA, 1927 till date (November 2019). The delay in notification of

the NFL indicates that there was absence of appropriate mechanism within the F&ED to ensure timely notifying of NFL as RF.

2.3.7 Recovery of compensatory levies

Upon receipt of in-principle approval, the compensatory levies comprising mainly of transfer of equivalent area of NFL, cost of CA on the identified NFL/ DFL and NPV are to be made by the User Agency. The Supreme Court fixed (2008) the rates of NPV of different Eco-Class of forests classified on the basis of their ecological role and value. Accordingly, F&ED specified (09 September 2008) the rates for collection of NPV for different types of forest land proposed for diversion based on their Eco-Class. The F&ED (15 December 2008) again specified the rates for collection of NPV in cases of strip plantation[46] on PF land proposed for diversion. During the period 2014-15 to 2018-19, the F&ED received NPV of ₹ 375.39 crore and CA/additional/ Penal CA of ₹ 287.94 crore.

Short recovery of Net Present Value (NPV)

As per the Handbook of Forest (Conservation) Act, 1980 including guidelines and clarifications published (2004) by MoEF, the projects for road and railway line construction are to be processed in their entirety[47]. The F&ED specified (December 2008) the rates for collection of NPV in cases of diversion of land involving strip plantation on PF land as shown hereunder:

Sl. No.	Particulars	Rate of NPV per hectare (₹ in lakh)
1	All cases of violation irrespective of requirement or non-requirement of cutting of trees	5.63
2	Requirement of cutting of up to 50 trees per hectare	4.38
3	Requirement of cutting of trees between 50 to 400 per hectare	5.63
4	Requirement of cutting of more than 400 trees per hectare	6.26

Among 52 cases reviewed by audit, there was incorrect adoption of rate[48] of NPV in eight out of 39 cases of road construction. Against NPV of ₹ 13.88 crore, ₹ 11.36 crore was recovered from the user agencies leading to short recovery of ₹ 2.52 crore **(Appendix XIX)**.

In case of violation in strip plantation areas of PF land, NPV of ₹ 5.63 lakh per ha. was required to be levied. While in one case[49], the F&ED levied the applicable NPV, however, in similar four cases as shown in **Appendix XX**, the department did not apply the above rate and levied NPV of ₹ 4.38 lakh per ha which resulted in short recovery of ₹ 51.70 lakh. Further, in one case involving the diversion of 96.11 ha. of PF land (Sl. No. 8 of **Appendix XIX**),

[46] The land which remained un-utilized along roads, railway lines and canals and are planted with trees.

[47] The proposal of different stretches of a particular road or railway line are to be consolidated and processed as single proposal.

[48] Due to application of NPV of different category or non-application of single NPV for the entire stretch of road.

[49] Diversion of 96.40 ha. of PF land for widening and strengthening of SH-25 Rajkot Bhavnagar road (km. 96/600 to 150/800 and km. 152/800 to 166/2).

three forest divisions *viz.,* Mehsana (72.68 ha.), Gandhinagar (9.09 ha.) and Himatnagar (14.33 ha.) submitted the proposal for diversion of forest land under their respective jurisdiction. A consolidated diversion proposal was forwarded by the F&ED to GoI. As reported by Mehsana division, there was a violation by the user agency in 7.65 ha. as it commenced the work without approval under the Forest Conservation Act, 1980. The proposal involved cutting of 10,175 trees for the total diverted area of 96.11 ha. Thus, the entire diversion involved cutting of 106 trees per ha. (10,175 trees/ 96.11 ha.) and therefore, NPV of ₹ 5.41 crore at the rate of ₹ 5.63 lakh per ha was leviable. Against this, NPV of ₹ 4.32 crore at the rate of ₹ 4.38 lakh was recovered by the F&ED which led to short recovery of NPV of ₹ 1.09 crore.

Thus, there was an overall short recovery of NPV of ₹ 3.04 crore in the above cases.

Short recovery of CA and penal CA

Audit noticed that out of 52 cases, in 14 cases as shown in **Appendix XXI,** ₹ 58.40 crore were recovered towards CA against ₹ 62.97 crore resulting in short recovery of CA of ₹ 4.57 crore. Besides this, out of eight violation cases, there was short recovery of CA and penal CA of ₹ 7.55 lakh in one case[50]. The reasons for short recoveries were non-revision of CA schemes as per applicable CA models, non-application of prevailing wage rate and non-revision of CA scheme in cases where there were delays in transfer and mutation of the NFL in favour of the F&ED. Some of these cases are illustrated below:

- In diversion of 1,058.5118 ha. of forest land for settlement of the affected people of Hadaf, Kabutari and Edalwada Medium Irrigation projects in Godhra Forest division (Panchmahal), NFL of 1,096.8691 ha. was transferred and mutated in favour of the F&ED. The user agency deposited (March 2017) ₹ 37.42 crore for undertaking CA on the NFL. The CA scheme was prepared by three divisions of F&ED *viz.*, Bhavnagar Division (315 ha.), Jamnagar Division (283 ha.) and Rajkot Division (498.8691 ha.). However, due to non-adoption of the CA scheme as per the prescribed model (November 2013) of the F&ED by Jamnagar Division[51], incorrect calculation and non-revision of labour rate by Rajkot division and non-revision of labour rate by Bhavnagar division, there was short recovery of CA of ₹ 2.06 crore. (Sl. No. 4 of **Appendix XXI**)

- The user agency was responsible to ensure transfer and mutation of the NFL in favour of F&ED. In diversion of 4.7749 ha. of RF land in favour of a user agency, the Jamnagar Forest division issued (2 November 2012) demand note of ₹ 7.71 lakh and ₹ 15.41 lakh for CA and penal CA respectively as per the extant plantation model. The amounts were deposited by the user agency and the division took possession (December 2012) of the NFL on a simple

[50] Diversion of 1.9080 ha. of RF land for construction of village Vanat-Badarkaga-Jaleti approach road Ta. Vijayanagar. There was violation in 1590 m where the work was executed in the forest land without approval.

[51] Jamnagar division adopted the model prescribed by the Department in January 2013. The other two divisions adopted the model prescribed by the Department in November 2013.

notarized document without changing the name in its favour in the revenue records. The user agency informed (March 2013) the F&ED that as per the revenue authority, the said possession was not in accordance with the revenue rules and hence null and void. After following the due process, the NFL was transferred and mutated in favour of F&ED in July 2016 and the formal approval was accorded in August 2017. The CA could not be initiated till then. Thus, due to delay in transfer and mutation of NFL by user agency, the CA and penal CA scheme was required to be revised as per prevailing plantation scheme and wages rate. The differential amount was required to be recovered from the user agency. However, this was not done resulting in short recovery of CA and penal CA of ₹ 29.21 lakh. (Sl. No. 8 of **Appendix XXI**)

- In case of diversion of 9.53 ha. of forest land for construction of Kanesara minor irrigation scheme in Rajkot District (Sl. No. 10 of **Appendix XXI**), the user agency deposited (September 2009 and February 2010) ₹ 11.13 lakh and ₹ 61.95 lakh for CA and NPV respectively after lapse of six years from grant of in-principle approval (August 2003). MoEF instructed (November 2010) that as the compliance to the in-principle approval was not made within five years, the approval need to be cancelled. However, the F&ED took possession of the NFL in June 2016. The F&ED submitted (July 2017) the proposal to MoEF for condoning the delay and grant of formal approval. Consequent upon the discussion of the case (August 2017) in the Regional Empowered Committee (REC), MoEF (June 2018) informed that the in-principle approval stands valid and directed to submit revised CA scheme with prevailing rates and norms in lieu of the earlier (2009) CA scheme.

Audit observed that though the demand of ₹ 40.17 lakh was prepared and issued to the user agency in July 2018 as per revised scheme and wages rates, the differential amount of ₹ 29.04 lakh[52] was not deposited by the user agency. Despite this, the F&ED communicated (August 2018) compliance to MoEF of the conditions of the in-principle approval and based on these, the final approval was accorded by MoEF in August 2018. As the instructions of the MoEF (June 2018) for revised CA was not complied, the intimation by the F&ED of compliance of the conditions of the in-principle approval was not proper.

2.3.8 Cost Benefit Analysis

The MoEF, GoI instructed (2004) that while considering proposal for diversion of forest land for non-forest use, it is essential that ecological and environmental losses are weighed against economic and social gains. For this, MoEF has laid down six parameters for evaluation of losses of forests and eight parameters for evaluation of benefit to assess the cost and benefits accruing to the project. The cost-benefit analysis with reference to these parameters is required to be done for all proposals involving forest land more than 20 hectares before it is sent to the GoI for clearance. The MoEF re-issued (August 2017) the guidelines with certain revised parameters for conducting this analysis.

[52] Difference of amount demanded (₹ 40.17 lakh) and amount deposited (₹ 11.13 lakh).

As per the guidelines, the cost of ecosystem services, fragmentation of habitat of wildlife, economic distress caused to people dependent on forests and the cost of settlement of people dependent on forest was to be added as the cost of forest diversion in addition to the standard project cost. Similarly, the benefits accruing from the project due to diversion of forest land should be accounted for in addition to the standard benefits of the project which would have been accrued without involvement of forest land while conducting the cost benefit analysis and determining the benefit and cost ratio (BC ratio). The cost of CA and its maintenance in future and soil and moisture conservation at present discounted value and future benefits from such CA accruing over next 50 years monetized and discounted to the present value should be included as cost and benefits of CA.

Out of 52 cases checked in Audit the cost-benefit analysis was required to be carried out in 18 cases to determine the BC ratio. Audit noticed that out of 18 cases, in 15 cases the cost benefit analysis was not in accordance[53] with the parameters prescribed by the MoEF, GoI as shown in **Appendix XXII**.

Further, in one violation case[54] the project was required to be quantitatively analysed in terms of all the parameters of the cost and benefit prescribed in the revised guidelines. However, the user agency did not submit any statement for evaluation of losses of forests. It submitted only a statement for evaluation of benefit which was also not as prescribed. Thus, the BC ratio of the project was not quantitatively analysed in terms of prescribed parameters to assess the cost and benefit of diversion of forest land.

In the above cases, though the cost-benefit analysis was not carried out as per the instructions of the MoEF, the diversions were approved without any insistence on it. This shows that the important requirement of prescribed cost-benefit analysis was ignored while granting approval of diversion of forest land.

In reply to the violation case, the F&ED stated (July 2019) that the proposal was discussed in the REC which considered the details submitted by the user agency while according the in-principle approval. The reply is not convincing as non-preparation of the cost-benefit analysis was a non-compliance of the instructions of the MoEF and that the project may not have been appropriately analysed (in terms of its benefit and cost) while recommending it for approval as intended by the guidelines (2004 and 2017).

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[53] In some cases, it was done but not in accordance with the parameters and in some cases only a simple general statement was attached **(Appendix XXII)**.

[54] Diversion of 36.18 ha. of PF land for the widening from 10 m to four lane of SH-7 Viramgam – Becharaji Road km. 1/800 to 42/00 Ta. Viramgam & Mandal. The in-principle approval was accorded in October 2018 and the final approval is pending (August 2019). There was a violation in 1.30 ha. where the work was executed without approval of diversion of forest land.

2.3.9 Implementation of compensatory measures

Non-implementation of Compensatory afforestation

As per the existing guidelines issued (2004) by MoEF, CA shall normally be done over equivalent area of NFL or in exceptional cases over DFL twice in extent of the forest area being diverted/ de-reserved. Since for carrying out the CA, land is already identified and funds are collected from the user agency, the CA is required to be undertaken immediately after the final approval. For this purpose, the CA is required to be initiated immediately in next year by proposing them in the concerned APO.

The MoEF, GoI increased (14 February 2012) the period of maintenance of CA from existing 5 years to 7-10 years to ensure that the maintenance of forest cover improves. Further, GoG also instructed (December 2012) to prepare CA schemes for 10 years in compliance with GoI instruction and circulated (07 January 2013) the same along with the rate structure of the CA models. Further, the F&ED revised the plantation model in November 2013.

Of the 52 cases diverted during the period 2014-15 to 2018-19 as detailed in **Appendix-XVII,** 47 cases were approved during 2014-18. In these cases, against the diverted forest area of 1,239.45 ha., the F&ED was required to undertake plantation in 2,259.05 ha. by 2018-19. Audit observed that the divisions did not undertake plantations in nine cases involving 254.35 ha. for which no reasons were available on record. This resulted in non-utilization of ₹ 4.81 crore collected for the purpose from the user agencies. Non-initiation of CA in nine out of 52 cases indicates the shortfalls in the achievement of the intended benefits to compensate the loss of diversion of forest land.

Improper site selection for compensatory afforestation

The F&ED instructed (December 2012) that the degraded forest land with tree canopy density of 40 *per cent* or below was only to be selected for plantation under CA. Audit noticed that out of 30 sites where joint visit was made with the forest officials (May-July 2019), in five cases[55], the density of the degraded forest land selected for plantation was more than 40 *per cent.* As such the purpose of afforestation of degraded land was not fully achieved. It also resulted in non-compliance of the GoG's instructions. In some cases, the density of tree canopy at the land where CA was taken up was not mentioned. Thus, the possibility of improper site selection could not be ruled out. Audit recommends that in all the cases the density of the forest cover where the plantations are undertaken should be properly quantified and monitored as otherwise the very objective of CA gets defeated.

Non-compliance of additional conditions of conservation of environment

With a view to conserve the environment and sustainable development, the approvals for diversion of forest land were granted with conditions of

[55] Two sites in Mahisagar Division (Naroda-16 ha. with density of more than 70 *per cent* and Kadana-11.55 ha. with density of 60 *per cent*) and three sites in Aravalli Division (Jogivanta -70 ha., Jesingpur-83 ha. and Surdevi-Meghraj-74 ha.)

additional plantations and other activities which were also agreed by the user agency to be complied with.

In the 52 cases checked in Audit, it was noticed that:

- In 38 cases of diversion for road widening, the approval was granted with the condition that user agency shall raise strip plantation of suitable species on either side of the road and/or central verge under the supervision/ in consultation with F&ED so that all available vacant space shall be planted with trees. Of these, in eight cases (**Appendix-XXIII,** Sl. No. 1 to 8) the forest divisions have recovered ₹ 73.62 lakh for compliance of this condition. In one case (Sl. No.9) ₹ 84.38 lakh was demanded (March and July 2016) by Himatnagar SF division from the user agency but yet to be deposited by the user agency (August 2019). In remaining 29 cases, the amount was not recovered by the F&ED and the responsibility of compliance rested with the user agency under consultation with the F&ED.

- In four cases related to transmission lines (**Appendix XXIII,** Sl. No. 10 to 13), the approvals were granted with the condition that user agency in consultation with F&ED shall prepare detailed scheme for creation and maintenance of plantation of indigenous dwarf species (preferably medicinal plants) in right of way under the transmission line and provide funds for execution of the said scheme to the F&ED. The concerned divisions recovered ₹ 542.73 lakh from the user agencies for undertaking the plantations.

- In two cases of wind power, the approval was granted with the condition that the State Government shall ensure to implement the scheme for plantation of medicinal plant in consultation with the F&ED at project site. The cost was to be borne by the User agency. The F&ED recovered lease rent of ₹ 37.70 lakh (at the rate of ₹ 30,000 per MW) in these two cases to be utilized for providing gas connections to the local villagers under the Joint Forest Management Programme and other conservation measures.

Audit observed that there was no monitoring mechanism in place in the F&ED to indicate that the user agencies were complying the additional conditions. Further, no action was taken by the F&ED for undertaking the plantations even though it recovered ₹ 6.16 crore for it. There were no records to show that ₹ 37.70 lakh was utilised for providing gas connections to the local villagers and other conservation measures. Thus, the F&ED not only failed to ensure the compliance of additional conditions by the user agency but also failed to carry out the specific conservation activities for which it collected funds of ₹ 6.54 crore.

2.3.10 Functioning of the State CAMPA

As per the State CAMPA guidelines, the State CAMPA shall consist of a Governing Body (GB), Steering Committee (SC) and an Executive Committee (EC). The GB shall lay down the broad policy framework for the functioning of State CAMPA and review its working from time to time. The SC shall lay down the rules and procedures for the functioning of the State CAMPA,

monitor the progress of the utilization of funds released by the State CAMPA, approve the Annual Plan of Operations (APO) and the annual accounts of the State CAMPA. The EC shall prepare the APO giving break-up of the proposed activities with their estimated costs, submit it to the SC before end of December for each financial year, supervise the works carried out from State CAMPA funds and prepare Annual Report by end of June for each financial year. The APO approved by the SC is forwarded to *Ad-hoc* CAMPA for release of funds.

As per the directions (August 2009) of the F&ED, the SC should meet at least once in six months for monitoring the progress of utilization of funds released by the State CAMPA. This resolution was subsequently amended (October 2014) such that the GB shall meet at least once in six months while the SC and the EC shall meet once in three months.

Audit observed that between 2014-15 and 2018-19, against mandated nine meetings of GB only one meeting was held (2014). Similarly, against the mandated 19 and 18 meetings of the SC and EC, only six and seven meetings were held respectively. Audit observed that the *Ad-hoc* CAMPA regularly mentioned the fact regarding shortcomings in the number of meetings held against those mandated. Non-holding of meetings regularly affected the overall timelines of the activities to be undertaken as per the proposed APO. Thus, the work and the functioning of the State CAMPA were not regularly reviewed by the Governing Body/ Committees as is intended by the State CAMPA guidelines and GoG resolutions of 2009 and 2014. Audit further observed that though required by the guidelines (2009) there was no broad policy framework laid down by the GB for the functioning of State CAMPA even after lapse of 10 years.

Preparation of APO and submission to Ad-hoc CAMPA

As per State CAMPA guidelines, the Executive Committee (EC) has to prepare and submit the APOs before the end of December of each financial year for concurrence of the Steering Committee (SC) for getting fund released from *Ad-hoc* CAMPA. The year-wise information on submission of APOs and release of funds by *Ad-hoc* CAMPA for the years 2014-15 to 2018-19 are given in the **Table 4** below:

Table 4: Submission of APO and release of funds by *Ad-hoc* CAMPA

Year	Due Date of Approval of APO by SC	Date on which APO approved by EC	Date on which APO approved by SC	Overall delay in approval of APO by SC (in month) (4-2)	Date of Submission to *Ad-hoc* CAMPA	Date of fund release order from *Ad-hoc* CAMPA
1	2	3	4	5	6	7
2014-15	31.12.13	19.06.14	05.09.14	8	13.10.14	17.10.14
2015-16	31.12.14	26.08.15	08.10.15	9	30.10.15	04.01.16
2016-17	31.12.15	18.07.16	27.10.16	9	05.11.16	24.11.16 & 10.02.17
2017-18	31.12.16	25.09.17	03.10.17	9	18.10.17	20.12.17 & 30.07.18
2018-19	31.12.17	31.05.18	12.06.18	5	29.06.18	03.07.18 & 14.09.18

(Source: Information provided by the F&ED)

As could be seen from the **Table**, the EC delayed the approval of the APO every year. The APO was approved by EC after commencement of the year to which it relates. This led to further delay in its approval by the Steering Committee. The overall delay in the approval of APOs ranged between five and nine months entailing a delay in receipt of funds from the *Ad-hoc* CAMPA and ultimately affecting timely undertaking of the activities planned in the APOs. It was observed that due to delay in submission of the APO of 2017-18, the *Ad-hoc* CAMPA treated (December 2017) as the APO of 2018-19 and released ₹ 27 crore (limited to 25 *per cent* of the entitlement of ₹ 104.60 crore). This resulted in delayed/ short release of the funds impacting the activities to be undertaken in the respective APOs and achievement of the envisaged benefits of conservation, protection and management of forest and wild life.

2.3.11 Financial Management

The funds demanded and provided by the *Ad-hoc* CAMPA during 2014-19 is given in the **Table 5** below:

Table 5: Details of fund provided by the *Ad-hoc* CAMPA

(₹ in crore)

Year	Funds demanded by State CAMPA		Entitlement of State CAMPA as determined by *Ad-hoc* CAMPA	Funds released by *Ad-hoc* CAMPA	Funds released to divisions		Short release of funds for CA
	All Activities	CA	All Activities*	All Activities*	All activities	CA	
2014-15	90.00	29.60	72.50	65.00	56.16	26.80	2.8
2015-16	65.87	31.29	66	33.00	32.00	18.55	12.74
2016-17	122.16	27.91	89.28	99.00^	68.11	21.96	5.95
2017-18	202.08#	31.79	104.60	27.00#	57.91	16.70	15.09
2018-19	171.28@	18.92	135.06	212.66$	141.99	9.79	9.13
Total	**651.39**	**139.51**	**467.44**	**436.66**	**356.17**	**93.80**	**45.71**

(Source: Information furnished by F&ED)

All Activities includes amount for CA also.

* The bifurcation of funds released by *Ad-hoc* CAMPA for each of the activity proposed in the APO is not available.

^ This includes ₹ 32 crore for APO 2015-16.

\# As the APO for the year 2017-18 was belatedly received by *Ad-hoc* CAMPA, the concerned APO was treated for the year 2018-19 and against it ₹ 27 crore was released in December 2017.

@ This amount was demanded as an additional APO for the year 2018-19.

$ This includes ₹ 77.60 crore released in July 2018 for the APO 2017-18.

Though the APO submitted by the State CAMPA showed the requirement of funds under different activities, the funds release order of the *Ad-hoc* CAMPA did not mention any break-up of item-wise allocation but only total sum released against the APOs. In the absence of this, Audit could not analyse item-wise fund demand, release and utilization.

During 2014-15 to 2018-19, the *Ad-hoc* CAMPA disbursed ₹ 436.66 crore against the entitlement of ₹ 467.44 crore. Audit observed that this was due to non-compliances by the State CAMPA such as finalization of the monitoring report, submission of Quarterly Progress Report (QPR) in time, furnishing of status report/ unsatisfactory performance of e-green watch, reconciliation of figures of backlog data of diversion of forest land, and five-year action plan for clearing backlog of CA. This deprived the State CAMPA of ₹ 30.78 crore

during 2014-19. The short release of fund was ₹ 108.38 crore[56] between 2014-15 to 2017-18 which affected the activities proposed in the respective APOs. The short release of fund would affect the timely undertaking of the conservation activities including CA.

Fund Flow of CAMPA funds

The year-wise details of CAMPA funds available with the State CAMPA and the divisions are shown in the **Table 6** below:

Table 6: Fund flow of CAMPA funds

(₹ in crore)

Year	Opening balance			Amount received by State CAMPA	Total fund available with State CAMPA (1+5)	Amount released to divisions	Expenditure incurred	Available funds		
	State CAMPA	Divisions	Total					State CAMPA (6-7)	Divisions (3+7-8)	Total
1	2	3	4	5	6	7	8	9	10	11
2014-15	1.26	15.81	17.07	65.00	66.26	56.16	45.06	10.10	26.91	37.01
2015-16	10.10	26.91	37.01	33.00	43.10	32.00	30.22	11.10	28.69	39.79
2016-17	11.10	28.69	39.79	99.00	110.10	68.11	39.07	41.99	57.73	99.72
2017-18	41.99	57.73	99.72	27.00	68.99	57.91	59.12	11.08	56.52	67.60
2018-19	11.08	56.52	67.60	212.66	223.74	128.88	149.31	94.86	36.09	130.95

(Source: Information provided by the F&ED)

Despite availability of funds of ₹ 94.86 crore with the State CAMPA, the F&ED did not undertake the CA to the extent of ₹ 45.71 crore as envisaged in the APOs. Further, though the funds of ₹ 30.78 crore were short released by *Ad-hoc* CAMPA against the demand in the APOs, the State CAMPA still had available funds of ₹ 94.86 crore which indicate that either the APO was not properly prepared or the activities proposed in the APOs were not properly executed resulting in unspent balance with the State CAMPA.

Annual Plan of Operations (APO)

As per CAMPA guidelines, the prime task of State CAMPA would be regenerating the natural forests and to protect wildlife habitat.

The *Ad-hoc* CAMPA (29 January 2015) communicated the decision of the National CAMPA Advisory Council (NCAC) that normal forest activity in a State should be undertaken from the State's own funds. The CAMPA funds must be treated as additional. However, considering the inadequacy of funds, the NPV funds collected as compensatory levies on account of diversion of forest land may be utilized for enhancing infrastructure and capacity building for more effective management of the forests and wildlife keeping the overall objectives of the CAMPA. The NCAC decided that of the total NPV funds proposed in the APOs:

- Not less than 70 *per cent* should be earmarked for the core activities[57]

[56] This is the difference between the aggregate entitlement of ₹ 332.38 crore of the State CAMPA and amount of ₹ 224 crore released by *Ad-hoc* CAMPA between 2014-15 and 2017-18.

[57] This includes assisted natural regeneration, plantations, implementation of Working Plan prescriptions, forest protection and conservation measures and management of forests.

- 5 *per cent* may be used for applied and need based research,
- 10 *per cent* for communication/ ICT and capacity building and training programmes, and
- not more than 15 *per cent* for items placed in the category of items of works on which the states are dissuaded from incurring expenditure.

The allocation of the core activities was not transferrable and any unspent funds out of the allocation for research, communication/ ICT/ capacity building activities was to be used for the core activities. The *Ad-hoc* CAMPA also directed to submit the APO indicating the breakup of these components failing which the APO would not to be entertained for release of funds.

Audit scrutinized the APOs of 2014-15 to 2018-19 and noticed certain discrepancies which are discussed APO-wise in subsequent paragraphs:

Short disbursement of fund for compensatory afforestation by State CAMPA

CA is a site-specific work where site for undertaking CA is already selected with site suitability certificate from the concerned DCF and funds are also collected from the user agencies prior to grant of final approval. The Supreme Court directed (July 2009) that amount towards CA/ PCA are to be released immediately for taking up site specific works. Thus, CA against the diverted land was required to be undertaken immediately to compensate the loss due to diversion of forest land. During 2014-15 to 2018-19, against ₹ 139.51 crore proposed for CA activities in the APO, the State CAMPA disbursed only ₹ 93.80 crores for it (**Table 5**).

Thus, the CA activities were affected due to short release of funds by State CAMPA. The delay in taking up CA for want of funds defeats the intended purpose of bridging the gap of the environmental loss due to diversion of forest land.

Fund disbursed to divisions without provision in APO

Audit observed that the following cases, the funds were disbursed to divisions though there was no provision for the same in APO.

- The State CAMPA disbursed ₹ 11 lakh and ₹ 50 lakh for Vadhwana Wetland and Bamboo Treatment Machine though these were not provided in APO of 2016-17 approved by the SC.
- While approving the APO 2015-16, the EC directed (August 2015) to drop the items of check dams and *van-talavadi* as the funds for the purpose was available under different schemes. The APO was subsequently approved (October 2015) by the SC. However, the State CAMPA disbursed ₹ 2.04 crore for this activity.
- In the APO (2014-15), there was no provision for vehicles and salary for contractual staff. However, ₹ 7.57 crore was disbursed for this purpose by the three divisions *viz.,* Ahmedabad Division (₹ 22 lakh), Gandhinagar (₹ 7.35 crore) and Wild Life Vadodara (₹ 0.54 lakh).

Funds diverted for irregular and inadmissible expenses

As per instructions (December 2017) of the *Ad-hoc* CAMPA, the funds released for APO 2017-18 was to be utilized for incurring expenditure only for preparatory works, compensatory afforestation activities, maintenance of ongoing works, Wildlife Management Plan and other afforestation works. No new works was to be undertaken from the released funds. Further, expenditure on purchase of new vehicles for officers, repairs and maintenance of rest houses was not allowed from these funds. Similarly, *Ad-hoc* CAMPA did not allow incurring expenditure in other APOs.

The CAMPA funds are kept in interest bearing account and expenditure for the management of the State CAMPA, including salary and allowances is to be incurred from the interest earned from these funds. The State CAMPA earned an interest of ₹ 15.21 crore between 2014-15 and 2018-19 but no expenditure was incurred from it. The *Ad-hoc* CAMPA while releasing funds for 2014-15 and 2015-16 instructed that expenditure on preparation of accounts of CAMPA be met from interest income. However, the expenditure of ₹ 2.81 lakh was incurred from the CAMPA funds. Audit further observed diversion of funds in several cases as shown in **Appendix XXIV**.

Thus, funds of ₹ 25.58 crore were diverted for activities which were not allowed by *Ad-hoc* CAMPA. These funds could have been utilized for undertaking the CA and other core activities to that extent as proposed in respective APOs as the funds demanded in the APOs under these were subsequently reduced.

Disbursement in excess of provision

The State CAMPA made provision of ₹ five crore and ₹ one and half crore for Valley of flowers and maintenance of interpretation centre at Shoolpaneshwar Sanctuary respectively in the APO (2018-19) forwarded to *Ad-hoc* CAMPA. However, the State CAMPA disbursed ₹ 24.50 crore and ₹ 18 crore for the Valley of flowers and maintenance of interpretation centre in excess of provision which was irregular.

2.3.12 e-Green Watch

As per the Supreme Court's order (July 2009) and the State CAMPA guidelines, an independent system for concurrent monitoring and evaluation of the works implemented in the States utilizing the funds shall be evolved to ensure effective and proper utilization of funds. For this, the MoEF and National Informatics Centre developed an e-Governance information system known as e-Green Watch which can collect and present information in order to monitor and track the effectiveness of the utilization of CAMPA funds. The system could present the real time data and is accessible to all stakeholders and public at large. The e-Green Watch aimed at online monitoring of various afforestation works sanctioned in the APO. For this purpose, all the work sites have to be geo-mapped for facilitating change-detection using the satellite imagery data. The Forest Survey of India (FSI) would carry out the analysis and monitoring of polygon uploaded by the F&ED on e-Green Watch portal.

The *Ad-hoc* CAMPA in its fund release orders between January 2016 and September 2018 had repeatedly highlighted that the performance of the State in e-Green Watch portal was not satisfactory with high inaccuracy levels of the polygons uploaded in the system. Due to this, the funds were also short released by the *Ad-hoc* CAMPA which are discussed in **Paragraph 2.3.11.**

The F&ED informed (June 2019) that it had uploaded 480 polygons in portal. However, it did not state the total number of polygons required to be uploaded in e-Green Watch (March 2019) and whether the 480 polygons uploaded were accepted by *Ad-hoc* CAMPA.

2.3.13 Soil and Moisture conservation (SMC) activities

Soil and Moisture Conservation (SMC) works are an integral part of the conservation and development of Forest. It helps in enhancing land productivity and increases the soil moisture availability for a longer period. The F&ED constructs many soil and moisture conservation structures such as check-dams, gully plugging, and forest tanks (*Van-Talao*) *etc.*

Shortfalls in SMC works

The F&ED instructed (December 2012) that the treatment map should be prepared one year in advance *i.e.*, in zero year of the plantation activity, approved by the ACF/ DCF and the work shall be taken up accordingly. As the SMC works are in-built in the CA plantation model, the amount for these are recovered from the user agency while recovering the amount for compensatory afforestation. During scrutiny of treatment map and plantation register, it was noticed that the SMC works are not taken in accordance with the treatment map. Against 187 SMC structures required to be constructed as per the treatment map at 66 CA sites, only 93 structures were constructed and thus there was shortfall of 94 structures (50.27 *per cent*). This indicated that either the treatment maps were not prepared as per actual site requirement or the SMC works were not taken up as planned. As these structures would have a long term impact on the soil fertility, availability of drinking water, ground water recharge, habitat improvement *etc*., the F&ED should closely monitor and ensure the construction of SMC works along with the plantation activity for overall ecological development of the area.

2.3.14 Conservation of environment

Tree Transplantation

Trees play a vital role in our ecosystem in maintaining the biodiversity of the area. Saving mature trees is of real value from environmental impact viewpoint. Though the rules envisage plantation in NFL/ degraded forest land in lieu of diverted forest land, a plant takes its own life cycle to develop into a mature tree thereby creating a void in environment for the time being. For better conservation of environment, it is required to ensure minimum removal of matured trees. To facilitate construction of large-scale projects without cutting the trees, tree transplantation is the latest technology to suit the need to

conserve the trees where the trees required to be felled are translocated and replanted in suitable areas.

Audit observed (July 2019) that in Surat Social Forestry division, in one[58] case 1,573 trees were required to be cut. The user agency carried out re-plantation of 218 trees with the help of an NGO with high success rate. Similarly, 289 trees were transplanted by the Ahmedabad Municipal Corporation in the Metro train project. Further in one work[59], transplantation of 85 trees and 3,625 plants was carried out in 2018-19 at Gandhinagar.

Audit further observed that though there were cases of successful tree transplantation, the F&ED does not have any specific guidelines/ instructions for such tree transplantation. The F&ED (up to October 2012) carried out transplantation of 1,240 trees pertaining to 35 species with the machinery provided by Gujarat State Petroleum Corporation Limited in 2010[60]. Out of these, 1,080 trees survived (87 *per cent)*. The F&ED was undertaking tree transplantation with good results even when compared with CA norms where the survival rate of 35 to 40 *per cent* was treated as 'good'. Audit observed that no tree transplantation was carried out between 2014-15 and 2017-18. However, transplantation of 85 trees and 3,625 plants was carried out at Gandhinagar in 2018-19, out of which 63 trees (74 *per cent*) and 2,360 plants (65 *per cent*) survived with 'Good' Coppicing Vigour.

In the 52 cases checked in Audit, plants/trees were required to be cut in 46 cases which ranged from three to 10,175 plants/ trees totalling 64,643 plants/trees. F&ED informed (May 2019) that it has not initiated steps to undertake tree transplantation in any of the 46 cases.

Lack of initiative towards conservation of environment

Audit observed that the divisions of the F&ED as well as user agency have themselves suggested for tree transplantation in seven out of the 52 cases checked in Audit. In four cases additional plantation in lieu of trees to be cut were directed by GoI/ GoG while granting approval of diversion of forest land. However, there was lack of initiative on the part of the Department as discussed in succeeding paragraphs.

Non-transplantation of trees having good survival rate

The Forest and Environment Department (F&ED) transplanted 1,240 trees of 35 species out of which 1,080 trees (87 *per cent*) survived after one year (October 2012)[61]. Audit compared these species having good survival rate with species of trees required to be removed as mentioned in the proposals in respect of 46 cases. Based on this, Audit observed that 20,101 trees belonging to 26 species having good survival rate after transplantation were also

[58] Diversion of 55.67 ha. of PF land for widening of SH-6, Surat-Olpad-Sahol Road km. 9/800 to 33/320 and SH-65 Sahol-Kim road km. 0/00 to 14/260.

[59] Widening of NH-147 (Chiloda to Sabarmati Bridge km 0/00 to 6/300 and Sargasan to Vaishnodevi circle km 16/300 to 26/500).

[60] The same was temporarily given to Ahmedabad Municipal Corporation in June 2016 for transplanting trees for metro train project.

[61] Source: Information available on website of the State Forest Department.

proposed to be cut. The F&ED could have taken initiative and planned for transplantation of 20,101 trees belonging to 26 species and prevented loss of trees.

Removal of reserved trees

To regulate and control cutting of trees grown on private land outside forest area, the GoG identified (10 September 2015) 22 tree species grown on non-forest/ private land which require permission of the concerned authority for their cutting.

Audit observed that in 46 cases, 7,025 trees of 17 species of these reserved trees were required to be cut. Though the F&ED has put control on the cutting of these trees in the private/ non-forest land, it did not consider saving these trees by transplanting them at suitable locations.

Non-implementation of tree transplantation identified by Divisions/ User agencies

Audit noticed instances where the divisions/user agencies had identified that tree transplantation could be undertaken but the F&ED did not take any initiative for the same. These cases are detailed below:

- In four cases[62], 884 trees out 3,926 trees (22.52 *per cent)* were identified for transplantation.
- In three cases[63], the MoEF&CC directed to transplant trees required to be removed for the project wherever possible.

Audit observed that the records did not indicate any efforts made by the F&ED to save these trees and conserve the environment through tree transplantation.

Saving of such huge number of trees would have had a positive environmental impact besides saving the faunas dependent on them. These instances indicate deficiency in monitoring within the F&ED for safeguarding the environment.

Removal of excess trees

In diversion of 96.11 ha. of PF land for widening and strengthening of Mehsana-Vijapur-Himatnagar road km 97/740 to 163/750, the division initially proposed to cut 1,440 trees which was later reduced to 381 trees. Of the 381 trees, the division proposed to transplant 32 trees. However, the

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62 (i) Diversion of 7.92 ha. PF land for widening and strengthening of Areth-Boudhan-Ghata-Karjan road (MDR) km. 0/0 to 23/55, (ii) Diversion of 3.801 ha. PF land for widening and strengthening of Rander-Bhesan (Nitaben Satbhaya junction to Bhesan treatment plant) road, (iii) Diversion of 18.04 ha. PF land for widening of Surat-Bardoli NH 6 and NH 8 from km. 17/4 to 35/00 and (iv) Diversion of 24.525 ha. PF land for widening to six lanes with service road km. 8/400 to 17/400 Surat-Dhuliya road.

63 (i) Diversion of 11.90 ha. of PF Land for widening of SH Vadodara-Savli (two lane to four lane) road km. 18/0 to 32/0 and Manjusar-Savli road, (ii) Diversion of 25.46 ha. of PF land at SH-97, Upleta-Kolki, Paneri-Jamjodhpur road km. 0 to 26/00 and (iii) Diversion of 1.98 ha. of PF land for widening and strengthening road Baska-Rameshra-Gutal road km. 0/0 to 10/80.

division auctioned all 1,440 trees (as originally proposed) in 2014-15 instead of 381 trees in violation of the approval of GoI.

Similarly, diversion of 173.39 ha. of PF land for widening and strengthening of NH-8 Ratanpur border to Ahmedabad (km. 388/200 to 590/000) involved cutting of 4,309 trees (Gandhinagar Division) and 4,249 trees (Sabarkantha, Himatnagar division). During joint inspection, the user agency and the forest officials identified 279 trees to be saved. User agency also requested the F&ED to explore possibility of transplantation of any of the 8,279 trees. However, no such exercise was undertaken and all 8,558 trees were proposed for removal without transplantation.

Non-compliance of condition of additional plantation in lieu of cut trees

In four cases **(Appendix XXV)** requiring removal of 10,547 trees, the MoEF&CC/ F&ED directed user agency to plant additional 1,02,742 trees to conserve the environment. ₹ 2.54 crore was also recovered in two cases (Sl. No. 2 & 3) from the user agencies. However, the records did not indicate any additional plantation made in lieu of the removed trees.

In diversion of 7.92 ha. PF land for widening and strengthening of Areth-Boudhan-Ghata-Karjan road (MDR) km. 0/0 to 23/55 (Sl. No. 1), the GoG proposed plantation of 10 times the trees to be cut (*i.e.*, 14,410) at cost of user agency in view of the huge number of trees required to be cut.

Similarly, in diversion of 151.588 ha. of PF land for widening of Bagodara to Bhavnagar road km. 61/400 to 137/800 (Sl. No. 4), the State Level Environment Impact Assessment Authority, GoG, accorded clearance (2009), which *inter alia* included plantation of ten times the number of trees to be cut in the project.

However, in both the cases no such condition was ensured by the F&ED while according forest clearance under FCA, 1980.

2.3.15 Conclusion

Gujarat has a forest cover of 7.57 *per cent* of its geographical area when compared to the country's forest cover of 21.67 *per cent* which is much below the national goal of one-third of the total land area of the country under forest or tree cover. The F&ED did not have complete information on the status of Compensatory Afforestation (CA) in all cases where it was intended to do so. The Department had not notified the non-forest land received against the diversion under Section 20 of the Indian Forest Act, 1927. The CA schemes were not revised as per prevailing wages rate or the applicable CA models and Net Present Value was also not recovered at applicable rates. The Department was not implementing/ monitoring the implementation of additional conditions on which the approvals were granted though in some cases amounts were also recovered from the user agencies. The Annual Plan of Operations (APOs) were not timely prepared and submitted to *Ad-hoc* CAMPA leading to delay in receipt of funds for implementation of activities proposed in the APOs.

2.3.16 Recommendations

For better implementation of compensatory afforestation, the F&ED may:

- ***prepare complete information on the backlog of CA and identify the cases where the CA has not been undertaken so as to take timely actions to carry out the CA.***

- ***notify all the non-forest land received under section 20 of the Indian Forest Act, 1927 to ensure that the plantations done by it are maintained.***

- ***ensure proper implementation and adequate monitoring of the compliance of the additional conditions on which the approvals were granted.***

- ***ensure regular preparation and submission of the Annual Plan of Operations so that funds are available for implementation of the activities.***

- ***make efforts for transplantation of trees to the extent possible to save the mature trees.***