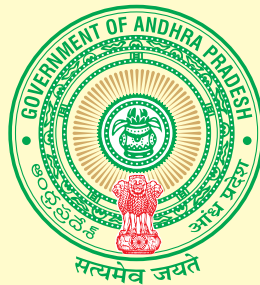


**Report of the
Comptroller and Auditor General of India
on
Economic Sector
for the year ended March 2014**



Government of Andhra Pradesh
Report No. 2 of 2015

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P R E F A C E

This Report for the year ended March 2014 has been prepared for submission to the Governors of Andhra Pradesh and Telangana under Article 151 of the Constitution of India, and in accordance with Section 45(1) of the Andhra Pradesh Reorganisation Act, 2014.

The Report contains significant results of the performance audit and compliance audit of the Departments of the Government of Andhra Pradesh under the Economic Services including Departments of Agriculture and Co-operation; Animal Husbandry, Dairy Development and Fisheries; Energy; Environment, Forests, Science and Technology; Industries and Commerce; Information Technology and Communications; Infrastructure and Investment; Irrigation and Command Area Development; Public Enterprises; and Transport, Roads and Buildings. However, the other Departments are excluded and covered in the Report on General and Social Services.

The instances mentioned in this Report are those, which came to notice in the course of test audit for the period 2013-14 as well as those which came to notice in earlier years, but could not be reported in the previous Audit Reports; instances relating to the period subsequent to 2013-14 have also been included, wherever necessary.

The audit has been conducted in conformity with the Auditing Standards issued by the Comptroller and Auditor General of India.

Chapter - 1

Overview of Economic Sector

Chapter-1

Overview of Economic Sector

1.1 Introduction

Andhra Pradesh is one of the largest States of India with a population of 8.46 crore and a geographical area of 2,74,440 sq.kms. For purpose of Administration there are 33 Departments at the Secretariat level headed by Principal Secretaries/Secretaries who are assisted by Directors/Commissioners and Subordinate officers under them. This report covers the functioning of 10 Departments of Economic Sector listed in the table 1.1.

Of the 10 Departments, with a total expenditure of ₹36,238.29 crore, covered in this Report, a major portion of the expenditure was incurred by Irrigation & Command Area Development (51.77 per cent), Energy (20.84 per cent), Roads and Buildings and Infrastructure and Investment (13.66 per cent) and Agriculture and Cooperation (7.93 per cent) Departments during 2013-14.

1.2 Trend of expenditure

Comparative position of expenditure incurred by the Departments during the period 2009-14 is given in Table 1.1.

Table-1.1 - Table showing the trend of expenditure during 2009-14

(₹ in crore)						
Sl. No.	Name of the Department	2009-10	2010-11	2011-12	2012-13	2013-14
1	Agriculture & Co-operation	1803.82	2270.40	3334.54	3633.36	2874.65
2	Animal Husbandry, Dairy Development & Fisheries	503.31	567.70	729.58	830.61	839.18
3	Energy	3259.28	3696.98	4367.68	6249.03	7553.28
4	Environment, Forests, Science and Technology	266.47	277.56	343.01	391.25	399.56
5	Industries and Commerce	297.62	448.45	380.74	760.53	705.66
6	Information Technology and Communications	18.92	24.53	57.72	199.37	155.10
7	Irrigation & Command Area Development	16712.71	15710.87	17787.39	19704.27	18760.67
8	Public Enterprises	1.04	1.28	1.46	1.40	1.44
9	Roads & Buildings ¹	2634.37	2272.95	3043.04	4188.66	4948.75
10	Infrastructure & Investment ¹					
Total		25497.54	25270.72	30045.16	35958.48	36238.29

(Source: Appropriation Accounts of Government of Andhra Pradesh for the relevant years)

¹ Both departments are covered under Grant No. XI – Roads, Buildings and Ports

1.3 About this Report

This Report of the Comptroller and Auditor General of India (CAG) relates to matters arising from audit of 10 Government Departments (*Appendix-1.1*) and 30 Autonomous Bodies under the Economic Sector (*Appendix-1.2*). Compliance Audit covers examination of the transactions relating to expenditure of the audited entities to ascertain whether the provisions of the Constitution of India, applicable laws, rules, regulations and various orders and instructions issued by the competent authorities are being complied with. Performance Audit examines whether the objectives of the programme/activity/department are achieved economically, efficiently and effectively.

1.4 Authority for audit

The authority for audit by the CAG is derived from Articles 149 and 151 of the Constitution of India and the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971 (DPC Act). CAG conducts audit of expenditure of the economic sector departments of the Government of Andhra Pradesh under Section 13² of the DPC Act. CAG is the sole auditor in respect of four³ autonomous bodies which are audited under Sections 19(2)⁴ 19(3)⁵ and 20(1)⁶ of the DPC Act. In addition, CAG also conducts audit of 26 other autonomous bodies under Section 14⁷ of DPC Act which are substantially funded by the Government. Principles and methodologies for various audits are prescribed in the Auditing Standards and the Regulations on Audit and Accounts, 2007 issued by the CAG.

1.5 Planning and conduct of audit

The primary purpose of this Report is to bring to the notice of the State Legislature, important results of Audit. Auditing Standards require that the materiality level for reporting should be commensurate with the nature, volume and magnitude of transactions. Findings of Audit are expected to enable the Executive to take corrective action as also to frame policies and

² Audit of (i) all transactions from the Consolidated Fund of the State, (ii) all transactions relating to the Contingency Fund and Public Accounts and (iii) all trading, manufacturing, profit and loss accounts, balance sheets and other subsidiary accounts kept in any department of a State

³ AP Electricity Regulatory Commission (APEREC) under Section 19(2), AP Khadi and Village Industries Board (APKVIB) under Section 19(3), Environment Protection Training and Research Institute (EPTRI) under Section 20(1) and AP Compensatory Afforestation Fund Management and Planning Authority (AP State CAMPA) under Section 20(1) of DPC Act

⁴ Audit of the accounts of Corporations (not being Companies) established by or under law made by the Parliament in accordance with the provisions of the respective legislations

⁵ Audit of accounts of Corporations (not being companies) established by or under law made by the State Legislature in accordance with the provisions of respective legislations.

⁶ Audit of accounts of any body or authority on the request of the Governor, on such terms and conditions as may be agreed upon between the CAG and the Government

⁷ Audit of all receipts and expenditure of (i) any body or authority substantially financed by grants or loans from the Consolidated Fund and (ii) any body or authority where the grants or loans to such body or authority from the Consolidated Fund in a financial year is not less than ₹one crore

directives that will lead to improved Financial Management of the Organisations, thus contributing to better governance.

Audit process starts with the assessment of risks faced by various Departments of Government based on expenditure incurred, criticality/complexity of activities, level of delegated financial powers, assessment of overall internal controls and concerns of stakeholders. Previous Audit findings are also considered in this exercise. Based on this risk assessment, the frequency and extent of Audit are decided.

After completion of Audit, Inspection Reports containing Audit findings are issued to the heads of Departments who are requested to furnish replies to the Audit findings within one month of receipt of the Inspection Reports. Whenever replies are received, Audit findings are either settled or further action for compliance is advised. Important Audit observations arising out of these Inspection Reports are processed for inclusion in the Audit Reports which are submitted to the Governor of the State under Article 151 of the Constitution of India. During 2013-14, audit of various Departments/Organisations under Economic Sector were audited and 156 Inspection Reports containing 820 Paragraphs were issued.

1.6 Response to Audit

1.6.1 Performance Audit and Compliance Audit observations

Two Performance Audit reports and four Compliance Audit Paragraphs were forwarded demi-officially to the Principal Secretaries/Secretaries of the Departments concerned between July and September 2014 with a request to send their responses. Two Performance Audits⁸ and two Compliance Audit Paragraphs⁹ were responded to (though not fully). Exit Conferences were held in respect of two Performance Audits, with Government representatives in January/February 2015. Responses of Government/Departments have been taken into account while finalising this Report.

1.6.2 Follow-up on Audit Reports

Finance and Planning Department issued (May 1995) instructions to all administrative departments to submit Action Taken Notes (ATNs) on the recommendations of the Public Accounts Committee (PAC) relating to the paragraphs contained in Audit Reports within six months. Audit reviewed the outstanding ATNs as of 31 December 2014 on the paragraphs included in the Reports of the Comptroller and Auditor General of India, Economic Sector, Government of Andhra Pradesh, and found that departments did not submit ATNs for 12 recommendations pertaining to the audit paragraphs discussed by PAC.

⁸ Implementation of Environmental Laws and Rules by Andhra Pradesh Pollution Control Board and Functioning of Acharya N G Ranga Agricultural University

⁹ 'Construction and Maintenance of State Highways and Major District Roads' and 'Maintenance of National Highways'

1.6.3 Outstanding replies to Inspection Reports

The Accountant General (E&RSA), Andhra Pradesh (AG) arranges to conduct periodical inspections of the Government Departments to test check transactions and verify maintenance of important accounts and other records as prescribed in the rules and procedures. These inspections are followed up with Inspection Reports (IRs) incorporating irregularities detected during the inspection and not settled on the spot, which are issued to the heads of the offices inspected with copies to the next higher Authorities for taking prompt corrective action. The heads of the offices/Government are required to promptly comply with the observations contained in the IRs, rectify the defects and omissions and report compliance through replies. Serious financial irregularities are reported to the heads of Departments and Government.

Three thousand eight hundred and sixty seven IRs containing 12340 paragraphs issued upto March 2014 were pending settlement as of 30 September 2014. The department wise details are given in **Appendix-1.3**. This large pendency of IRs, due to non-receipt of replies, was indicative of the fact that heads of offices and heads of Departments did not initiate appropriate and adequate action to rectify the defects, omissions and irregularities pointed out by audit in the IRs.

1.7 Significant Audit Findings

Performance Audit

Implementation of Environmental Laws and Rules by Andhra Pradesh Pollution Control Board

AP Pollution Control Board is a statutory authority, vested with powers, to implement the provisions of Water Act, Air Act, EP Act and rules made there under for prevention, control or abatement of pollution in the State. The Board has a predominant role in monitoring of compliance with the provisions of these laws and rules by industries, municipal authorities, hospitals, etc. Performance Audit was conducted to evaluate the implementation of the Environmental laws and Rules by the Board during five year period 2009-14.

Major Audit findings are summarised below:

- ***Board did not prepare Annual Action Plans from 2012-13 onwards for prevention, control and abatement of pollution. Despite availability, the Board could utilise funds to the extent of 12.87 to 17.1 per cent during 2009-14, resulting in accumulation of funds.***
- ***None of the five zonal laboratories have necessary equipment essential to conduct all the mandatory tests and there was shortage of staff in some laboratories.***

- *Many industries, health care establishments, municipal bodies and slaughter houses were operating without valid Consent For Operation (CFO) from the Board.*
- *In test checked regions, 86 out of 87 Municipalities, 4 out of 12 Municipal Corporations, 116 out of 213 Health Care Establishments and 69 out of 73 slaughter houses were operating without sewage treatment facilities.*
- *There was more than 69 per cent shortfall in inspection of highly polluting 'Red' category industries by the Board.*
- *The Respirable Suspended Particulate Matter (RSPM) levels in 53 out of 74 air quality monitoring stations in the State were higher than the prescribed standards. The Board neither conducted any studies (except in Hyderabad) to identify the causes for air pollution nor prepared any action plan to mitigate pollution levels in the State.*
- *Only four out of 99 Urban Local Bodies (ULBs) in test checked regions have waste treatment facility and none of them have scientific landfill facilities.*
- *Only 23 per cent of the total Municipal Solid Waste (MSW) generated in the State was processed. Only eight per cent MSW was segregated into biodegradable and non-biodegradable wastes and disposal of MSW through landfills was negligible.*
- *Less than 12 per cent of the total e-waste generated in Hyderabad, Vijayawada and Visakhapatnam was being handled by authorised recyclers. Inventorisation of e-waste generated in the remaining parts of the State was not done.*
- *Only 28.67 to 36.46 per cent of hazardous waste generated by industries was disposed off during 2009-13 and there was little monitoring on the remaining hazardous waste.*
- *Board was merely issuing notices and directions to the violators of environmental laws and was not initiating legal action against persistent violators.*
- *There was acute shortage of manpower in the Board. Even the legal section at the Board's Head Office did not have qualified legal officers.*

[Paragraph 2.1]

Functioning of Acharya N G Ranga Agricultural University, Hyderabad

Andhra Pradesh Agricultural University, later renamed as Acharya N.G.Ranga Agricultural University (ANGRAU), was established through Andhra Pradesh Agricultural University Act, 1963 with an objective of providing education in agriculture and to promote research, field and extension programmes in

agriculture and agricultural production. Performance Audit was conducted covering the functioning of ANGRAU during 2009-14.

Major Audit findings are summarised below:

- *The University did not adopt 'Model Act' communicated by ICAR even after five years.*
- *There was 32 per cent shortage of teaching staff in the test checked Agricultural Colleges, resulting in increase in work load on existing staff. New colleges were established without adequate teaching staff and infrastructure facilities.*
- *University did not establish distance education centres though recommended (2006) by ICAR.*
- *Vacancies of research Scientists ranged between 29 and 34 per cent during 2009-13. In absolute terms, vacancies increased from 165 posts in 2009-10 to 188 posts in 2012-13.*
- *There were cases where research work was stopped due to non-release of funds/for want of farm land, non-development of hybrid Sorghum seed due to frequent transfer of scientists, and non release of new hybrid rice seed (BPT 2295) due to non-convening of meeting of State Varietal Release Committee (SVRC) after 2012.*
- *The breeder seed and foundation seed produced by the research stations were not lifted by the indenting agencies and became unfit for seed purpose.*
- *Non lifting of seed by indenting agencies and improper storage of breeder seed resulted in loss of germination and consequent loss of ₹2.20 crore. An amount of ₹1.76 crore toward cost of seed was pending realisation from indenting agencies.*
- *Though University released 66 new varieties of seeds during 2009-2013, production of breeder seed was 'nil' for nine varieties while demand was low in respect of 25 varieties. There was no mechanism to review/analyse the reasons for lack of demand for some of the new varieties and to take appropriate measures to popularise them in coordination with Agriculture Department.*
- *There were large variations between the budget estimates and actual expenditure/receipts of the University.*
- *There was no inventorisation of the assets available with colleges, research stations, etc. of the University located across the State.*

[Paragraph 2.2]

Compliance Audit

Andhra Pradesh Khadi and Village Industries Board

Andhra Pradesh Khadi and Village Industries Board was established with an objective to plan, organise, promote marketing and implement programmes for development of Khadi and Village Industries. Audit of the Board was conducted covering its activities during the period from 2009-14.

Major Audit findings are summarised below:

- *The Board did not prepare a comprehensive annual programme of schemes/works during the last five years.*
- *Operations of the Board during 2009-14 were limited to implementation of the centrally sponsored scheme of 'Prime Minister's Employment Generation Programme (PMEGP)' and did not cover the other functions envisaged in the APKVIB Act-1958.*
- *In implementation of PMEGP, high percentage of rejection of applications without recorded reasons, low rate of sanction of units out of the selected applications, shortfall in employment generation vis-à-vis Margin Money sanctioned and low coverage of special category groups like SC, ST, etc., were noticed.*
- *Loan amount of ₹ 49.47 crore given under 'Pattern Approach Programme' implemented up to 1994-95 and ₹ 46.16 crore given under the 'Consortium of Bank Credit' programme implemented during 1997-98 was still pending recovery.*
- *Non-constitution of full Board for five years (2008-13) deprived the Board of expertise of persons with active interest in Khadi and Village industries.*

[Paragraph 3.1]

Implementation of Resettlement and Rehabilitation in selected major irrigation projects

Government of Andhra Pradesh pronounced a 'Policy on Resettlement and Rehabilitation (R&R) for Project Affected Families (PAFs) – 2005' (R&R Policy) to address the issue of displacement with care, human touch and forethought. Audit of implementation of R&R was conducted in ten selected major irrigation projects.

Major Audit findings are summarized below:

- *Delays occurred at every stage of the R&R process, i.e. conducting Socio-Economic Survey, publication of draft survey details in the Gram Panchayats, forwarding of final survey details to the District Collectors by the Project Administrators.*

- *Project wise comprehensive R&R plans were not prepared in any of 10 the test checked projects, only village wise cost estimates were being prepared without details like list of PAFs/PDFs and even the village wise estimates were not comprehensive/not completed.*
- *Out of 439 R&R centers contemplated in 10 test checked projects, land acquisition was completed only for 174 R&R centres, infrastructure facilities were developed in only 97 centres and only 12091 out of the total of 74169 PDFs (excluding Polavaram project) have been resettled so far even after more than eight years since commencement of the projects.*

[Paragraph 3.2]

Construction and maintenance of State Highways and Major District Roads

State Highways (SHs) and Major District Roads (MDRs) constitute the secondary system of road network after National Highways. Transport, Roads and Buildings Department is responsible for construction and maintenance of these roads. Audit of construction and maintenance of SH and MDRs was conducted covering the five year period 2009-14.

Major Audit findings are summarized below:

- *There was no system of preparation of Annual Action Plans and budget estimates based on inputs from Circles/Divisions in respect of SHs and MDRs.*
- *The department did not have a proper system/documentation of conducting periodical inspections and taking traffic census on all the roads to ensure that all necessary works are identified, prioritized and taken up.*
- *In Nizamabad district, construction of a bypass road without initiating action for construction of a Road Over Bridge over a railway line resulted in unfruitful expenditure of ₹16.85 crore.*
- *Lack of coordination between two wings of the Department in respect of a flyover work in Miryalaguda town resulted in unnecessary financial burden of ₹18 crore on Government.*
- *Awarding works without acquiring lands/finalizing designs/obtaining forest clearance, resulting in delays in their completion and non-achievement of intended objectives.*
- *There were cases of non-execution of road safety works and lack of prompt action on rectification of accident prone 'Black Spots'.*

[Paragraph 3.3]

Maintenance of National Highways

National Highways (NHs) constitute primary system of transportation connecting major cities across the country. Ministry of Road Transport and Highways, Government of India (MoRTH) provides funds for development and maintenance of NHs in the State and the NH Wing of the State TR&B Department executes these works. Audit of maintenance of NHs by the State TR&B Department was conducted covering the period 2009-14.

Major Audit findings are summarized below:

- *There was no documentation in the department to ensure that inspections of roads are conducted at regular intervals for identification of maintenance works.*
- *There were cases of non-adherence to MoRTH guidelines and short recovery of interest of ₹ 1.07 crore on mobilization advance by the department.*
- *There was short realization of Agency Charges of ₹ 1.49 crore from GoI. The Department was not reconciling these receipts with Regional Pay and Accounts Officer/Principal Accountant General (A&E).*

[Paragraph 3.4]

Chapter - 2

Performance Audit

Chapter-2

Performance Audit

Environment, Forest, Science and Technology Department

2.1 Implementation of Environmental Laws and Rules by Andhra Pradesh Pollution Control Board

2.1.1 Introduction

Concern over the declining state of environment has grown all over the world since the sixties. Enactment of Water (Prevention and Control of Pollution) Act-1974 (Water Act), Air (Prevention and Control of Pollution) Act-1981 (Air Act), Environment (Protection) Act-1986 (EP Act), etc. and formulation of various waste management rules has taken place.

In September 1974, GoI constituted the Central Pollution Control Board (CPCB) under the Water Act. CPCB was entrusted with several powers and functions there under and also under the other environmental Acts enacted subsequently. CPCB plays a key role in prevention, control or abatement of pollution in the country. Its functions include advising the Central Government on any matter concerning pollution, issuing guidelines to Pollution Control Boards/Pollution Control Committees of the States/Union Territories and also coordinating their activities.

2.1.2 Role of Andhra Pradesh Pollution Control Board

AP Pollution Control Board (APPCB/Board) is a statutory authority constituted (1976) by GoAP under the powers conferred on it by Section 4 of the Water Act. Initially constituted to implement the provisions of Water Act, the Board was made responsible for implementation of provisions of other environmental Acts enacted subsequently. The environmental laws and rules largely provide the Board a predominant role in monitoring of compliance with the provisions of these laws and rules by industries, municipal authorities, hospitals, etc. The Board is responsible for collection and dissemination of information relating to pollution, planning comprehensive programmes and advising the State Government for prevention, control or abatement of pollution. To enable it to discharge the mandated functions effectively, the Board has been vested with powers to obtain information from the persons in charge of any establishment; inspect and collect samples of effluents/emissions; grant/reject/withdraw consent for establishment/operation of any industry, operation or process; to approach Courts for restraining persons causing pollution; etc.

2.1.3 Financial resources of the Board

As per the Water (Prevention and Control of Pollution) Cess Act, 1977, enacted by Parliament, water cess is to be collected from the state industries and municipalities by the Board and remitted to the Central Government. The

GoI then apportions 80 *per cent* of the collections with the Board. Sources of income of the Board comprised mainly its share of water cess received from GoI. Besides, Board's internal resources like fee collected while granting Consent for establishment/operation (CFE/CFO) and their renewals under Air and Water Acts, sample analysis fees, Bio-Medical Waste Management authorization fee, etc.; and grants received from GoAP, if any also are sources of its finance.

2.1.4 Organizational structure

APPCB is headed by a Chairman nominated by the State Government who is assisted by a full-time Member Secretary. The Board functions through its Head Office located at Hyderabad, five Zonal Offices headed by Joint Chief Environmental Engineers and 19 Regional Offices headed by Environmental Engineers.

2.1.5 Audit Scope

The Performance Audit seeks to evaluate the implementation of the Environmental laws and Rules by the APPCB. Records were scrutinized (December 2013 to July 2014) at Board Office, Hyderabad, all the five Zonal Offices¹ (including their laboratories) and 10 out of the 19 Regional Offices² selected on Random sampling basis. Audit covered the performance of the Board during five year period 2009-14. An entry conference was held in October 2013 with the senior officers of the Board, where in the audit objectives, scope and methodology were discussed. The audit findings were communicated to State Government in August 2014. An exit conference was held in February 2015 with the Principal Secretaries of Environment, Forest and Science and Technology Department and Board officials, wherein the audit findings were discussed. Response of the Government/Boards during exit conference and written replies received (December 2014) from Government have been taken into account while finalizing this report.

2.1.6 Audit Objectives

The objectives of the performance audit are to assess whether:

- Adequate mechanisms have been put in place by the Board for prevention, control and abatement of pollution;
- Monitoring by the Board on the compliance by the stakeholders with the provisions of various environmental laws and rules, was efficient and effective and achieved the desired results;
- Fund management by the Board is efficient to secure optimum utilization; and
- Effective mechanism for Internal Control was in place and functioning effectively.

¹ Hyderabad, Kurnool, RC Puram, Vijayawada, and Visakhapatnam Zonal Offices

² Guntur, Hyderabad, Kakinada, Kurnool, Nalgonda, Sangareddy, Tirupati, Vijayawada, Visakhapatnam and Warangal Regional Offices

2.1.7 Audit criteria

Performance Audit was conducted with reference to the following sources of criteria:

- The Water (Prevention and Control of Pollution) Act-1974;
- The Water (Prevention and Control of Pollution) Cess Act-1977;
- The Air (Prevention and Control of Pollution) Act-1981;
- The Environment (Protection) Act-1986 and various Rules³ made there under;
- General Financial Rules applicable to the Board.

Audit findings

2.1.8 Inadequacy of mechanism for prevention, control and abatement of pollution

2.1.8.1 Annual action plans

Annual Action Plan of any organization defines various activities and sub-activities proposed to be taken up including physical and financial targets to be achieved in the ensuing year in line with the vision and long/short term goals of that organization.

Board did not prepare Annual Action Plans from 2012-13 onwards. Though Action Plans were approved by the Board for the years 2010-11 and 2011-12, achievement against targets was not prepared. Non-preparation of Action Plans indicates lack of proper planning and monitoring of pollution control activities in the Board.

Government replied (December 2014) that Annual Action Plans will be prepared and implemented from 2015-16.

2.1.8.2 Budget and Expenditure

Under Section 38 of the Water Act, the State Board shall, during each financial year, prepare a budget in respect of the ensuing financial year showing the estimated receipt and expenditure. It was noticed that the Board was preparing budget estimates in a manner that reflected wide variance in the budget versus actuals as shown in table 2.1.

Audit observed that utilization of funds by the Board vis-à-vis budget estimates was poor, ranging between 12.87 to 17.10 *per cent* during 2009-14, as shown below, indicating lack of planning and unrealistic preparation of budget estimates:

³ Environment (Protection) Rules-1986, Bio-Medical Waste (Management and Handling) Rules-1998, Noise Pollution (Regulation and Control) Rules-2000, Municipal Solid Waste (Management and Handling) Rules-2000, Hazardous Waste (Management and Handling) Rules-2008, Plastic Waste (Management and Handling) Rules-2011, etc.

Table 2.1 – Actual Expenditure vis-à-vis Budget estimates of the Board during 2009-14

(₹ in crore)

Year	Budget Estimates (BE)	Actual Expenditure (percentage)	Variance (BE minus Actuals)
2009-10	146.11	24.98 (17.10)	121.13
2010-11	214.38	32.31 (15.07)	182.07
2011-12	326.49	42.03 (12.87)	284.46
2012-13	365.81	49.61 (13.56)	316.20
2013-14	382.69	59.86 (15.64)	322.83

(Source: All the information/data mentioned in this report is as per records of the Board, unless mentioned otherwise)

Shortfall in expenditure was mainly due to non-utilization of financial assistance for establishment of Sewage Treatment Plants (discussed in para 2.1.10.1); financial assistance for remediation⁴ of lakes (para 2.1.10.6); non-procurement of laboratory equipment/maintenance (para 2.1.8.3); and due to non-filling up of vacancies (para 2.1.18.1); etc. Further, the Board has been providing large sums in its budget estimates towards construction of new buildings for Zonal/Regional offices, but not been able to utilize the funds due to non availability/procurement of land, non-finalizing designs of buildings and delays in obtaining required building permissions.

Because the Board has not been able to spend even a part of their own incomes in activities they are supposed to undertake every year, large amounts of savings have accumulated over the years as shown in table 2.2:

Table 2.2 – Accumulated income of the Board

(₹ in crore)

Year	Opening Balance	Savings during the year (Excess of Income over Expenditure)	Closing Balance
2009-10	214.23	61.96	276.19
2010-11	276.19	61.83	338.02
2011-12	338.02	62.19	400.21
2012-13	400.21	56.46	456.67
2013-14	456.67	83.34	540.01

Source: Audited accounts of the Board for the years from 2009-10 to 2013-14

Government replied that savings were mainly due to non-utilization of funds provided for construction of new buildings and environmental schemes.

Despite availability of sufficient funds, the Board failed to utilize the resources because of lack of institutional capacity, shortage of manpower, lack of co-operation and coordination with the municipalities and private industries,

⁴ Remediation means ‘abatement, cleanup, or other method to contain or remove a hazardous substance from an environment’

lack of initiative on the part of the organization, etc., which have been dealt with in this report in the succeeding sections.

2.1.8.3 Lack of infrastructure facilities and manpower at zonal laboratories

Under the Water Act and the Air Act, the State Board may establish or recognize laboratories for analyzing water/air samples to enable the Board to perform the functions stipulated in those Acts. Accordingly, the Board established one Central Laboratory at Hyderabad and zonal laboratories in each of the five zones and has been sending reports to CPCB.

Guidelines issued (June 2008) by CPCB for recognition of environmental laboratories under the EP Act by Central Government stipulated certain minimum standards, which included availability of capacity/equipment for conducting certain minimum air/water quality tests and recognition/accreditation by the National Accreditation Board for Testing and Calibration of Laboratories (NABL). Audit observed that:

- (i) Only the Central Laboratory at Hyderabad has NABL accreditation but is currently not recognized under EP Act, as the validity of recognition obtained (2007) by it expired in 2012 and it could not get renewal due to non-obtaining of OHSAS⁵-18001 accreditation as per the revised pre-conditions stipulated (2011) by MoEF. None of the five Zonal Laboratories is recognized under EP Act, as they did not have sufficient manpower and infrastructure necessary to get NABL accreditation and recognition under EP Act.
- (ii) As per CPCB guidelines, every laboratory should have facilities for a minimum of five essential group tests, viz. - physical, inorganic, organic, microbiological and toxicological tests for water analysis. For air analysis, the lab must have facilities for the first four of the above tests. An environmental lab should also provide for biological tests, characterization of hazardous waste and soil/sludge/sediment/solid waste analysis. It was however noticed that four out of the five test checked zonal laboratories did not have the capacity for conducting all the mandatory tests (details in **Appendix-2.1**).
- (iii) None of the five zonal labs had all the minimum equipment required for sample analysis. The labs either did not have some of the mandatory equipment or have non-functional equipment (**Appendix-2.2**).
- (iv) There was also shortage of technical staff in three out of five zonal labs as against the norms prescribed by CPCB, as shown below:

⁵ Occupation Health and Safety Assessment Series

Table 2.3 – Position of technical staff in Zonal laboratories

Zonal lab	Assistance in sampling				Sampling and Analysis				Sampling and Analysis Supervision			
	N	P	C	T	N	P	C	T	N	P	C	T
RC Puram	2	2	0	2	4	1	2	3	3	3	0	3
Warangal	2	0	7	7	4	0	4	4	3	2	0	2
Vijayawada	2	0	4	4	4	1	1	2	3	2	0	2
Visakhapatnam	2	0	3	3	4	0	6	6	3	4	0	4
Kurnool	2	0	3	3	4	0	1	1	3	2	0	2
Total	10	2	17	19	20	2	14	16	15	13	0	13

N: Staff requirement as per norms; P: Permanent employees; C: Contract employees; T: Total employees

It is evident from above table, there was shortage of ‘sampling and analysis’ staff in RC Puram, Vijayawada and Kurnool Zonal Laboratories and shortage of ‘sampling and analysis supervision’ staff in Warangal, Vijayawada and Kurnool Zonal Laboratories. Further, majority of the available staff members were not regular employees but were engaged on temporary contract basis.

In the absence of the required facilities/functional equipment, there was no assurance that the sample analysis was being done as per required standards in these laboratories.

Though the Board has been making provision for laboratory equipment in its budget estimates every year, it did not procure the above mentioned essential lab equipment, for reasons not on record. As regards the vacancies in laboratory staff, the Board initiated (July 2011) proposals for filling up 31 posts of Laboratory Analysts (out of 58 vacancies), proposals for recruitment through AP Public Service Commission. The proposal was approved by Government in June 2013 and the recruitment is yet to take place.

Government replied that efforts were being made to obtain recognition under EP Act for the Zonal laboratories and for procurement of all the necessary equipment to these laboratories and that recruitment of staff was under process.

2.1.9 Deficiencies in monitoring compliance of Environmental Laws and Rules

The Water Act, Air Act and EP Act empowered the State PCBs to take all such measures necessary for prevention, control and abatement of environmental pollution, to take appropriate action for regulation and control of any industry, operation or process and to initiate legal proceedings in the cases of infringement of environmental laws. Under the EP Act, various waste management and handling rules were also framed by GoI requiring the SPCBs to control and abate the pollution emanated by various types of wastes. The power to issue directions includes the power to direct closure of any industry,

operation or process. The above Acts have provision for prosecution and imprisonment of the convicted up to three months to seven years and/or a penalty ranging from ₹10,000 to ₹1,00,000 for violation of provisions of environmental laws and non-compliance with directions of the Board.

Audit observations on functioning of the Board in relation to prevention, control and abatement of main types of pollution are discussed below.

2.1.10 Water Pollution

The Water Act empowers the Board to make any order for the prevention, control or abatement of discharge of waste into streams or wells and requiring any person concerned to construct new systems for the disposal of sewage and trade effluents or to modify, alter or extend any such existing system or to adopt such remedial measures as are necessary to prevent, control or abate water pollution.

2.1.10.1 Lack of sewage treatment facilities in municipal bodies

Sewage emanating from populated areas is one of the major sources of water pollution. Local bodies have to ensure that the sewage emanating from their jurisdictional areas are not released untreated and are responsible for management of sewage under their jurisdiction.

Audit observed in the 10 test checked Regions that no Sewage Treatment Plant (STP) was constructed in 86 out of 87 Municipalities and in 4 out of 12 Municipal Corporations.

As per the information available with the Board, the Municipalities/Municipal Corporations in these Regions generate a total sewage of 1531 million litres per day (MLD) out of which only 486 MLD of sewage (i.e. 32 *per cent*) was being treated and the remaining 1045 MLD of untreated sewage was being discharged into rivers/streams/lakes/open lands, thereby causing pollution. The percentage of sewage treatment was very low in Municipalities as only 5 MLD (1.05 *per cent*) out of 475 MLD of sewage generated was being treated. In Municipal Corporations, 481 MLD (45.55 *per cent*) out of 1056 MLD was being treated.

Though the Board has been making provision in its annual budget estimates towards financial assistance to municipal bodies for construction of new STPs, the amounts were not utilized as the municipal bodies are not coming forward with proposals for STPs. Board also failed to impress upon the municipalities the need for this. Section 17 of EP Act provides that “where an offence is committed by any Department of Government, the Head of that Department shall be deemed to be guilty of the offence and is liable to be punished.” The Board has been issuing notices to these municipal bodies occasionally and no penal or legal action was taken. There was also no evidence from the records made available to audit that the Board had at any time analyzed the reasons for non-construction of STPs by the municipal bodies and advised the Government on remedial measures in the matter.

Government replied that the Board addressed (October 2014) the Commissioner and Director of Municipal Administration to furnish an action plan for establishment of STPs in municipalities.

2.1.10.2 Lack of Treatment of sewage by Health Care Establishments

The Board took a decision (August 2012) that Health Care Establishments (HCEs) i.e. Hospitals and similar establishments which are having 100 beds and more and are not connected to any terminal facilities, should establish individual STPs for treatment of the sewage.

Audit observed that, 116 out of 213 HCEs in the test checked regions were neither connected to terminal facilities nor had installed individual STPs and were discharging the untreated sewage into municipal drains. Board had only been issuing notices to the HCEs and no penal action as per Act was initiated against defaulting HCEs.

Government replied that the Board was initiating action against the HCEs for not having sewage treatment facilities.

2.1.10.3 Sewage treatment by slaughter houses

In the 10 test checked Regions, 69 out of the 73 slaughter houses are operating without any sewage treatment plants/facilities and discharging sewage into municipal drains/nearby water bodies/lands, causing water and air pollution and increasing the risk of public health hazard. Many of them are municipal slaughter houses. Further, there were no arrangements for safe disposal of solid waste generated in the slaughter houses.

Though the Board has power to issue directions under the provisions of Water Act to violators of environmental laws including the power to direct closure of any industry, operation or process, it did not issue any directions to these slaughter houses.

Government replied that the Board was initiating action against the slaughter houses operating without sewage treatment facilities.

2.1.10.4 Pollution caused by tanneries⁶ near Warangal

Audit noticed that 13 tanneries were operating in the vicinity of Sai Cheruvu located near Warangal with no/inadequate/inoperational effluent treatment facilities. As per Board's records, the Common Effluent Treatment Plant (CETP) supposed to be operated by the tanneries was non-functional most of the time.

- Two tanneries⁷ were functioning without obtaining Consent for Operation (CFO) from the Board since their establishment (November 1985 and March 1993) and two tanneries were allowed to operate despite non-renewal of CFO.

⁶ Leather processing industries

⁷ located at Enamamula village

- Though tanneries fall under highest polluting Red category which were to be inspected annually for compliance with pollution control laws, required number of inspections were not conducted by the Board.
- Despite having knowledge of the pollution caused by the tanneries, the Board did not analyze the effluent samples at regular intervals. Samples were collected/analyzed only during inspections.
- The Board issued closure orders (September 2009) to seven tanneries which were found to be serious violators of pollution control norms, it later temporarily revoked (April 2010 and February 2011) the closure orders in respect of three tanneries on the grounds of partial compliance of Board's directions. While one tannery was operating beyond expiry of temporary revocation orders, periodical extensions of revocation orders were being granted to two tanneries.

The annual averages of Biochemical Oxygen Demand (BOD) and Total Dissolved Solids (TDS) found in the sample analysis in Sai Cheruvu for 2013 were 120 mg/l and 15240 mg/l against the standard of 2 to 3 mg/l and 2100 mg/l (maximum) respectively, indicating that the lake water was of lower standard than the lowest Class-E and unfit for even irrigation/industrial use.

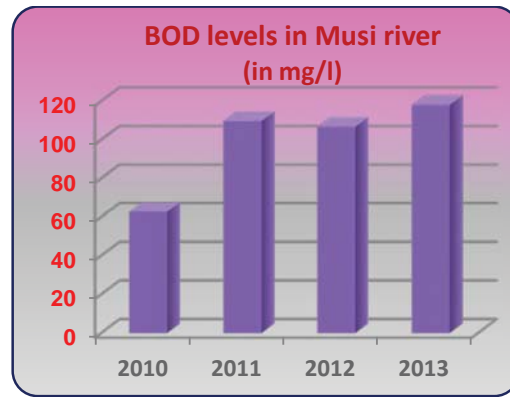
Government replied that all the tanneries have now obtained CFOs and have become members of the CETP, but the CETP was non-functional since long time. It was further replied that notices were issued (August 2014) to the CETP for submission of proposals/cost estimates for its upgradation considering the total effluents generated by all tanneries in that area and on receipt of upgradation proposals, the Board might consider providing financial support to the CETP.

2.1.10.5 Polluted River Stretches

Based on past data of water quality monitoring stations, CPCB identified (2010) nine polluted river stretches in the State (based on the water quality data from 2002 to 2008). Out of these, CPCB assigned top priority to two - viz. River Musi and Nakkavagu⁸ which were found to be very highly polluted. The average BOD recorded in these river stretches was 34mg/l and 50mg/l, respectively.

Audit noticed that, even after more than four years, no action plan was prepared by State Board for restoration of water quality in these river stretches. It was also noticed that the average BOD in river Musi (at Nagole monitoring station) increased from 62.7 mg/l in 2010 to 118 mg/l in 2013 as depicted below:

⁸ Musi: Monitoring locations at Nagole, Rangareddy and at downstream of Hyderabad and Nakkavagu: Monitoring location at Bachugudem, Medak



Government replied that sewage was still flowing into Musi river despite construction of STPs/facilities for diversion of sewage by the Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB) and further action was to be taken by HMWSSB only. As regards Nakkavagu, it was replied that despite steps taken by the Board to control industrial/CETP discharges, lot of sewage is generated and flowing into Nakkavagu due to increased residential colonies in the area and that action has to be taken by the respective municipal bodies by constructing STPs and the Board advised the bodies in this regard. However, the reply is silent as to why envisaged directions under the provisions of Water Act were not issued to the respective authorities.

2.1.10.6 Lakes/Tanks polluted by industries in Medak district

Based on the priority of pollution of six lakes/tanks⁹ near the Patancheru-Bollaram industrial cluster area of Medak District which were being polluted by industrial discharge/effluents of industries¹⁰, Board got a study conducted on Asanikunta and Khazipally tanks. The study report (March 2006) showed high level of industrial contamination in these tanks and suggested remediation proposals at a cost of ₹10 crore (2006). However, Board accorded administrative sanction for remediation works only in May 2010. It was also observed that in a meeting held (January 2010) by the Zonal Office, RC Puram, the industry representatives of Bollaram Industrial Development Area (IDA) and Kazipally IDA agreed to bear 25 per cent of remediation cost. However, the contract was not awarded till date for reasons not on record.

In respect of the remaining polluted tanks, Board did not take any action.

It was further noticed that the Board has been providing ₹10 - ₹30 crore in every year's budget estimates (2009-10 to 2012-13) for remediation of polluted lakes, but no expenditure was incurred.

Government replied that most of the illegal discharges from Bollaram into Asanikunta were controlled by the Board, the tank was still receiving sewage from nearby houses for which an STP is necessary and that Khazipally lake

⁹ Khazipally lake, Nakkavagu at Bachugudem, Isnapur tank, Asanikunta lake, Kistareddypet tank and Gandigudem tank

¹⁰ Mainly pharmaceutical and chemical industries

was mostly dry. It was also replied that Board proposed to take up study for remediation of Asanikunta and Kazipally tanks.

Due to inordinate delay in taking up remediation works, the health hazard to the common public in the nearby areas of these lakes/tanks continues to exist.

2.1.10.7 Industries, Municipalities, Healthcare establishments, etc. operating without consent from the Board

As per Section 25 of the Water Act, no person shall, without the previous consent of the State Board, establish or take any steps to establish any industry, operation or process, or any treatment and disposal system or an extension or addition thereto, which is likely to discharge sewage or trade effluent into a stream/well/sewer/land. Similar provision was also contained in the Air Act in respect of persons likely to discharge effluents into the air. Under these Acts, the Board was empowered to issue consent for establishment (CFE) and consent for operation (CFO). Before expiry of CFOs granted initially, the units are required to renew their CFOs. In the test checked Regions:

(i) It was noticed that 2892 (51.86 *per cent*) out of 5576 industries were operating though the validity of their CFOs issued by the Board had expired and were not renewed. Reasons for non-renewal of CFOs were delayed submission of renewal applications, furnishing incomplete information by industries and non-submission of information sought by the Board, non-fulfillment of conditions stipulated in earlier CFOs, etc. Board did not take any penal action in respect of such cases.

Audit noticed in test check of 200 cases, 74 cases of delay (ranging up to 11 years) in submission of renewal applications by industries. In 44 cases, there were delays (ranging up to 31 months) in granting renewal by the Board beyond 120 days stipulated in the Water Act.

(ii) As per Water Act, every Municipality/Municipal Corporation discharging sewage needs to obtain CFO from the Board. It was observed that only one¹¹ out of 12 Municipal Corporations and none of the 87 Municipalities obtained CFO.

(iii) As per Board's decision (August 2012), every HCE having 25 beds or more is required to obtain CFO under Water Act. However, 727 (82 *per cent*) out of 885 such HCEs did not obtain CFOs from the Board.

(iv) Out of 73 slaughter houses, 57 were operating without obtaining CFOs from Board and 13 were operating despite expiry of CFOs.

Board was only issuing notices to the above establishments from time to time drawing the attention to the penal provisions of the Environmental Acts, but did not take action under the provisions.

¹¹ Greater Hyderabad Municipal Corporation, Hyderabad

2.1.10.8 Inadequate inspections of industries

As per instructions issued in the Notification (December 1999) by Ministry of Environment and Forest, GoI, industries shall be inspected at the following frequency depending on their classification viz., Red (highly polluting), Orange (moderately polluting) and Green (least polluting):

Table 2.4 – Prescribed frequency of inspections of industries by Board

S. No.	Size of Industry	Category of Industry	Frequency of visit and effluent sampling
1.	Small scale	Red	Once in 12 months
		Orange	Once in 3 years
		Green	Once in 3 years on random check basis
2.	Large & Medium scale	Red	Once in 3 months
		Orange	Once in 6 months
		Green	Once in 12 months

The instructions also included an advice that State Pollution Control Boards may chalk out a programme of inspection/sampling by its staff so as to cover all the units for vigilance and monitoring purposes and also to improve the frequency as might be necessary.

Audit noticed that the Board's inventory did not have information on the number of small, medium and large industries under each category, in the absence of which Audit could not make an accurate assessment of the number of inspections due, conducted and shortfall thereto. Even if the minimum periodicity (once in a year) of inspections is considered, there was substantial shortfall of 69 *per cent* in inspections of Red category industries in test checked Regions (details in *Appendix-2.3*).

It was also observed that Board was inspecting the industries only at the time of renewal of CFO or on receipt of specific complaints.

Government replied that inspections were prioritized due to inadequate staff and that action for recruitment of staff had been initiated.

2.1.10.9 Toxicity evaluation of the industrial effluents in coast-based industries in Visakhapatnam District

As per the study report submitted by the Andhra University to the Board in 2011, the treated effluents of three out of ten industries/operators were found to be highly toxic, causing mortality of test organisms ranging between 43.3 and 100 *per cent*, which was far higher than the prescribed maximum of 10 *per cent*.

The Board did not take any action to ensure that these industries comply with the effluent discharge standards stipulated in EP Rules. In fact, the Board neither conducted Bio-assay tests thereafter nor insisted upon submission of periodical Bio-assay test reports by these industries, though conducting of periodical Bio-assay tests was one of the conditions stipulated while granting CFO to these industries.

2.1.10.10 Flouting of water quality norms by parboiled rice mills

In four¹² test checked Regional Offices, it was noticed that 137 parboiled rice mills were operating without obtaining CFO from the Board and 118 mills were operating with expired CFOs.

36 out of the 333 Parboiled Rice Mills did not have effluent treatment facilities and 192 mills did not install the mandatory water meters to assess the actual water consumption by these rice mills which has a direct linkage to the sewage generated by them.

The effluent sample analysis results show that the parameters are very high. For example, out of 17 sample analysis reports test checked in Nalgonda Region, the BOD recorded in four cases ranged from 228 mg/l to 2263 mg/l (norm: 100 mg/l maximum) and TDS recorded in five cases ranged from 2350 mg/l to 6690 mg/l (norm: 2100 mg/l maximum).

Further, emission of particulate matter (rice husk which is a by-product of the process) was also causing air pollution. For example, out of 24 air sample analysis reports test checked in Nalgonda Region, Respirable Suspended Particulate Matter was found to be high in 11 cases ranging from 110 $\mu\text{g}/\text{M}^3$ to 413 $\mu\text{g}/\text{M}^3$ (norm: 100 $\mu\text{g}/\text{M}^3$).

The Board had been issuing notices and directions time and again to these industries. However, the Board failed to initiate any legal action as provided in the Water Act, against them for continued violations.

Government replied that the Board is issuing CFOs only to those parboiled rice mills that have provided ETPs and air pollution control equipment and that action is being taken to bring all the parboiled rice mills under consent management and for closure of non-complying mills.

2.1.10.11 Unabated contamination of water bodies due to sewage/effluents influx

(i) **Tungabhadra river:** Board identified (2010-11) nine sewage outfalls spread over a stretch of four kilometers in Kurnool town that discharged sewage into the river causing pollution. It should have issued directions to the municipality to construct an STP and to connect the nine sewage outfalls to STP through an interception sewer.

Board issued a show cause notice (January 2013) to the municipality, but has not issued directions under the provisions of Water Act. No STP was established by the Municipal Corporation (as of July 2014) and the River Tungabhadra continues to be polluted by the sewage of the Kurnool Town.

As per the latest survey report (January 2014) of the Board, six major drains were discharging untreated sewage of 4443.2 Cum per hour into Tungabhadra. At this rate, the total untreated sewage discharge works out to 106.6 million litres per day (MLD) endangering public health and environment.

¹² This issue was examined in Vijayawada, Nalgonda, Kakinada and Guntur ROs only

(ii) **Srisaillam Reservoir:** The PCB team submitted (23 September 2012) its inspection report on Srisaillam Reservoir with recommendations to the Board, inter alia, that to avert repetition of the phenomenon of sewage/algae, the effluents (estimated at 8 to 10 lakh gallons per day) which are being discharged into the reservoir have to be diverted and treated before letting them out into the reservoir and usage of plastic should be strictly banned in the entire area of Srisaillam. It was also stated in their report that the Srisaillam Devasthanam was preparing a master plan for entire Srisaillam area including a provision for construction of STP also. Audit however observed that none of the above mentioned remedial measures have been taken up so far (July 2014) and the Board did not issue any direction to Srisaillam Devasthanam in this regard.

2.1.10.12 Inaction on pesticide/metal residues in Kolleru Lake

Kolleru lake is India's largest fresh water lake and a Bird Sanctuary, spread over two districts¹³ of AP. As per a study report (January 2010) prepared by a private agency on behalf of APPCB, there are 14 pesticides (Organochlorine and Carbamates) and 15 heavy metals present in Kolleru lake water. Some of the pesticides detected (Phosphamidon/Organophosphorous, Atrazine, Carbofuran, etc.) are highly toxic to mammals, fish and other wildlife and can cause health and environmental problems in future. Despite the adverse findings in the study report, the Board neither formulated any action plan to improve the water quality nor monitored the level of pesticides in this important lake/Bird Sanctuary thereafter.

2.1.11 Air Pollution

Air pollution occurs due to increase in the concentration of foreign particles like Respirable Suspended Particulate Matter (RSPM), Sulphur Dioxide (SO₂), Nitrogen Dioxide (NO₂), Carbon Monoxide (CO), Lead, Ozone depleting substances, etc. which are harmful to living organisms. Increased air pollution adversely affects human health by causing respiratory diseases like asthma, bronchitis, etc.

2.1.11.1 Inadequate monitoring of air quality

The Board monitored air quality in 74 monitoring stations across the State. Though CPCB prescribed (April 2011) a list of important air quality parameters to be analyzed by monitoring laboratories, the State Board did so for TSPM, RSPM of size PM₁₀, SO₂, NO/NO₂, etc, but none of its Zonal laboratories were monitoring the parameters like fine particulates PM_{2.5}, Benzo(a) Pyrene (BaP), Lead, Nickel, Ozone (O₃) and Benzene, as they did not have the required lab equipment (discussed in para 2.1.8.3).

In 53 out of 74 stations, the annual average RSPM levels were more than the maximum limit of 60 µg/m³ as per the National Ambient Air Quality (NAAQ) standards prescribed by CPCB. The Board neither conducted any studies

¹³ West Godavari and Krishna Districts

(except in Hyderabad) to identify the causes for air pollution nor prepared any action plan to mitigate pollution levels.

Government replied that action in respect of other cities was under proposal.

2.1.11.2 Air Pollution control measures in Hyderabad

During November 2005 to November 2006, the Board conducted a source apportionment study on air pollution in the city of Hyderabad. The study showed that 51 *per cent* of pollution is caused by sources like Coal, Bio-mass burning, Road dust, etc., but no action plan for addressing these sources of air pollution was devised by Board. The study report did not contain any data related to GHG emissions. The Board was also not monitoring GHG emissions, CO₂ and CH₄ on the ground that their monitoring was not mandatory. Though the Board stated that it had acquired competency in source apportionment studies, similar studies were not conducted in any other Zonal/Regional Monitoring stations, despite the fact RSPM levels in many stations were higher than prescribed standards.

Government replied that the issue of other sources of air pollution pertains to Greater Hyderabad Municipal Corporation (GHMC). The reply was silent on the efforts made by the Board to coordinate with GHMC to prepare and implement an action plan on the other sources of air pollution. Regarding monitoring GHG emissions, it was replied that the Board did not have necessary facilities.

2.1.11.3 Utilization of Fly Ash generated by thermal power stations

With an objective of minimizing environmental pollution caused due to fly ash, MoEF, GoI issued (September 1999) a notification under EP Act making it mandatory to utilize fly ash in the manufacture of building materials and construction activities within 100 Km radius of the thermal power plants. As 100 *per cent* utilization was not achieved within the stipulated due date (August 2007), MoEF issued amended notification¹⁴ in November 2009, which *inter alia* stipulated that all the existing coal/lignite based thermal power stations/expansion units shall ensure utilization of fly ash generated by them as per the target dates¹⁵ stipulated in the notification.

However, it was noticed that three public sector thermal power stations did not achieve the targets of fly ash utilization fixed by GoI, as shown below:

¹⁴ Notification no. S.O. 2804(E) dated 3 November 2009

¹⁵ 50% utilization by November 2010, 60% by November 2011, 75% by November 2012, 90% by November 2013 and 100% by November 2014

Table 2.5 – Percentage of utilization of fly ash generated by thermal power stations

Name of the Thermal Power Station	Year and the percentage achieved			
	2010-11 (Target:50%)	2011-12 (Target:60%)	2012-13 (Target:75%)	2013-14 (Target:90%)
M/s Kakatiya Thermal Power Project, Bhoopalapally (M), Warangal (KTPP)	10.14	25.18	33.49	46.35
M/s Dr. Narla Tatarao Thermal Power Station, Vijayawada	60.38	59.94	71.13	71.83
M/s Simhadri Super Thermal Power Project, NTPC, Vishakapatnam	60.04	60.01	60.78	41.81

As seen from above table, two out of the three power stations achieved targets in the years 2010-11 and 2011-12, while none of them achieved the target in 2012-13 and 2013-14.

Further, every year, lakhs of tonnes of fly ash remained unutilized in these thermal power stations. For example, the total quantity of unutilized fly ash in NTPS, Vijayawada in the last 15 years works out to a huge 2.51 crore MT. Such unutilized fly ash was required to be disposed off safely without causing environmental pollution. It was observed that the Board's inspection reports on these power stations did not contain the details of quantity of fly ash disposed off (other than utilized) every year, method of disposal, storage capacity available in these plants and the balance quantity of accumulated fly ash stored at end of each year.

In respect of M/s KTPP, Government replied that the power station was unable to achieve targets as it was located far away from cement industries and there was no highway construction in nearby areas. It was also replied that M/s KTPP was considering measures like, research on utilization of fly ash for mine stowing, providing input subsidy for transportation of fly ash, etc. to achieve targets.

2.1.11.4 Unabated air pollution by Stone Crushers

There is no effective monitoring by the Board on compliance of the standards by stone crushers in the State. It was noticed that out of a total of 766 stone crushers in the test checked Regions, 599 (78 per cent) were operating without valid CFOs. Of these, 54 crushers did not obtain CFE and CFO from the Board, 294 crushers (established during 1993 to 2011) obtained only CFE and did not obtain CFO till date and 251 crushers were operating without renewing their expired (during 1998 to 2014) CFOs. Board was not conducting regular inspections of crushers. Inspections were being conducted on receipt of public complaints or at the time of renewal of the CFO.

As per CPCB's standards, the level of Suspended Particulate Matter (SPM) near the stone crushing units/equipment shall not exceed 600 micrograms (μ) per cubic meter. Results of air sample analysis conducted by the Board in 50 stone crushers showed alarming SPM levels with ranges as shown below:

Table 2.6 – Ranges of SPM levels found in air analysis reports in stone crushers

Ranges of SPM (standard : 600 $\mu\text{g}/\text{m}^3$ maximum)	No. of samples in the range
601 – 1000	7
1001 – 2000	20
2001 – 4000	1
4001 – 6000	1
> 6001	1
Total	30

The Board has been issuing notices/directions to defaulting units, but did not take any legal action under environmental Acts/Rules.

Government replied that the Board would identify and take action on the stone crushers operating without CFO/not complying.

2.1.12 Management of E-wastes

E-waste consists of all waste from electronic and electrical appliances¹⁶ which have reached their end-of-life period or are no longer fit for their original intended use and are destined for recovery, recycling or disposal. E-wastes contain toxic substances¹⁷ many of which cause cancer.

There are 10 States that contribute to 70 per cent of the total e-waste in India, while 65 cities generate more than 60 per cent of the total e-waste. AP ranks third among the largest e-waste generating States in the country and Hyderabad city ranks 7th among all cities.

In AP, inventORIZATION of e-waste in three cities (Hyderabad, Vijayawada and Visakhapatnam) was done by the Environment Protection Training and Research Institute (EPTRI) in October 2011, at the instance of Board. The report estimated that these cities generate 4268.42 MT of e-waste per annum. The study covered only cell phones, televisions, computers and printers. The quantum of e-waste would be much more if other electrical/electronic wastes are also considered. Further, no such studies were conducted in other cities/towns.

¹⁶ It includes computer and its accessories, monitors, printers, keyboards, central processing units; typewriters, mobile phones and chargers, remotes, compact discs, headphones, batteries, LCD/ Plasma TVs, air conditioners, refrigerators and other household appliances

¹⁷ such as cadmium and lead in the circuit boards; lead oxide and cadmium in cathode ray tube (CRT) monitors; mercury in switches and flat screen monitors; cadmium in computer batteries; polychlorinated biphenyls in older capacitors and transformers; and brominated flame retardants on printed circuit boards, plastic casings, cables and PVC cable insulation that releases highly toxic dioxins and furans when burned to retrieve copper from the wires

As per information furnished by Board, there are only two registered e-waste recycling units (both in Ranga Reddy District) and four registered collection centers in the State. As per Board's data, these agencies collected and processed 493.11 MT of e-waste in 2012-13 which was less than 12 *per cent* of the total e-waste generated in three major cities.

Thus, only a marginal portion of e-waste is being handled by authorized recyclers and there was no monitoring on collection and disposal of remaining e-waste generated in the State. No action plan was prepared by the Board to watch over management of e-waste.

Government replied that out of the seven e-waste recycling/dismantling facilities that had obtained CFE from Board, only two were in operation and five were yet to start operations. It was also replied that Board issued notices/instruction to producers of electrical and electronic equipments for setting up e-waste collection centers in the State in line with the principle of 'Extended Producer Responsibility'. The reply was silent on the progress in the matter and also on lack of action plans and monitoring of e-waste handling in the State.

2.1.13 Management of Hazardous Wastes

As per Rule 22 of Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules-2008, the occupiers generating hazardous wastes and the operators of the facilities involved in disposal of hazardous wastes are required to furnish an annual return to State Board showing the details of hazardous wastes generated by them and disposal thereof. Based on the returns filed by the occupiers/operators, the Board shall prepare an inventory of hazardous wastes within its jurisdiction and compile related information like their recycling, treatment and disposal.

It was observed that the last inventory was done in 2010, which became obsolete due to addition/expansion of industries. As per the Board's records, the Red category (high pollution) industries increased from 2068 in 2009-10 to 3070 in 2013-14, i.e. an increase of 48 *per cent*. The updated position of actual generation of hazardous waste in the State is not known as the Board did not update/compile the inventory using the annual returns furnished by the occupiers/operators. The Board was showing the same quantum of hazardous waste generated in 2010 (10.87 lakh MT) in the subsequent years also.

There are only two authorized Treatment, Storage and Disposal Facilities (TSDFs) in the State (Dundigal in Ranga Reddy District and Visakhapatnam). As per the information furnished by the Board, the quantum of hazardous waste treated/disposed in the last five years was as follows:

Table 2.7 – Details of hazardous waste treated/disposed off during 2009-14

Year	Disposed in MT	Incinerated in MT	Recycled in MT	Total disposed in MT	Percentage of disposal (w.r.to 10.87 lakh MT of waste generated in 2010)
2009-10	1,38,144	8,494	1,96,298	3,42,936	31.55
2010-11	1,07,571	7,741	1,96,298	3,11,610	28.67
2011-12	1,81,403	18,592	1,96,298	3,96,293	36.46
2012-13	1,89,697	4,021	1,96,298	3,90,016	35.88
2013-14 (up to November 2013)	1,22,104	2,842	1,96,298	3,21,244	Not worked out, as full year's details are not available

Even if the quantum of hazardous waste generated in 2010 is taken as a base, the percentage of actual disposed waste would range from 28.67 to 36.46 *per cent* only during 2009-13 and the Board was silent about the balance quantity of hazardous waste.

Government replied that latest inventorization of hazardous waste has now been done. However, the details/results thereof were not stated. It was further replied that Board has been encouraging co-incineration of hazardous waste in cement kilns and about 62000 tonnes of waste was co-incinerated in 2013-14. No reply was furnished regarding action taken on the balance hazardous waste remaining untreated.

2.1.14 Management of Plastic Wastes

As per the Plastic Waste (Management and Handling) Rules-2011, the concerned municipal authorities are responsible for ensuring safe collection, storage, segregation, transportation, processing and disposal of plastic waste. As per Board's estimate (2012-13), the total plastic waste generation in the State was 575 tonnes per day (TPD) (estimated at five *per cent* of the 11500 TPD of the total municipal solid waste generation). Audit noticed that the Board did not have the actual information regarding generation, segregation, collection, disposal and recycling of plastic in the State. Board replied that municipalities did not furnish the information despite notices issued by it. It was also replied that none of the Municipal authorities were complying with this responsibility of collecting and segregating the plastic waste and a notice was issued to all.

As per data available with Board, out of the 294 plastic manufactures/recyclers in the State, 217 units were operating without obtaining registration from Board. No follow up action was taken by Board in the matter.

Thus, there has been ineffective monitoring by the Board on implementation of Plastic Waste Rules in the State.

Government replied that the Board would pursue with Municipal Administration Department for effective implementation of Plastic Waste Rules.

2.1.15 Handling of Municipal Solid Wastes

As per Municipal Solid Waste (Management and Handling) Rules-2000 (MSW Rules) every municipal authority is responsible for the implementation of the provisions of these rules and for any infrastructure development for collection, storage, segregation, transportation, processing and disposal of municipal solid wastes within its territory. The State Board is responsible for monitoring implementation of these Rules.

2.1.15.1 Non-obtaining of authorization by municipal bodies

Rules stipulated that municipal authority or an operator of a facility shall obtain authorization from the Board for setting up waste processing and disposal facility including landfills and comply with the following implementation schedule:

Table 2.8 – Implementation schedule stipulated in MSW Rules

Compliance Criteria	Schedule
Setting up of waste processing and disposal facilities	By 31.12.2003 or earlier
Monitoring the performance of waste processing and disposal facilities	Once in six months
Improvement of existing landfill sites as per provisions of these rules	By 31.12.2001 or earlier
Identification of landfill sites for future use and making site (s) ready for operation	By 31.12.2002 or earlier

It was observed that even after passage of more than 13 years since the Rules were made, 8 out of 12 Municipal Corporations and 81 out of 87 Municipalities in the test checked regions did not obtain authorization from the Board.

Only four (one Municipal Corporation and three Municipalities¹⁸) out of 99 Urban Local Bodies (ULBs) have waste treatment facility and none of them have scientific landfill facilities.

MSW Rules provide that the biodegradable wastes shall be processed through biological processes like composting, vermin-composting, etc. and non-biodegradable wastes which cannot be recycled shall be disposed off through landfills.

However, there is a wide gap between the total MSW generated in the State and MSW treated/disposed off during 2009-13, as shown below:

¹⁸ Kadapa Municipal Corporation and Suryapet, Palamaner and Madanapalle Municipalities

Table 2.9 – Status of disposal of municipal solid wastes in the State during 2009-13

(In MT per Day)

Year	Estimated MSW generation	MSW segregated (% to total generated)	MSW processed/ treated (% to total generated)	MSW disposed through landfills
2009-10	11500	920	1595 (13.87)	NIL
2010-11	11500	920	1595 (13.87)	NIL
2011-12	11500	920	3658 (31.81)	NIL
2012-13	13358	1069	4392 (32.88)	750
Total	47858	3829 (i.e. 8%)	11240 (23.49)	750

As seen from the above table, only 23 *per cent* of the total MSW was processed whereas only eight *per cent* of the total MSW was segregated into biodegradable and non-biodegradable wastes. Though final disposal of MSW needs to be done through landfills, such disposal was nil during 2009-12 and negligible (750 MTD) in 2012-13. The remaining waste was being dumped in open dumpsites/yards.

Considering the figures of 2012-13, a total of 8216 MT of untreated MSW was being dumped in the open every day, which works out to a huge quantity of 29.99 lakh MT of municipal wastes pile up every year causing environmental degradation and health hazards.

Though the GoAP had directed (2008) all the municipal bodies to apply for MSW authorization, to quantify and characterize MSW and to submit action plan, the municipal bodies did not comply with this so far. A meeting held by Commissioner and Director of Municipal Administration with the municipalities and Board officials, did not yield any positive results so far. Government replied that municipal bodies failed to comply with the provisions of MSW Rules despite pursuance by Government and Board.

Thus, the Government/Board failed to impress upon the municipalities to comply with MSW Rules and also did not analyse the reasons for non-compliance and failed to take necessary remedial measures.

2.1.15.2 Incomplete MSW Demonstration Project at Suryapet Municipality

MoEF and CPCB instituted a scheme for setting up of demonstration projects in solid waste management, with an objective of demonstrating implementation of MSW Rules in an integrated manner. The scheme was to be implemented on cost sharing basis (50:50 ratio between the local body concerned and CPCB). Under this scheme, one project, i.e. 'Setting up of Model facilities for demonstration of management of MSWs in Suryapet Municipality', was taken up in AP at a cost of ₹2.9 crore and an MoU was concluded between CPCB, APPCB and Suryapet Municipality. The project was to be completed by September 2007.

Since this was a pilot project, its success was to set an example for other urban local bodies to emulate. However, the project was not implemented fully. The project stagnated since April 2008 onwards and was finally closed (September 2013) after incurring an expenditure of ₹1.13 crore (funded by the Municipality and the CPCB at 50:50 ratio). Providing of sanitary landfill facility, which accounted for about half of the project cost, was not developed by the Municipality. Thus, the intention in setting up of pilot project was not fulfilled. No new projects were taken up in any city in the State.

2.1.15.3 High pollution levels in air and ground water near MSW dump sites

The MSW Rules stipulated that both water and ambient air quality in and around landfill sites needs to be monitored to ensure that the ground water and ambient air quality is not contaminated beyond acceptable limit.

It was observed that three out of 10 sampled Regional Offices (ROs) were not monitoring air and ground water quality in and around the dump yards/sites. Four ROs were monitoring only ground water quality and not the air quality. The reasons stated are shown below :

Table 2.10 – Regional Offices not monitoring the water/air quality near MSW dump sites

Regional Office	Whether air quality monitored	Whether water quality monitored	Reasons stated for non compliance
Hyderabad	No	No	There are no notified dump sites.
Nalgonda	No	Yes	No reasons stated.
Guntur	No	Yes	Due to lack of power supply at dump site.
Kurnool	No	No	Non availability of required equipments.
Tirupati	No	No	Non-availability of equipments.
Vijayawada	No	Yes	Not availability of power at dumpsite.
Vishakhapatnam	No	Yes	No reasons stated.

A test check of 81 ground water analysis reports near the MSW dumpsites revealed high levels of total dissolved solids (TDS) in 70 cases ranging from 501 mg/l to 40872 mg/l (standards prescribed in MSW Rules: 500 mg/l) and Chlorides in 51 cases ranging from 265 mg/l to 19143 mg/l (standard: 250 mg/l).

Government replied that it proposes to take up studies on water and air quality near MSW dumpsites in the coming year. Reply was silent on action taken on high water pollution levels found near MSW dumpsites.

2.1.16 Management of Bio-Medical Wastes (BMW)

As per the Bio-Medical Waste (Management and Handling) Rules-1998, it is the duty of every occupier of an institution¹⁹ generating bio-medical waste to take all steps to ensure that such waste is handled without any adverse effect to human health and environment.

2.1.16.1 Health Care Establishments (HCEs) functioning without valid BMW authorization and BMW treatment facilities

As per the Rules, every HCE treating 1000 or more patients every month has to obtain authorization from the Board for generating, collecting, receiving, storing, treating, disposing or handling of bio-medical waste. It was observed that out of a total of 4287 such HCEs in 10 test-checked Regions, 441 HCEs did not obtain BMW authorizations and 1618 HCEs (42.07 per cent) were functioning even though their authorizations expired.

The Rules stipulated that every occupier shall set up requisite BMW treatment facilities like incinerator, autoclave, microwave system for treatment of waste or ensure requisite treatment of waste by having a tie up with a common BMW treatment facility. It was observed that 131 HCEs in the test checked Regions were not complying with the above conditions.

No directions were issued and no legal action initiated by the Board under the EP Act against the defaulting HCEs.

2.1.16.2 Lack of monitoring on veterinary institutions

BMW Rules are also applicable to veterinary institutions and animal houses. However, it was observed that nine out of the 10 sampled Regional Offices did not have any information regarding the veterinary institutions under their jurisdiction and were not monitoring compliance of BMW Rules by veterinary institutions while one RO (Nalgonda) stated that the information on veterinary institutions was obtained from Animal Husbandry Department and notices were issued to 14 institutions regarding obtaining BMW authorization from the Board.

Government replied that Regional Offices had been directed to identify all such veterinary institutions and monitor implementation of BMW Rules.

2.1.16.3 Non conducting of survey of occupiers

As per BMW Rules, the institutions providing treatment/service to less than 1000 patients per month are exempt from obtaining BMW authorization from the Board. However, Rule 5(2) requires 'Every' occupier to set up the requisite BMW treatment facilities stipulated under the Rules. The Rules did not provide exemption in this regard.

¹⁹ which includes a hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank by whatever name called

It was observed that none of the sampled ROs had any information of such occupiers/institutions and hence were not monitoring compliance of BMW Rules in such cases.

2.1.17 Arrears of Water Cess

One of the major sources of Board's income is its share of water cess collected from industries/municipal bodies under Water Cess Act-1977. The water cess collected by the Board is remitted into the Consolidated Fund of India and GoI in turn apportions the water cess amount to CPCB and State Boards.

It was noticed that as of January 2014, water cess charges of ₹11.54 crore (includes ₹10.78 crore due from Municipalities/Municipal Corporations) for the period prior to the year 2005 were not collected by the Board. Further, no demand for the water cess due from municipal bodies after 2005 was raised by the Board as of July 2014.

Though the Water Cess Act provides that non-payment of water cess attracts levy of interest (two *per cent* per month), penalty (up to an equal amount of arrears) and imprisonment (up to six months), the Board failed to collect the arrears for long period.

Non-collection of water cess from users results in shortfall in income to the Board as the amount of cess apportioned to State Board by GoI depends on the amount collected in that State. Thus, amount to that extent is not available to the Board for its activities.

Government replied that Water Cess was not assessed due to non-furnishing of water consumption returns/figures by most of the municipal bodies and that the Board was pursuing the matter with Municipal Administration Department.

2.1.18 Manpower management

Deployment of adequate manpower in the Board is critical to enable it to discharge its widespread and varied functions for effective implementation of environmental laws.

2.1.18.1 Shortage of manpower

There was shortage of manpower in the Board. As against the sanctioned strength of 500 (304 Technical + 196 Non-Technical), there were 231 vacancies (122 Technical + 109 Non-Technical) as of December 2013, which accounts for 46 *per cent*. Vacancies were particularly high in the cadres of Assistant Environmental Engineer (59 vacancies out of the sanctioned strength of 109), Analyst-Grade II (58 vacancies out of 63 posts), Sr.Assistant/Jr.Assistant/Stenographers/Typists (54 vacancies out of 71 posts).

Audit noticed that the Board had initiated (July 2011) proposals for recruitment of 98 (later reduced to 85) technical and non-technical posts through AP Public Service Commission (APPSC). However, the process of obtaining permission from Finance Department (November 2012) and E&FST

Department (May 2013) for conducting recruitment through APPSC took substantial time. In June 2013, Government (in Finance Department) issued consolidated orders for filling up vacancies across various departments including 85 posts (Assistant Environmental Engineers: 27; Analyst-Grade II: 31; Jr.Assistant/Stenographer/Typist, etc.: 27) pertaining to the Board. The recruitment is yet to take place.

Government replied that action for recruitment was already initiated and the process was stalled due to bifurcation of the State.

2.1.18.2 Non-availability of qualified legal officers

Under the provisions of the Acts and Rules made thereunder, the Board was vested with the authority to take legal action on violators of environmental laws. As was pointed out in this report earlier, in many cases, the Board did not initiate legal action against offenders. In the year 2000, as part of decentralization plan the Board decided to form Legal Committees at Zonal Offices (comprising a local NGO, two advocates from the legal panel and the Zonal Officer) to advise on legal action on violators of environmental laws. No such committees were formed so far, and reasons therefor were not furnished to audit by Board.

Further, it was observed that the legal section at the Board's Head Office did not have qualified legal officers and was manned by engineers. The legal cases were being dealt with through standing legal counsels being appointed by the Board from time to time. It is pertinent to mention here that Pollution Control Boards in some other States are functioning with legal cells headed by a Law Officer²⁰.

Government replied that the proposal submitted by Board for recruitment of Legal Officers and Legal Assistants was under consideration and that steps would be taken to strengthen the Legal Wing.

2.1.19 Internal control mechanisms in the Board

2.1.19.1 Coverage of internal audit

Internal audit of the Board and its unit offices was being conducted by Chartered Accountants appointed specifically for this purpose, but the internal audit reports focused on financial/accounting aspects only and did not point out deficiencies relating to implementation of environmental laws by the Board and its Zonal/Regional Offices.

2.1.19.2 Board meetings

Water Act stipulated that the Board shall meet at least once in every three months. It was observed that during the five year period 2009-14, the Board met only 11 times²¹ as against the minimum requirement of 20 meetings.

²⁰ As can be seen from the websites of the respective Pollution Control Boards/Committee

²¹ Twice in 2009-10 and 2010-11; thrice in 2011-12 and 2012-13; and only once in 2013-14

Government replied that the Board has recently been re-constituted (August 2014) and steps would be taken to conduct regular meetings in future.

2.1.20 Conclusion

The Board did not prepare Annual Action Plans from 2012-13 onwards. Zonal laboratories did not have facilities and equipment to analyze necessary parameters of water and air quality. Available equipment was non-functional in some cases. Several industries, municipalities, healthcare establishments were operating without valid/renewed Consent for Operation. There was substantial shortfall in conducting inspections of even highest polluting 'Red' category industries. 116 out of 213 HCEs and 69 out of 73 slaughter houses were operating without sewage treatment facilities. Concentration of Respirable Suspended Particulate Matter in air was more than prescribed standards in 53 out of 74 monitoring stations. Board's planning and action to control air pollution was also deficient. It did little to ensure that the State owned thermal power stations utilize the fly ash generated. There was insufficient monitoring exercised by the Board on compliance of environmental norms by stone crushers. Board's handling and management of Municipal Solid Wastes, e-Wastes, hazardous, bio-medical and plastic wastes issues left gaps due to lack of active participation by stake holders/other departments. Despite such large number of violations, the Board failed to initiate legal action to curtail and contain pollution. Though there are various Environmental Acts/Waste Handling Rules, their implementation by the Board needs to be strengthened much more. There was acute shortage of staff in the Board and it could not function optimally despite availability of funds.

2.1.21 Recommendations

Audit recommends for consideration that

- *Board initiate action to improve facilities and necessary manpower in the zonal laboratories for measuring quality parameters in water and air.*
- *Regular inspections need to be conducted and follow up action initiated against industries particularly in respect of "Red" category.*
- *Board initiate legal actions against violation of provisions of environmental laws and non-compliance with directions of the board.*
- *Board take immediate steps to strengthen its legal mechanism by establishing a full fledged legal cell/section with qualified legal officers.*
- *Board needs to consider preparing comprehensive action plans to counter all types of pollution in the affected zones utilizing its accumulated funds.*

Agriculture and Cooperation Department

2.2 Functioning of Acharya N.G. Ranga Agricultural University, Hyderabad

2.2.1 Introduction

Andhra Pradesh Agricultural University (APAU) was established through Andhra Pradesh Agricultural University Act-1963 (the Act) under the administrative control of Agriculture and Cooperation Department of the State. The University was renamed (1996) as Acharya N.G. Ranga Agricultural University (ANGRAU). The Governor of Andhra Pradesh is the Chancellor of ANGRAU. Objective of the University is to make provision for education in agriculture mainly to rural people of the State and to promote Research, Field and Extension programmes in agriculture and agricultural production.

The University offers Under Graduate, Post Graduate and Doctorate (Ph.D) courses in agriculture, agricultural engineering and home science branches through various colleges in its campus at Hyderabad and colleges/polytechnics located across the State. The University also carries out research activities through its research stations/units scattered across the State. The technology developed through research is disseminated to farmers and other stakeholders through extension activities.

2.2.2 Organizational set up

Board of Management (BOM) is the apex governing body for taking policy decisions as per the University's Statutes and Regulations. The Board consists of 16 members i.e., representatives of State Legislature/Parliament (4), Agro industry (2), State Chamber of Panchayat Raj (1), Agricultural Scientific community (1), Indian Council of Agricultural Research (1), members of Academic Council (3), Secretaries to Government (2), Director of Agriculture (1) and Director of Animal Husbandry (1). The University is also governed by the Academic Council and the Research and Extension Advisory Council.

The Vice-Chancellor is overall in-charge of ANGRAU, who is assisted by a Registrar, a Comptroller, four Directors, two Deans, an Estate officer and a Librarian. Registrar is in charge of administrative, academic and examination matters. Comptroller is in-charge of finance and accounts. The four Directors look after (i) Planning and Monitoring, (ii) International Programmes, (iii) Research and (iv) Extension activities respectively. Deans deal with faculty and student affairs respectively. Estate Officer monitors assets and construction activity of the University.

2.2.3 Audit objectives

Objective of this Performance Audit was to assess whether:

- the University carried out its academic functions, research and extension activities efficiently and effectively in accordance with its stated aims and objectives;
- the objectives (crop improvement and transfer of technology) of main activities (research and extension) were realized; and
- sound administrative and internal control mechanisms are in place.

2.2.4 Audit scope and methodology

Performance Audit covering the functioning of ANGRAU during 2009-14 was conducted (May to September 2014) by test check of records of the University, five²² out of eight Agricultural Colleges, three²³ out of 21 Agricultural Polytechnics, two out of three²⁴ Colleges of Food Science and Technology, four²⁵ out of nine Regional Research Stations, four²⁶ out of 28 Agricultural Research Stations, seven²⁷ Research Units, one²⁸ Bio-Technology Unit, three²⁹ out of 18 Krishi Vigyan Kendras (KVKs) and seven³⁰ out of 22 District Agricultural Advisory and Transfer of Technology Centres (DAATTCs) and two³¹ Engineering Divisions in seven districts³². The districts were selected using Simple Random Statistical Sampling method covering three geographical regions of the State i.e. Andhra, Rayalaseema and Telangana. Units in the districts were selected based on core activities of the University in such a way that each district selected covers at least four of core activities. An entry conference was held in June 2014 with Principal Secretary to Government of AP, Agriculture and Cooperation Department, and Vice Chancellor, Registrar and other Heads of Departments of the University, wherein the audit objectives, criteria and methodology of the performance audit were discussed. Exit conference was conducted (January 2015) with Government/University representatives.

2.2.5 Audit criteria

Performance Audit was conducted with reference to the following sources of criteria:

- Provisions of APAU Act;
- Stated objectives of various Research and Extension projects taken up by the University;
- Plan and budget documents and orders/sanctions issued by Government/ University from time to time, AP Public Works Department Code;
- Guidelines issued by GoI on relevant schemes; and
- Lease agreements relating to estates and contracts for works.

²² Aswaraopet, Bapatla, Jagitial, Rajendranagar and Tirupati

²³ Jagitial, Maruteru and Utukur

²⁴ Bapatla and Pulivendula

²⁵ Guntur, Jagitial, Maruteru and Tirupati

²⁶ Kunaram, Palamaneru, Tandur and Utukur

²⁷ Millet section, Lam, Madira and Perumallapalli; Rice Research Unit, Bapatla; Rice Research Institute, Maruteru; Rice Research Station, Rajendranagar and Wyr

²⁸ Rajendranagar

²⁹ Undi, Utukur and Wyr

³⁰ Chittoor, Eluru, Guntur, Karimnagar, Khammam, Rajendranagar and Utukur

³¹ Bapatla and Tirupati

³² Chittoor, Dr.YSR Kadapa, Guntur, Karimnagar, Khammam, Rangareddy, and West Godavari

Audit findings

The deficiencies noticed in implementation of various activities by University are discussed below.

2.2.6 Academic activities

The University carries out academic activities through its constituent Agricultural colleges/Agricultural Engineering colleges/Polytechnic colleges including 28 private Agricultural Polytechnic Colleges which were affiliated to University. Audit noticed deficiencies in academic matters as discussed below.

2.2.6.1 Model Act

To facilitate uniform structure and to ensure good governance and academic growth in all the Agricultural Universities across the country, Indian Council of Agricultural Research (ICAR) had prepared and communicated (2009) a Model Act for enactment by the respective State Legislatures which is yet to be done (August 2014). It was noticed that the University constituted (April 2013) a Review Committee after nearly four years to review the Model Act and make recommendations. The Committee submitted recommendations in December 2013 which were yet to be approved by State Government.

During exit conference (January 2015), it was replied that efforts were being made to ensure that the Model Act was enacted at the earliest.

2.2.6.2 Shortage of Faculty

University is responsible for appointment of teaching staff in Constituent colleges. Teaching Staff of University consist of Associate Deans (head of college), Professors, Associate Professors and Assistant Professors. Audit noticed shortage of teaching staff due to insufficient recruitment during 2009-14. The men in position against the sanctioned strength in eight Colleges of Agriculture as of June 2014 is given below:

Table 2.11 – Position of teaching staff in Agricultural Colleges of the University

College of Agriculture at	Associate Dean			Professors			Associate Professors			Assistant Professors			Total		
	SS	IP	V	SS	IP	V	SS	IP	V	SS	IP	V	SS	IP	V
Rajendranagar	1	1	0	10	10	0	25	22	3	74	58	16	110	91	19
Bapatla	1	1	0	7	2	5	9	5	4	67	38	29	84	46	38
Tirupati	1	1	0	5	1	4	11	8	3	50	38	12	67	48	19
Aswaraopeta	1	1	0	0	0	0	11	0	11	21	20	1	33	21	12
Jagitial	1	0	1	2	1	1	11	2	9	21	18	3	35	21	14
Mahanandi	1	1	0	0	0	0	8	6	2	15	14	1	24	21	3
Naira	1	1	0	0	0	0	11	6	5	21	14	7	33	21	12
Rajahmundry	1	1	0	2	0	2	11	3	8	22	13	9	36	17	19
Total	8	7	1	26	14	12	97	52	45	291	213	78	422	286	136
Vacancy percentage	13			46			46			27			32		

SS = Sanctioned Strength; IP = In Position and V = Vacancy

(Source: All the information/data mentioned in this report is as per records of the University, unless mentioned otherwise)

As can be seen from the above table, there was 32 *per cent* shortage of teaching staff. The percentage of vacancies was high (46 *per cent*) in the higher cadres of Professor and Associate Professors while it was 27 *per cent* in the feeder cadre of Assistant Professor.

Audit further noticed that the agricultural polytechnics too, did not have sufficient teaching staff. Though the University had prescribed minimum teaching staff requirements for private polytechnics seeking University affiliation, it did not implement these norms in its own constituent polytechnics. As against the requirement of 7 Assistant Professors (later reduced to 5), 3 field staff and 20 farm workers as per the above norms, the University sanctioned only 2 Assistant Professors to each of these polytechnics.

During exit conference, it was replied that action would be initiated at the earliest for recruitment of teaching staff.

2.2.6.3 Workload of faculty

The ICAR, being a regulatory body of Agricultural Education, appointed Fourth Deans Committee for recommending revision of course curricula, norms and standards, academic regulations for colleges, Central assistance for implementation of recommendations, reforms in governance and faculty needs etc. The Deans Committee report (2006) which was communicated by ICAR for implementation by the University had prescribed 4 contact hours to Deans, 6 hours to departmental heads, 8 hours to Professors, 12 hours to Associate Professors and 16 hours to Assistant Professors per week. However, actual work load of teaching staff of its constituent colleges was not available with the Registrar's office. Non-availability of information relating to workload of teaching staff with the University indicates lack of monitoring on this important issue.

The test checked colleges of Agriculture except at Bapatla did not furnish the information relating to workload of teaching staff to audit. In the College of Agriculture at Bapatla, Audit noticed that the average work load of Departmental Heads and Professors during 2009-13 exceeded the prescribed limits by 117 *per cent* and 61 *per cent*, respectively.

2.2.6.4 Inbreeding of teaching staff

Fourth Deans Committee recommended recruiting at least 15 *per cent* of teaching staff at entry level from outside the State through open national selection to facilitate national integration and reduce current 'extensive inbreeding'. Audit noticed that though the University recruited 203 Assistant/Associate Professors and Professors during 2009-13, none of the recruits were from outside the State despite the fact that 68 applicants from other States had applied and 47 applicants were found to be having required qualifications/eligibility as per information furnished by University.

The University attributed reasons for non-recruitment of teaching staff from other States to their lack of knowledge of local language. The reply is not

tenable due to the fact that the only medium of instruction offered in the University was English. Further, the University could have considered measures such as imposing a condition of continuing their services subject to passing proficiency test in the local language within some stipulated period. During exit conference, the University accepted the audit suggestion.

2.2.6.5 Non establishment of distance education centres

Fourth Deans Committee observed that 75 *per cent* of the students in rural India drop out by 10+2 stage and since this is a major work force which has no access to modern technology, it recommended (August 2006) establishment of distance education centres in State Agricultural University to reach the rural students.

Audit noticed that the University has not introduced distance education even after nearly eight years. University stated that agriculture course is practical oriented and it was not possible to offer distance education. The reply contradicts the fact that Universities in other states like University of Agricultural Sciences, Bangalore were offering distance education in agriculture. The Indira Gandhi National Open University (IGNOU), New Delhi is also offering Diploma, PG and Ph.D courses in agricultural subjects in distance/open mode, in accordance with an MoU concluded (2005) with ICAR. Thus, failure of the University to integrate practical component in distance education mode resulted in non-establishment of distance education centres.

Government replied (February 2015) that it would explore possibility of introduction of distance education in agriculture.

2.2.6.6 Establishment of new colleges without staff and infrastructure

(a) A new Agricultural College at Jagitial was established and academic courses started in 2008-09. However, no posts of teaching and non-teaching staff were sanctioned till September 2011 and classes were run by utilizing the services of scientists of RARS, Jagitial and outsourced staff. Even as of March 2014, one out of three posts of Professors, 9 out of 11 posts of Associate Professors, 6 out of 21 Assistant Professors and three out of eight non-teaching posts were vacant, thereby affecting quality of education imparted to students.

(b) A new Agriculture Polytechnic (APT) was established (September 2011) at Madhira with an intake of 25 students in diploma courses with the Senior Scientist & Head of Agricultural Research Station (ARS), Madhira as Vice-Principal. Audit noticed that though the Polytechnic started conducting courses from 2011-12, no infrastructure like buildings/space for conducting classes, laboratories, hostel buildings for boys and girls was provided till today (August 2014). The classes were being conducted in the training halls of ARS, Madhira and hostel facilities for students were being provided in private buildings. The University allocated budget for construction of buildings belatedly in March 2013 and in 2013-14. The construction work of hostel

building commenced only in June 2014, but works relating to college building are yet to commence.

Audit further noticed that no post of teaching and non-teaching staff was sanctioned for the Polytechnic so far. In the absence of regular staff, services of research staff of ARS, Madhira were being utilized for the Polytechnic, thereby adversely affecting the regular research work of ARS.

Government replied that it would provide necessary funds for development of infrastructural facilities and recruit staff shortly.

2.2.6.7 Inadequate facilities in hostels

Audit noticed the following deficiencies in the facilities provided to students:

- Out of the 30 hostels available in eight Agricultural Colleges, 10 hostels (having a total of 419 rooms) were overcrowded, as 1531 students were accommodated in these hostels as against their total intake capacity of 1117 students. Further, 50 rooms (30 rooms of hostel attached to the College of Agriculture, Rajendranagar and 20 rooms of hostel attached to the College of Bapatla) were damaged and no longer fit for use.
- A ratio of 1:6 and 1:8 toilets/bath rooms and students was prescribed in the college hostels for girls and boys students respectively. Computed at this ratio, the shortage of bath rooms and toilets in hostels was 8 each at Aswaraopet; 56 and 60 in Bapatla and 12 and 12 in Mahanandi Agricultural Colleges.

Government replied that it was considering improving the infrastructure facilities at colleges with funding from national banks and other agencies.

2.2.7 Research activities

One of the primary objectives of the University was to promote agricultural research within the state. The University received an amount of ₹211.57 crore from Government of Andhra Pradesh and an amount of ₹97.90 crore from ICAR during the period from 2009-13 totaling ₹309.47 crore for conducting research activities. The University has been carrying out research work in development of high yielding varieties/hybrid seeds, plant protection and dry land rain-fed technologies, introduction of new technologies for improved agricultural practices, etc. The research work is done at nine Regional Agricultural Research Stations (one each in the nine agro-climatic zones) and the Agricultural Research Stations functioning in these zones. The University incurred an expenditure of ₹318.32 crore during 2009-13 on research activities³³ and was involved in 276 research projects during 2009-14 (including 25 new projects taken up during this period) out of which 123 projects were completed.

³³ The University did not furnish the expenditure details for the year 2013-14

It released 66 varieties of seeds during 2009-2013³⁴ as a result of its research activities. For these varieties, University produces breeder seeds and foundation seeds as per indents received from various Government agencies³⁵ and private seed companies. The constraints noticed in research activities are discussed below:

2.2.7.1 Shortage of Scientists in research wing

The sanctioned strength, men in position and vacancies of Scientists in research wing of University during 2009-13 was as follows:

Table 2.12 – Staff position in research units

Year	Sanctioned Strength	Men in position	Vacancies	Percentage of vacancies
2009-10	568	403	165	29
2010-11	547	360	187	34
2011-12	542	362	180	33
2012-13	556	368	188	34

Note: The University did not furnish the vacancy position for the year 2013-14

It can be seen from the above table that the vacancies of research Scientists were not filled and ranged between 29 and 34 *per cent* during 2009-13. The shortage had increased from 165 posts in 2009-10 to 188 posts in 2012-13. The vacancy position of 2013-14 was not made available to audit. Government replied that filling up of vacancies was under active consideration.

2.2.7.2 Stoppage of research work due to non-release of funds

(a) For development of production and protection technologies for organic rice, the University sanctioned (2008-11) ₹50 lakh to Rice Section, Agricultural Research Institute, Rajendranagar under RKVY to identify suitable production, protection packages and conducting of field experiments in four years and to popularize the technology in the fifth year. Audit noticed that though the Rice Section identified suitable production and protection packages by 2010-11 after exhausting the total sanctioned amount of ₹50 lakh, the same could not be validated and fine-tuned through field trials, which required more funds. No assessment was made for the additional requirement of funds and no further amount was released. As a result, the project work was stopped midway. Thus, the objective of development of holistic organic farming package remained unachieved. Government replied that technology to the extent developed is being popularized. The reply was silent about completion of the projects.

(b) University sanctioned ₹70 lakh (August 2011) under RKVY to ARS, Perumallapally of Chittoor district for conducting research on development of (i) sugarcane varieties tolerant/resistant to yellow leaf disease, (ii) suitable

³⁴ 2009: 24; 2010: 19; 2011: Nil; 2012: 23; 2013: Nil

³⁵ State Seed Farms (SSF) / Hyderabad Agricultural Cooperative Association Ltd (HACA) / GoI

control measure to standardize production of disease free seedlings, (iii) diagnostic tools to detect yellow leaf disease, and (iv) management techniques to control yellow leaf disease. Audit noticed that even after project completion period of three years and expenditure of the entire amount of ₹64 lakh till March 2014, the research station could identify only standardized micro propagation protocols for production of disease free seedlings and developed diagnostic tools for detection of yellow leaf disease. The project could not be continued after March 2014 for want of further release of funds, though a proposal for its continuation was submitted to the University on which no action has been taken by it. However, the main objective of developing sugarcane varieties tolerant/resistant to yellow leaf disease and to develop management techniques to control yellow leaf disease were yet to be achieved. Thus, expenditure of ₹64 lakh was incurred on the project of which the objectives were only partially realized.

Government endorsed reply of the University that the projects would be continued on receipt of required funds.

2.2.7.3 Stoppage of research for want of farm land

A Research Station at Palamaneru in Chittoor district was conducting (since 1983) research studies³⁶ on agricultural crops suitable for high altitude areas of the district. Audit noticed that the research work was discontinued in 2006 due to transfer of its farm land to Sri Venkateswara Veterinary University in the same district, subsequent to bifurcation of University. Though ANGRAU repeatedly requested (Since 2006) the Sri Venkateswara Veterinary University to alienate part of land in its favour, the latter did not accept. ANGRAU therefore requested (2007) the District Collector for allotment of another government land near the research station. As the Government did not settle the issue even after 7 years, the already existing schemes of research on high altitude crops were not continued. Services of the Scientist meant for the above activities were being utilized in RARS, Tirupati for other activities, defeating the objective of research in high altitude cropping.

Government replied that request of the University for acquiring land was under consideration.

2.2.7.4 Non development of hybrid seeds

ICAR sanctioned (1989) a project 'development of a hybrid seed for Sorghum' (Jowar) under All India Coordinated Research Projects (AICRP) to Agricultural Research Station, Tandur (Rangareddy district) and the Station spent an amount of ₹97.40 lakh during 2009-13 on Sorghum from ICAR grant. Audit however noticed that even after 25 years of research, the Station had not developed any hybrid seed variety of sorghum. Research Station in its reply stated that research was hampered due to frequent transfer of scientists

³⁶ (i) development of new seeds suitable for hill areas (ii) testing tolerance of paddy to cold in hill area and (iii) Production technology such as optimum levels of fertilizers, pesticides, usage of machinery, disease management, weed management, etc. for other crops

(breeder). While eight years are approximately required for a scientist to develop the seed, the University did not retain the breeder scientist continuously for 8 years from 1991 to date hampering the research work in as much as 10 scientists (breeders) were changed on this work. Further, the post was vacant for one year during 2006.

Government replied that the University was instructed not to transfer scientists involved in specific research activities.

2.2.7.5 Non release of developed varieties

After completion of research and developing a new seed, the University approaches State Varietal Release Committee (SVRC) for official release of the seed. After the SVRC declares the seed as eligible for release, a notification by GOI is issued so as to regulate the quality of the seed during sale.

The Rice Research Unit, Bapatla developed (2012) a rice variety (BPT 2295). However, the seed was not yet released due to non-convening of meeting of SVRC by GoAP after 2012 denying its benefits to farmers.

Government replied that suitable directions were issued to convene SVRC meeting and to release the variety early.

2.2.8 Production and sale of breeder and foundation seed

After conducting research on development of new variety, a 'nucleus seed'³⁷ is developed by the research units of University. From the nucleus seed, the scientists develop 'breeder seed'³⁸, which is sold to indenting agencies. The agencies multiply the breeder seed into 'foundation seed'³⁹. From foundation seed the agencies produce 'certified seeds'⁴⁰, which are finally sold by the agencies to the farmers for sowing crops. Sometimes, the research stations of the University also undertake production of foundation seed. The deficiencies noticed in production and sale of breeder seed are discussed below.

2.2.8.1 Loss due to sale of breeder seed as grain

Out of 96740 quintals of breeder seed produced during 2009-14, the University could not dispose off 13021 quintals due to non lifting of seed (13001 quintals) from the stations by indenting agencies and loss of

³⁷ Nucleus seed is pure seed of improved/hybrid variety of two parental lines produced under supervision of the evolver of that variety

³⁸ Breeder seed is seed directly controlled by the originating or sponsoring plant breeding institution, or person, or designee thereof

³⁹ Foundation seed is seed which is the progeny of breeder of foundation seed produced under control of the originator or sponsoring plant breeding institution, or person, or designee thereof

⁴⁰ Certified seed shall be progeny of Breeder, Foundation or Registered seed so handled as to maintain satisfactory genetic purity and identity, and which has been acceptable to the Certifying agency

germination⁴¹ on account of improper storage of seed (19.75 quintals of Tellohamsa paddy in Rice Section, Rajendranagar). As a result, the University had to dispose off the seed for non-seed purposes at a lower rate than that of breeder seed, causing loss of ₹2.2 crore.

The Agriculture College Farm at Tirupati produced 17 quintals breeder seed and 6 quintals of foundation seed of Red gram (LRG-41) during Kharif 2011. Of this, only one quintal of breeder seed and 2.4 quintals of foundation seed were sold leaving a balance of 16 quintals of breeder seed and 3.6 quintals of foundation seed. Due to improper storage in farm godown resulting in pest attack, the seed did not achieve minimum germination percentage (December 2012) and the seeds were disposed off (September 2013) at non-seed rates which resulted in loss of ₹1.41 lakh.

In the following cases, the breeder and foundation seed produced by the research stations which were not lifted by indenters and became unfit for use for seed purposes was yet to be disposed off as non-seed:

- 41.70 quintals of breeder seed of black gram, red gram and green gram valuing ₹2.56 lakh remained undisposed with Regional Agricultural Research Station (RARS), Lam, Guntur district since 2009-10.
- 231.59 quintals of groundnut breeder and foundation seed produced during 2012-13 worth ₹20.15 lakh remained undisposed in RARS, Tirupati.

Government replied that efforts were being made to impose penalties on/blacklist the non-lifting agencies.

2.2.8.2 Non receipt of amounts for disposed seed

On receiving indents from APSSDC⁴² and Joint Directors of Agriculture for supply of breeder seed, the University supplied 2,836 quintals of seed (castor and ground nut) between 2012 and 2013 for which an amount of ₹1.76 crore was yet to be received from indenting agencies. Audit noticed that University did not collect any security deposit or the cost of seed before starting production of seed. As a result, the University was unable to recover the amount from indenting agencies after lifting the seed. Audit noticed that 25 *per cent* of breeder seed cost is being collected by GOI for the breeder seed produced by the institutes of GOI as advance from the indenters which is liable for forfeiture in case of non-lifting by the indenters, but the same system is not being followed by the University.

Government replied that University was instructed to collect the dues from indenting agencies and that the University decided to collect 25 *per cent* of cost of seed as advance from indenting agencies.

⁴¹ When more than 20 *per cent* of the seeds planted do not germinate, it is considered as loss of germination. Such seed is not used for seed purpose and is sold as a normal food grain

⁴² AP State Seed Development Corporation

2.2.9 Extension activities

After developing high yielding varieties of seeds, seeds which are resistant to diseases/extreme weather conditions, crop/production technologies, etc., through extensive research, it is important that the results of research reach the farmers. The University has an exclusive wing for popularizing the results of research by conducting training programmes and demonstrations to farmers and officials of Agriculture Department. Audit noticed the training programmes/demonstrations were not conducted as per plan:

- Dr.Y.S.R. district has 51 revenue mandals. Though District Agricultural Advisory and Transfer of Technology Centre (DAATTC), Kadapa achieved its targets fully during 2009-13, it did so by concentrating on farmers training programmes only in 19 mandals thereby neglecting the transfer of technology to the farmers of 32 mandals.
- DAATTC, Guntur conducted only one training programme during 2009-10 against a target of 10. It did not conduct any training programme in 2010-11 against the target of 11. However, targets were achieved during 2011-14.

In reply, Government stated that instructions were issued to the University to conduct required number of training programmes in future.

- There was significant shortage of staff in the extension units as shown below:

Table 2.13 – Staff position in Extension Units

Year	Sanctioned Strength	Men in position	Vacancies	Percentage of vacancies
2009-10	179	129	50	28
2010-11	179	129	50	28
2011-12	200	129	71	36
2012-13	215	128	87	40

Note: The University did not furnish the details for the year 2013-14

As seen from the above, the percentage of vacancies has been increasing every year and reached 40 *per cent* by end of 2012-13, which would have impact on the extension activities.

- The Zonal Research and Extension Advisory Council of the University for Southern Telangana Zone in its periodical review meetings (during 2009-13) on the work done by the various wings of the University identified 34 gaps (work to be done) (**Appendix 2.4**) in research and extension activities. Audit noticed that as of August 2014, the DAATT Centre at Rajendranagar, Hyderabad did not take remedial measures on 11 gaps pointed out by the Council, i.e. non-popularization of developed seed, indiscriminate use of fertilizers and pesticides by farmers, non-adoption of better agricultural practices by farmers, etc. Thus, the recommendations of the Advisory Council were not properly implemented.

University replied that the gaps would be attended to in collaboration with DAATT.

2.2.9.1 Lack of demand for new varieties

With a view to introduce improved varieties that are tolerant to diseases/pests/cold/high temperatures the university released, inter alia, seed of 21 varieties of rice, 3 varieties of maize, 3 varieties of soyabean, 8 varieties of groundnut during 2009-13. However, Audit noticed that production of breeder seeds of nine varieties (Rice: 2; Maize: 2; Groundnut: 2; and Soyabean: 3) was nil during the above period due to lack of demand as no indent from any organization/agency was received. In respect of other varieties also, the demand was poor since the University produced breeder seed of only 1-100 quintals for 13 varieties; 101-200 quintals for 4 varieties; 201-300 quintals for 4 varieties and 301-700 quintals for 4 varieties as shown in **Appendix-2.5**.

In the records scrutinized in audit, no mechanism is found in the University to review and analyze the reasons for lack of demand in respect of some of the newly released varieties and to take appropriate measures to popularize them in coordination with the Agriculture Department, so as to ensure that the benefits of research activities reach the farmers fully.

During exit conference, while accepting the audit observation, the University assured that a suitable mechanism would be instituted.

2.2.10 Financial management

The University's financial resources are grants (Plan and Non-plan) from GoAP, GoI, funds from ICAR and University's internal receipts like fees from students, sale proceeds of seeds, fees from companies towards evaluation of agricultural inputs, etc. During 2009-13, the University received a total amount of ₹1731 crore and incurred an expenditure of ₹1576 crore.

The deficiencies noticed in financial management are discussed below.

2.2.10.1 Large variations between budget estimates and actuals

Audit noticed large variations between the budget estimates and actuals in both receipts and expenditure during 2009-13, as shown below:

Table 2.14 – Position of variations between budget estimates and actuals

(₹ in crore)

Year	Receipts			Expenditure		
	Budget estimates	Actual	Variation (% variation)	Budget estimates	Actual	Variation (% variation)
2009-10	189.15	290.77	(+) 101.62 (54%)	243.18	259.78	(+) 16.60 (7%)
2010-11	294.93	477.28	(+) 182.35 (62%)	294.93	449.00	(+) 154.07 (52%)
2011-12	390.14	483.11	(+) 92.97 (24%)	390.14	435.45	(+) 45.31 (12%)
2012-13	375.56	480.32	(+) 104.76 (28%)	375.56	432.21	(+) 56.65 (15%)
Total	1249.78	1731.48	(+) 481.70 (39%)	1303.81	1576.44	(+) 272.63 (21%)

Note: The receipts and expenditure particulars for 2013-14 were not furnished by University

Actual receipts and expenditure exceeded the budgeted amounts. Variation in receipts ranged from 24 to 62 *per cent* while the variation in expenditure ranged from 7 to 52 *per cent*.

Such large variations between the budgets and actual indicate unrealistic budgeting and lack of budgetary controls. Government replied that university was being advised to prepare realistic estimates in future.

2.2.10.2 Non reconciliation of cash balance

Audit noticed that three test checked units (ARI, Rajendranagar; SV Agricultural College, Tirupati; and Agricultural College, Aswaraopet) did not reconcile the cash balances of their cash books with that of bank during the period 2009-13, though there were discrepancies in closing balances. Government replied that instructions were being issued to University to rectify the defects.

2.2.10.3 Submission of incorrect Utilization Certificates

In respect of the amounts received from Rastriya Krishi Vikas Yojana (RKVY), ICAR and GoI, the University is required to submit utilization certificates (UCs) for each year. Audit noticed the following:

- The University received (March 2013) an amount of ₹19.65 crore of ICAR special grant for developmental activities. Though it incurred expenditure of only ₹75 lakh up to March 2014, it furnished UC for the entire ₹19.65 crore in June 2013 itself. Audit noticed that the works did not even commence at the time of furnishing the UC.

Audit noticed that the unit offices submitted incorrect expenditure figures to the University in the following cases:

- An amount of ₹50 lakh of ICAR special grant was given (March 2013) to College of Food Science and Technology, Pulivendula for procuring equipment. However, the College furnished utilization report for ₹49.76 lakh in July 2013 by drawing a demand draft in favour of the supplier without actual receipt of equipment.
- An amount of ₹56 lakh (RKVY grant) was given to ARS, Perumallapally during 2011-12. The station spent only ₹31 lakh, but furnished expenditure report for ₹40 lakh after drawing a DD in favour of a private firm for ₹9 lakh towards construction of green house. The work was entrusted to another firm at a later date in March 2013, whereas the UC was submitted for full amount in September 2012.

Government replied that UCs for full amount were being furnished to ICAR initially on receipt of funds and Audited UCs were submitted after incurring expenditure but the above procedure was incorrect.

2.2.10.4 Unfruitful expenditure due to non-completion of construction work

- University sanctioned ₹40 lakh to KVK, Nellore for construction of residential quarters. The work was taken up in June 2009. After incurring an expenditure of ₹40 lakh (July 2010), the estate officer reported to the University that the work was completed. Audit noticed from the records of KVK that the buildings were not actually completed, as essential items such as flooring, painting, fixing of doors and windows, electrical work, etc. were not taken up, rendering the buildings unfit for occupation. Thus, the expenditure of ₹40 lakh remained unfruitful nearly for four years.
- The University sanctioned (November 2009) ₹one crore under ICAR development grant for construction of Education Museum on 3rd floor over the existing building of SV College of Agriculture, Tirupati. An amount of ₹1.16 crore was spent on construction and the work was stopped (December 2012) without completing flooring, water supply and sanitation, electrical work, doors, etc. Non completion of work even after five years of its sanction resulted not only in non establishment of museum but also the expenditure of ₹1.16 crore remained unfruitful.
- The farm of Agriculture College, Bapatla, meant for conducting practicals by students was getting inundated due to rains causing submergence of farm. University therefore, sanctioned (February 2009) ₹28 lakh, for constructing a 1520 meter long bund to prevent rain water entering into field and released ₹11 lakh to Estate Officer. After constructing 807 meters, the Estate Officer stopped (February 2010) further work for want of funds. Thus, the risk of inundation was not removed even after five years of sanction of work.
- At the instance of GoAP, the AP Industrial Infrastructure Corporation, Kadapa allotted (June 2010) 32.63 acres of land in Chinna Rangapuram village of Pulivendula mandal to the University for establishing College of Food Science and Technology. Audit noticed that even after making payment (March 2013) of ₹80 lakh, registration of the land in favour of Comptroller of University did not take place due to non-payment of registration charges (₹3.62 lakh). Meanwhile, some of the buildings for college, hostel and administrative offices were constructed on the land which was not transferred/registered in the name of University.

Further, construction of the main college building, which was taken up (October 2010) at a cost of ₹4.29 crore for completion by October 2011, was not completed as of July 2014 due to paucity of funds. This resulted in denial of adequate accommodation to students. Besides, the expenditure of ₹3.3 crore incurred on the building remained unfruitful.

- To cater to the research needs at RARS, Lam, Guntur district, an overhead tank was proposed for construction during January 2012 (cost: ₹12.12 lakh). Though the work was entrusted to a contractor in June 2012 the same was not executed. The Estate Officer did not take any action to terminate the contract and to entrust the same to another contractor resulting in not only denying facilities of research but also blocking up of funds besides possible cost escalation.

Government endorsed the reply given by University that efforts were being made to complete the above works in the next financial year.

- To ensure good quality of work GoAP directed (2006) all the authorities of the Universities to provide information relating to estimates, tenders, agreements and other relevant information/data to the Quality Control (QC) Wing of Road & Buildings Department and transfer an amount of 0.5 *per cent* of estimated costs to the QC Circle of R&B Department. Though this provision was made in the estimates, the University had neither transferred the amounts to R&B Department nor were QC checks conducted by R&B Department. Thus, there was no assurance that the works executed (more than 747 works worth ₹66 crore) by University during last five years were of required quality standards.

Government endorsed reply of the University that initially, the staff of R&B Department conducted QC checks but later stopped inspecting the University's works. It was also replied that quality of works was being ensured by its field engineers during execution. But the above procedure is contrary to Government orders.

2.2.11 Estate management

For execution of civil (construction and maintenance) works, the University had an engineering department headed by 'Estate Officer' who is assisted by three Executive Engineers in three Divisions (at Rajendranagar, Tirupati and Bapatla). Audit noticed deficiencies in estate management of the University, as under:

2.2.11.1 Lack of monitoring on University's assets

University holds farm lands, buildings, etc. in its headquarters at Hyderabad and unit offices/research stations spread across the State.

Audit noticed that an Assets Register in respect of the assets located in its campus at Hyderabad was being maintained by the University. However, Asset Registers for the assets available with colleges, research stations, DAATT centres, KVKS, etc. located across the State were not being maintained either by the University or by the respective units, indicating lack of monitoring.

An extent of 372 acres of land was leased to various organizations. However, the University neither maintained a Register of Leases nor furnished the lease agreements and details of lease amounts realizable, collected and balance to audit.

During exit conference, it was replied that action would be taken to maintain Assets Registers.

2.2.11.2 Non maintenance of buildings

Fourth Deans Committee recommended that the University allocate ₹5 lakh or one *per cent* of present infrastructure cost, whichever is higher in the budget estimates for maintenance of buildings. However, no such allocations were being made in the budget estimates for their maintenance/repairs.

Audit noticed that in College of Agriculture campus at Bapatla, 14 educational buildings worth ₹3.26 crore were in bad and dilapidated condition and 7 buildings worth ₹70 lakh were facing water leakages. Besides, 14 staff quarters (out of 16) were lying vacant due to lack of maintenance.

Similarly, 9 out of 17 staff quarters meant for the staff of RARS, Jagtial were lying unoccupied since 2009-10 due to poor maintenance.

It was noticed that six test checked research stations and KVKs⁴³ did not have compound walls around their premises to prevent trespassing, encroachments or damages to crops under research/demonstrations.

Government replied that funds would be provided for renovation/reconstruction of buildings shortly.

2.2.12 Internal Controls and Monitoring

University prescribed financial powers to its various officers for purchase, tendering, etc. However, internal control mechanism was weak as discussed below.

2.2.12.1 Split purchases to avoid sanction of competent authority

As per delegation of financial powers, Associate Dean has to follow open tender system for purchases valuing more than ₹5 lakh. However, the Associate Dean, College of Food Science and Technology, Pulivendula purchased (March 2013) equipment worth ₹19.96 lakh by splitting up the value below ₹5 lakh, thereby avoiding tender process.

Further, the Associate Deans were competent to sanction purchase of furniture up to ₹0.80 lakh at a time. However, the College procured (September 2013 and January/February 2014) furniture worth ₹5.27 lakh in small lots by splitting the purchase orders so as to avoid codal formalities.

Government replied that instructions were being issued to the University to follow financial procedures.

2.2.12.2 Stock entries for stock not actually received

(a) Associate Dean, Agriculture College, Bapatla placed (February and March 2014) purchase orders worth ₹77.33 lakh with AP State Agro Corporation Limited, Guntur for supply of equipment required for development activities of seed production, etc. Audit noticed that even without receipt of equipment worth ₹44.34 lakh, entries were made in the Stock Register that all items were received in March-May 2014 and the full amount of ₹77.33 lakh was paid (July 2014) to agency. Equipment valuing ₹24.49 lakh was received later in August 2014 and ₹19.85 lakh worth equipment was not received yet (August 2014).

⁴³ ARS, Tandur; KVK, Wyra; Agriculture College, Aswaraopet; Agriculture College, Polytechnic and RARS at Jagtial

(b) Similarly, in the College of Food Science and Technology, Bapatla, Audit noticed that stock entries for ice cream making equipment valued at ₹28.86 lakh were made in August 2013 itself while the equipment was actually received in November 2013.

Government stated that instructions were issued to the college for proper maintenance of stock register.

2.2.12.3 Internal Audit system

The University had an Internal Audit (IA) wing functioning under the Comptroller to audit its units and to rectify inaccuracies and other irregularities, if any. However, the IA wing audited only 19, 54, 52 and 19 units respectively during the four years from 2010-11 to 2013-14, out of the total of 154 units under the University. The shortfall was mainly due to shortage of staff in IA wing. As against the requirement of three teams (each consisting of one superintendent, two Senior Assistants and one Junior Assistant/Typist), the IA wing was operating with only one audit team (with two superintendents).

Due to low coverage of internal audit, there was no assurance to the management that the departmental rules, regulations and procedures were being complied with. Government endorsed the reply of the University that action would be taken to strengthen IA wing by posting required staff.

2.2.12.4 Lack of response to State Audit

Audit of the University along with its 154 units is being conducted annually by the State Audit Department of GoAP. Audit noticed that as of July 2014, 1270 comments issued during 2009-12 by State Audit were pending due to lack of response from the unit officers to the instructions of the University to furnish prompt replies to audit observations. This shows lack of timely remedial measures on the irregularities pointed out by State Audit. Government replied that instructions were being issued to University for timely replies and settlement of audit comments.

2.2.13 Conclusion

The academic, research and extension activities of the University suffered from shortage of teaching staff and scientists. The 'Model Act' which was aimed at ensuring good governance and academic growth was yet to be enacted and implemented. There were cases of establishment of new colleges without adequate infrastructure and teaching staff, inbreeding of teachers, inadequate facilities in colleges and hostels, etc. The University did not establish distance education centres. Though the University has been conducting research and releasing new varieties of seeds, there were deficiencies like non-completion/stoppage of research projects due to transfer of scientists, non-release of funds, etc. There was insufficient monitoring over the University's assets.

2.2.14 Recommendations

Audit recommends for consideration that

- *Immediate steps be taken to fill up the large number of vacancies existing in teaching, research and extension staff to improve the performance of the University.*
- *The University see that adequate teaching posts are sanctioned to all the colleges and necessary infrastructure facilities are provided in the colleges and hostels.*
- *Efforts be made to establish distance education facilities so as to improve the reach of academic activities to rural students.*
- *University improve the monitoring on its research projects to ensure that projects are not stopped midway and achieve their intended results.*
- *University put in place a mechanism to review and analyze the reasons for lack of demand in respect of some of the newly released varieties of breeder seeds and to take appropriate measures to popularize them in coordination with the Agriculture Department.*
- *University ensure that its budget estimates are prepared realistically to avoid wide variations between budget estimates and actual.*
- *University put in place a suitable mechanism to inventorize and monitor the assets available in all its constituent colleges and research units.*

Chapter - 3

Compliance Audit

Chapter-3

Compliance Audit

Industries and Commerce Department

3.1 Andhra Pradesh Khadi and Village Industries Board

3.1.1 Introduction

With an objective of development of Khadi and Village Industries in the State, Andhra Pradesh Khadi and Village Industries Board (APKVIB) was established (1959) under APKVIB Act - 1958. For carrying out the purposes of the Act, Government of Andhra Pradesh (GoAP) made APKVIB Rules, 1969. As per the Act, major functions of the Board were:

- To plan, organize, promote marketing and implement programmes for development of Khadi and Village Industries;
- To assist institutions carrying on Khadi or other Village industry by providing loans and other assistance;
- To conduct survey or assess the potentialities of Cottage and Village industries and scope of their development with a view to promote industries to eliminate unemployment;
- To build up reserve of raw materials and implements and to supply them to persons engaged in Khadi/Village Industries at economical rates;
- To promote, encourage and organize co-operative efforts among manufacturers of Khadi and Village Industries;
- To plan and organize training for persons with a view to equip them with necessary knowledge for starting/carrying on Khadi/Village industries; etc.

The Board implements Centrally Sponsored Schemes in the field. Operations of the Board are carried out from its main office at Hyderabad and its district offices in 22 districts headed by Deputy/Assistant Directors. The Board has been receiving Grants from GoAP and Khadi and Village Industries Commission (KVIC) of Government of India (GoI).

3.1.2 Audit objectives and scope

Audit of the Board was conducted (December 2013 - February 2014 and June 2014) covering its activities during the period from 2009-14 with a view to assess whether:

- (i) the Board planned and carried out its activities in line with the functions prescribed in APKVIB Act;
- (ii) programmes/schemes envisaged were implemented and desired results achieved;
- (iii) Financial management was sound and efficient; and
- (iv) monitoring and control mechanisms were in place and were effective.

Records at Board's Head Office and eight selected district offices¹ were test checked in audit.

Audit findings

3.1.3 Operational spread of the Board

The APKVIB Act stipulated several functions of the Board, as stated in para 3.1.1. However, Audit noticed that the operations of the Board, during the period covered by Audit, did not include all the functions, but were limited to implementation of the centrally sponsored scheme of 'Prime Minister's Employment Generation Programme (PMEGP)', operation of Khadi Gramodyog Maha Vidyalaya for conducting training programmes relating to Khadi and village industries, and recovery of loans disbursed under old schemes of 'Pattern Approach Programme' and 'Consortium of Bank Credit'.

As regards the other functions stipulated in the Act, it was noticed that:

- Though as per the APKVIB Act, the Board was to (i) conduct survey/make assessment of the potentialities and scope of Khadi and Village Industries (KVI) with a view to promote such industries and eliminate unemployment; (ii) Encourage/promote research in this field and study the problems relating to KVIs; and (iii) promote cooperative efforts among KVI manufacturers, it did not undertake any such studies/ research/ activities. The Board did not have any details/database of various KVIs in the State and the persons engaged in each type of industry, which could be used for planning purposes.
- The board neither built up any reserve of raw materials and implements nor supplied them to persons engaged in KVIs, as required under the Act. It was stated (September 2014) that there was no Central or state sponsored scheme to build a reserve of raw material, the entrepreneurs were mainly using locally available raw materials and hence there was no demand to the Board.
- As regards providing financial assistance to KVIs, loans were provided only under PMEGP with GoI funds and no schemes were taken up independently by the Board/State Government.

3.1.4 Preparation of Annual Programme of Schemes/works and budget estimates

APKVIB Act and Board Rules stipulated² that the Board shall prepare and submit to Government before 30th September every year an annual programme of schemes and works to obtain necessary sanctions. Keeping in view the Annual Plan, Annual Budget Estimates are to be prepared³ showing receipts

¹ Chittoor, Kurnool, Medak, Prakasam, Ranga Reddy, Visakhapatnam, Warangal and West Godavari

² Section 13 of the Act and Rule 21 (1) of the Board Rules

³ As per Section 20 of the Act and Rule 11 of Board Rules

and capital/revenue expenditure in two separate parts, viz. (i) for expenditure to be incurred in respect of schemes financed by the Commission and (ii) for expenditure to be met from establishment grant given by the Government.

Audit observed that no such comprehensive annual programme of schemes/works was prepared by Board during the last five years. Board was preparing/submitting budget estimates covering only the non-plan expenditure like salaries and contingent expenditure. No estimates were prepared in respect of PMEGP and recovery of outstanding loans for old schemes like 'Pattern Approach Programme' and 'Consortium of Bank Credit' which were implemented up to the year 1994-95 and 1997-98, respectively.

Board replied (September 2014) that Annual programmes were not being prepared as it was implementing PMEGP with KVIC funding. The reply is contrary to the Act provisions. Further, there was no justification for non-preparation of annual programmes/estimates in respect of recovery of loans.

3.1.5 Implementation of PMEGP

Prime Minister's Employment Generation Programme (PMEGP) is a credit linked subsidy scheme, fully funded by GoI, introduced⁴ in August 2008. Khadi and Village Industries Commission (KVIC) Mumbai was the nodal agency. At State level, the Board (APKVIB), being one of the three implementing agencies⁵, implements the programme. Under the programme, subsidy in the form of Margin Money (MM) is given to individuals/Self Help Groups/institutions for setting up new ventures/projects/micro enterprises under manufacturing with maximum project cost of ₹25 lakh and business/service sectors with maximum project cost of ₹10 lakh. The balance project cost is met from beneficiary's own contribution and loan provided by financing bank⁶. The percentages of MM eligible, beneficiary contribution and loan are shown below:

Table 3.1 – Percentage of beneficiary contribution and eligible Margin Money

Category of beneficiaries	Percentage of Beneficiary contribution	Percentage of Margin Money in Project Cost		Percentage of loan (excluding Margin Money)	
		Urban	Rural	Urban	Rural
General Category	10	15	25	75	65
Special Category ⁷	5	25	35	70	60

Source: PMEGP guidelines

The total project cost including margin money but excluding beneficiary's contribution is provided by financing banks to the selected applicants as term

⁴ by merging two earlier schemes viz., 'Prime Minister's Rozgar Yojana' and 'Rural Employment Generation Programme'

⁵ along with District Industries Centres (DICs) in co-ordination with KVIC's State directorates

⁶ KVIC periodically releases lump sum amounts of MM to the Nodal Banks (20 banks identified in the State). Financing Banks are the local branches of the Nodal Banks which sanction loans to the selected beneficiaries for setting up units

⁷ SC / ST / OBC / Minorities / Women / Ex-service men / physically challenged, etc.

loan. After release of first installment of loan, the financing bank submits claim for release of MM. The Board processes the claim, sanctions MM and authorizes the nodal bank to release MM to the financing bank. The MM so released is kept in a term deposit⁸ with the bank and adjusted against the loan after a period of three years.

Since inception of the scheme (2008-09), the Board disbursed a total MM of ₹151.78 crore to 5148 beneficiaries till March 2014. Audit observations on implementation of the Scheme are as follows:

3.1.5.1 Selection of beneficiaries

As per Scheme Guidelines, project proposals shall be invited at district level from the potential beneficiaries through media publicity. A District level Task Force Committee (DTFC) consisting of representatives from KVIC, the Board, DICs and Lead Bank Managers and headed by the District Magistrate / Deputy Commissioner/Collector concerned will scrutinize, shortlist, interview and select the beneficiaries. Number of persons who applied, those appeared for interview, number of applications rejected and recommended during the period 2009-14 in the test checked districts are as shown below:

Table 3.2 –Details of applications received, applicants interviewed, applications rejected, recommended and units for which loans were sanctioned in test checked districts during 2009-14

District	Number of Applications received	Applicants Absent for interview	Number of Applicants interviewed	Number of Applications rejected (Percentage)	Applications Recommended	Number of units sanctioned loan (Percentage out of recommended)
Chittoor	896	297	599	224 (37.40)	375	76 (20.27)
Kurnool	683	217	466	44 (9.44)	422	158 (37.53)
Medak	590	186	404	84 (20.79)	320	96 (29.69)
Prakasam	1464	500	964	198 (20.54)	766	256 (33.42)
Ranga Reddy	561	172	389*	72* (18.50)	315*	146 (46.35)
Visakhapatnam	488	95	393	38 (9.67)	355	163 (45.92)
Warangal	1227	344	883	178 (20.16)	705	266 (37.73)
West Godavari	1320	378	942	422 (44.80)	520	313 (60.19)
Total	7229	2189	5040	1260 (25.00)	3778	1474 (39.00)

*discrepancy of 2 in the figures furnished by department

Source: All the information/data mentioned in this report is as per records of the Board, unless mentioned otherwise

⁸ No interest is paid on this TDR and no interest is levied on the corresponding amount of term loan

As seen from the above, on an average 25 per cent of applications were rejected. Percentage of rejection was 44.8 in West Godavari district followed by 37.40 in Chittoor district. Though KVIC guidelines stipulated that the reasons for rejection of applications shall be recorded in the minutes of DTFC meeting 'in clear terms', specific reasons were not recorded in any of the test checked districts. No reply was furnished on this issue.

Audit noticed in Prakasam district that the Deputy Director selected 25 units with MM worth ₹1.93 crore between April and June 2010, which was ratified by the District Collector even prior to the convening of DTFC meeting (July 2010). These units were, then, included in the final list of beneficiaries. Board replied that these units were subsequently approved by DTFC. However, this was against the prescribed procedure.

Thus, transparency in selection process was not ensured.

3.1.5.2 MM disbursed vis-à-vis units sanctioned and employment generated

PMEGP guidelines (Para 23.1) stipulated estimated targets in terms of amount of MM to be released and employment to be generated at an MM of ₹12000 per employment. Every year, KVIC was fixing targets for sanction of MM, establishment of units and employment generation. As per the financial and physical targets fixed for AP State by KVIC, the cost per employment during 2009-14 ranged between ₹12000 and ₹28744. Though the Board has consistently been exceeding the targets for sanction of MM every year by seeking and getting additional funds from KVIC, there was a shortfall in employment generation during the period 2009-14. The actual employment generated vis-à-vis the amount of MM disbursed during last five years in the State is shown in the table below:

Table 3.3 – Details of employment generated vis-à-vis MM disbursed

Year	Target for sanction of MM (₹ in lakh)	MM actually released (₹ in lakh)	MM per employment as per targets (₹)	Employment to be generated	Achievement	Shortfall in employment generation	Percentage of shortfall
2009-10	1595.96	4254.79	12000	35456	14262	21194	59.78
2010-11	1915.15	3395.52	12000	28296	10943	17353	61.33
2011-12	1560.99	1724.84	14000	12320	5415	6905	56.05
2012-13	2156.96	2537.48	28744	8828	7702	1126	12.75
2013-14	1448.75	1854.33	16598	11172	5061	6111	54.70
Total	8677.81	13766.96		96072	43383	52689	54.84

Board replied that MM was sanctioned in line with Para 9 of PMEGP guidelines. The action of the Board in sanctioning the MM under Para 9 is not correct in as much as Para 9 stipulates the maximum limit of 'capital cost' of the project per employment as ₹1 lakh in plain areas and ₹1.5 lakh in hilly areas. The targets in respect of MM and employment generation are required to be fixed under Para 23 of the guidelines.

Audit made a comparison of the cost in terms of MM per unit and cost per employment in the State in the last five years against the national averages taken from the KVIC's official webpage⁹ on PMEGP:

Table 3.4 – Average cost per unit and per employment vis-à-vis national average

Year	Average MM per Unit (₹)		Average MM per employment (₹)	
	AP	National	AP	National
2009-10	299212	186334	29833	17941
2010-11	275387	181636	31029	18543
2011-12	334271	191864	31853	21348
2012-13	272554	189330	32946	25236
2013-14	328782	231755	36640	32859
Five year average	295048	188812	31734	21002

It was observed that the average cost per unit as well as the average cost per employment generated during 2009-14 in the State were far higher than the national averages.

3.1.5.3 Low coverage of special categories

KVIC has been stipulating (since December 2008) that coverage of prescribed percentages of special categories like SC, ST, OBC, Minorities, etc. has to be ensured while implementing the programme.

During the period 2009-14 a total of 4666 units were sanctioned under the programme by the Board and total amount of ₹137.67 crore was disbursed as MM. The targets fixed by KVIC in respect of the above mentioned social categories and actual coverage under the programme during this period was as follows:

Table 3.5 – Targets and achievement in coverage of various social categories under PMEGP

Category	Target percentage of beneficiaries	Achievement percentage of units sanctioned	(+) Excess (-) Shortfall	Achievement percentage of MM released	(+) Excess (-) Shortfall
SC	15	10.87	(-) 4.13	5.88	(-) 9.12
ST	7.5	4.20	(-) 3.30	2.01	(-) 5.49
OBC	27	44.26	(+) 17.26	38.48	(+) 11.48
Minorities	5	5.51	(+) 0.51	5.40	(+) 0.40
PHC	3	0.96	(-) 2.04	0.79	(-) 2.21
Ex-Servicemen	1	0.26	(-) 0.74	0.31	(-) 0.69
Women	30	43.40 (overall)	(+) 13.40	55.23	(+) 25.23

It can be seen from the above table, while achievement in terms of units sanctioned/established and also MM released exceeded the targets in respect

⁹ www.kviconline.gov.in/pmegp/pmegpweb/

of OBC, Minorities and Women categories, there was shortfall in respect of SC, ST, PHC and Ex-Servicemen categories.

In test checked districts, it was noticed that the District level Task Force Committees were recommending substantial number of applications under each category. But, loans were being sanctioned by banks to only to some applicants at their discretion. When the details of procedure followed for ensuring sanction of prescribed percentage of loans to the special category applicants were called for, the Board gave a general reply that after forwarding the loan applications, the district officers of the Board pursued with the banks for sanction of loans and also in different forums like District Coordination Committee meetings and Mandal Level Bankers Committees, etc., for coverage of special categories. However, no documentary evidence in support of the above reply was found in the records of the test checked district offices.

3.1.5.4 Monitoring of utilization of Margin Money

Non-obtaining of Utilization Certificates: The MM funds received from KVIC are released by the Board to nodal banks, which in turn release them to the financing banks for sanction and disbursement of loans to selected beneficiaries. After release of MM to nodal banks, the Board has been furnishing utilization certificates (UCs) to KVIC without waiting for actual sanction and disbursement of loan by financing banks. Board has been obtaining UCs from the financing banks and District Offices for the MM placed in TDRs after disbursement of loan.

Audit observed that out the total MM of ₹151.78 crore released to financing banks during 2008-14, UCs pertaining to a substantial MM of ₹46.71 crore (30.77 per cent) were still pending from financing banks/district offices as of March 2014, as shown below:

Table 3.6 – Status of receipt of utilization certificates for MM released during 2008-14

(₹ in crore)

Year	MM released		UCs received		Balance UCs	
	No. of Units	Margin Money	No. of Units	Margin Money	No. of Units	Margin Money
2008-09	482	14.11	467	13.56	15	0.55
2009-10	1422	42.55	1322	39.44	100	3.11
2010-11	1233	33.96	1112	29.87	121	4.09
2011-12	516	17.25	434	13.73	82	3.52
2012-13	931	25.37	393	8.47	538	16.90
2013-14	564	18.54	0	0	564	18.54
Total	5148	151.78	3728	105.07	1420	46.71

Non-furnishing of UCs by banks/district offices indicates lack of effective pursuance with the banks and lack of monitoring in ensuring that the MM released was actually kept in Term Deposits by banks against respective projects and utilized for intended purposes.

Board replied that shortage of staff was the main reason for non-furnishing of UCs and that instructions were issued to District Offices for furnishing UCs expeditiously.

Non-adjustment of Margin Money: As per the programme guidelines¹⁰, the MM released and kept in term deposit by the financing bank was required to be credited to the borrower's loan account after three years from the date of release of first installment to the borrower.

Audit observed that MM of ₹20.36 crore (60.83 per cent of total MM) released during 2008-10 pertaining to 720 beneficiaries (63.25 per cent of total beneficiaries) remained unadjusted as of May 2014 (delays ranging up to three years), as shown below:

Table 3.7 – Status of adjustment of MM released during 2008-10

(MM amount ₹ in crore)

Year	Sanctioned		Adjusted		Balance		percentage of unadjusted MM	
	Units	MM sanctioned	Units	MM adjusted	Units	MM not adjusted	Units	MM adjusted
2008-09	482	14.11	390	11.37	92	2.74	19.09	19.42
2009-10	1422	42.55	784	24.93	628	17.62	44.16	41.41
Total	1904	56.66	1174	36.30	720	20.36	63.25	60.83

Board did not analyze the reasons for non-adjustment of such huge amount of MM. No reply was furnished on the above audit observation.

3.1.5.5 Physical verification of units

PMEGP guidelines stipulated that 100 per cent physical verification of sanctioned units would be done by KVIC, through the agencies of State Government and/or, if necessary by outsourcing. Banks, DICs and the KVIB were to coordinate and assist KVIC in ensuring this. KVIC appointed two third party agencies for the years 2008-10 and 2010-12 for conducting physical verification of units. The status of physical verification as of May 2014 and results thereof are as shown below:

Table 3.8 – Status of physical verification of units sanctioned during 2008-12

Year	Sanctioned units	Reports yet to be received	Reports received	Status of Units as per third party reports		
				Working units	Units for which negative reports were given*	Cancelled loans
2008-09	482	15	467	411	56	-
2009-10	1422	88	1334	1272	62	-
2010-11	1233	114	1119	1043	72	4
2011-12	516	100	416	397	16	3
Total	3653	317	3336	3123	206	7

* Negative reports include units not set up, not working, not traceable; etc. The Board did not furnish the category wise break-up of these units

¹⁰ para 11 (ii) (m) of the guidelines

It can be seen that out of 3336 units for which reports were received, 206 units were given negative reports, i.e. units not set up, not working, not traceable, etc.

Audit observed that the Board simply forwarded these physical verification reports to the district offices and did not obtain reports from them to analyze reasons for the subsidized units not being set up or becoming defunct to enable them to take remedial action. Further, as per instructions issued (October 2008) by KVIC, in respect of the units not working, the Board has to advise the financing bank to remit back the subsidy amount. The details of the amounts are not ascertainable, as the Board could not furnish the information pertaining to adjustment of MM in respect of non-working and non-traceable units, though specifically called for by Audit. Thus, it was clear that the Board did not monitor this aspect.

Further, in case of non-traceable units, First Information Report (FIR) was to be lodged with Police in consultation with the local empanelled advocate. However, the Board did not have the details as to whether FIRs were lodged or not (March 2014).

Board replied that the physical verification reports were forwarded to District Offices and Board had called back the MM in 38 cases. The reply was silent on actual remittance of MM to the Board in the above cases and also on the action taken in respect of the remaining 168 negative reports.

3.1.6 Khadi Karyakarta course

On the instructions of KVIC, the Board proposed (December 2008) introduction of Khadi Karyakarta Course¹¹ to train artisans to improve their skills in Khadi spinning/weaving on improved Charkas and cradle looms. For this purpose, the Board purchased (February 2011) ten 'New Model Cotton Charkas (spindles)' and five 'Gramalaxmi' looms at a cost of ₹4.84 lakh and spent ₹11.64 lakh on repairs to buildings of KGMV (Khadi Gramodyog Maha Vidyalaya) for conducting Khadi Karyakarta Training.

Audit observed that KGMV conducted (February-December 2011) only one training programme so far. As against 25 trainees contemplated per batch, only 10 trainees were enrolled and six had completed training. No further programmes were conducted and the spindles and looms are lying in idle condition (December 2014), rendering the expenditure incurred thereon unfruitful. No reason was provided by the Board for such low demand for training, despite being called for in audit.

3.1.7 Financial Management

3.1.7.1 Poor recovery of loans given under old schemes

It was noticed that the Board's efforts for recovery of loans provided under two centrally sponsored schemes implemented earlier for promotion of village industries in the State were deficient:

¹¹ in its departmental training institute Khadi Gramodyog Maha Vidyalaya (KGMV), Rajendranagar

The Board had provided loan assistance of ₹81.04 crore to 1,38,864 individuals, 2,309 Co-operative Societies and 720 institutions for setting up village industries under the centrally sponsored 'Pattern Approach Programme' which was implemented up to the year 1994-95. At the beginning of 2009-10, an amount of ₹50.15 crore was unrecovered from beneficiaries by the Board. During last five years, Board had recovered only ₹0.68 crore¹² leaving a balance of ₹49.47 crore still unrecovered (March 2014).

The Board had implemented the centrally sponsored 'Consortium of Bank Credit' programme intended for creation of two million jobs in Khadi and village sector and disbursed loans of ₹24.17 crore and MM of ₹9.48 crore to 1157 beneficiaries during 1997-98. As of March 2014:

- An amount of ₹46.16 crore (principal loan: ₹11.06 crore, interest: ₹22.72 crore, penal interest: ₹12.38 crore) was due to be recovered from 743 beneficiaries. Out of these, 567 cases were referred to Revenue Department for effecting recoveries under AP Revenue Recovery Act.
- Besides, MM of ₹1.99 crore released to 359 beneficiaries but not utilized was also pending to be recovered.

Board did not have the details of defaulting units, whether they are physically available/functioning or not. The Board replied that higher recoveries could not be affected due to shortage of staff, which is a fact as highlighted in para 3.1.8. Thus, the recovery of outstanding loans is doubtful.

3.1.7.2 Non-refund of interest earned on scheme funds

Though the PMEGP guidelines prescribed that the interest earned on Scheme funds should be transferred to KVIC, the Board had earned an interest of ₹6.36 lakh on the Scheme funds, but not transferred the amount to KVIC. Board replied that the interest amount would be refunded to KVIC.

3.1.8 Manpower management

It was noticed that there is acute shortage of staff in the Board. As against the total sanctioned strength of 329, the men in position decreased from 160 in the year 2009 to 88 as of March 2014.

It was also noticed that the vacancy position is more severe in the posts of 'field staff', as shown below :

Table 3.9 – Details of men-in-position in the post of 'field staff' during 2010-14

Name of the Post (sanctioned strength)	Men-in-position as at the end of March				
	2010	2011	2012	2013	2014
Senior Inspectors (27)	7	8	8	2	1
Junior Inspectors (37)	3	1	0	0	0
Revenue Inspectors (7)	0	0	0	0	0

¹² 2009-10: ₹0.09 crore; 2010-11: ₹0.12 crore; 2011-12: ₹0.15 crore; 2012-13: ₹0.25 crore; and 2013-14: ₹0.07 crore

As can be seen from above table, the number of men-in-position in field level posts has been low during the last five years and the number decreased from 10 in March 2010 to only one as of March 2014, as against the total sanctioned strength of 71. Such shortage would affect implementation and monitoring of various schemes at ground level.

As against the total of 241 vacancies, Board submitted (May 2013) proposals to Government for filling up 83 posts¹³ through AP Public Service Commission (APPSC). Government issued orders (September 2013) for filling up of vacancies of six Craft Teacher posts and three Lecture posts (in Khadi Gramodyog Maha Vidyalaya-KGMV) through the Departmental Selection Committee of the Board. As regards the remaining 74 posts, the Board is yet to amend its recruitment rules which stipulate filling up posts through its Departmental Selection Committee and Government is yet to give orders for recruitment through APPSC. Further, the Board did not take any action for filling up the seven posts of Revenue Inspectors, which were sanctioned specifically for strengthening recovery of outstanding loans.

Shortage of manpower has adverse impact on functioning of the Board, as the Board stated that staff shortage was the main reason for deficiencies like non-recovery of outstanding loans, non-obtaining of UCs from banks, etc.

3.1.9 Monitoring and control mechanisms in the Board

Existence of sound monitoring and control mechanisms and their effective functioning is essential to achieve the organizational goals. Audit observed the following deficiencies:

3.1.9.1 Constitution of the Board

APKVIB Act stipulates that the Board shall consist of four official members¹⁴, five non-official persons who have shown active interest in the production and development of Khadi or in the development of Village Industries of whom one member shall be nominated as the Chairman and another member as the Vice-Chairman by Government.

Audit observed that the APKVIB did not have a full Board as of March 2014 as Government did not constitute full Board for five years during 2008-13; it was constituted in July 2013, but was set aside (December 2013) by Honourable High Court. Government is yet to constitute the full Board.

Thus, non-constitution of full Board for nearly five long years (2008-13) has deprived the Board of expertise of persons with active interest in Khadi and Village industries with consequent adverse impact on its effective functioning.

¹³ Sr.Inspectors: 14, Jr.Inspectors: 37, Lecturers: 3, Crafts Teachers: 6, Stenographer: 1, UDCs: 17, LDCs: 5

¹⁴ (i) The Additional Director of Industries; (ii) Joint/Deputy Secretary to Government in the Industries and Commerce Department; (iii) Joint/Deputy Secretary to Government in the Finance & Planning (FW) Department; and (iv) Chief Executive Officer of KVIB

3.1.9.2 Board Meetings

As per APKVIB Act, the Board shall meet at least once in two months, i.e. a minimum of six meetings every year. Further, as per Section 7(4) of the Act, a copy of agenda and proceedings of the meeting shall be forwarded to Government.

Audit observed that during the period covered in audit, the Board, which consisted of only official members, held only two to four meetings per year. However, the copies of agenda and proceedings of these meetings were not forwarded to Government.

3.1.9.3 Preparation of Annual Reports

As per Section 22 of the Act, Board shall prepare an Annual Report giving a true and full account of its activities during the previous year and forward to Government. The Government shall cause the same to be laid on the table of the Legislative Assembly of State.

Audit observed that though the Annual Reports for the years from 2008-09 to 2012-13 were prepared, these were not forwarded to Government for placing them before the Legislature.

It was replied that the Annual Reports would be placed before the Board for approval, as and when the Board is constituted and would be sent to Government for placing before Legislature.

3.1.9.4 Accounting and Audit issues

Audit observed the following deficiencies in preparation of accounts and audit of the Board:

Board has not taken any corrective measures on the following issues, despite being repeatedly pointed out in Separate Audit Reports every year:

- The Board was not maintaining any Register of Assets and did not conduct physical verification of Fixed Assets in the last five years to ensure their physical availability and ascertain their status.
- Though the Board has an Internal Audit Officer on its rolls, his role was limited to only pre-check of bills and there was no practice of conducting internal audit either at head office or at district offices.
- The Loan Ledgers were not being updated by drawing the principal and interest due from the beneficiaries in respect of earlier schemes¹⁵.
- Confirmation of balances from Sundry Debtors and Sundry Creditors was not being obtained.

Annual accounts for the years for 2000-11 audited by Comptroller and Auditor General of India¹⁶ and the Separate Audit Reports issued thereon were not placed before Legislature.

¹⁵ Pattern Approach Programme and Consortium Bank Credit scheme

¹⁶ Under Section 19(3) of CAG's (DPC) Act - 1971

3.1.10 Conclusion

Though APKVIB Act-1958 stipulated several functions, Board's operations were limited to implementation of the centrally sponsored 'Prime Minister's Employment Generation Programme (PMEGP)' and conducting training programmes through Khadi Gramodyog Maha Vidyalaya. Attention was not paid to other functions stipulated in the Act for overall promotion of Khadi/village industries. Board had not prepared Annual Plans and comprehensive Budget Estimates as stipulated in the Act/Rules. Though substantial MM was spent under PMEGP, proportionate employment was not generated which was the main objective of the programme. There is an acute manpower shortage in the Board. Board is practically engaged in restricted activity of implementing the PMEGP as of now, and seems to be in no position to undertake any other activity as specified in its objectives.

Irrigation and Command Area Development Department and Revenue Department

3.2 Implementation of Resettlement and Rehabilitation in selected major irrigation projects

3.2.1 Introduction

Compulsory acquisition of land for public purposes including infrastructure projects displaces people, forcing them to give up their home, assets and means of livelihood. Displacement also has traumatic psychological and socio-cultural consequences. Government of Andhra Pradesh (GoAP) pronounced a 'Policy on Resettlement and Rehabilitation (R&R) for Project Affected Families¹⁷ (PAFs) - 2005' (R&R Policy) to address the issue of displacement with care, human touch and forethought. Objectives of the policy are:

- (i) to identify alternatives for displacement or to minimize displacement;
- (ii) to plan R&R of PAFs and Project Displaced Families¹⁸ (PDFs), including special needs of tribals and vulnerable sections;
- (iii) to provide better standard of living to PAFs and PDFs; and
- (iv) to facilitate harmonious relationship between acquiring body and PAFs through mutual co-operation.

Commissioner (R&R) is responsible for formulation and implementation of R&R plan and redressal of related grievances. He is assisted by Joint Collectors (JCs) / Project Officers of ITDAs¹⁹, who act as Project Administrators (PA) in coordination with the requisitioning department.

3.2.2 Scope and Objectives of Audit

In the State, there are 37 ongoing major and medium irrigation projects taken up by Irrigation and Command Area Development (I&CAD) Department where R&R was required. Out of these, audit of implementation of R&R was

¹⁷ A project affected family means (a) a family whose source of livelihood is affected by process of acquisition of land for the project and who has been residing continuously for a period of not less than three years preceding date of declaration of affected zone or practicing any trade, occupation or vocation for a period of not less than three years in the affected zone regardless of the fact they owned land or not; (b) a family whose more than 50 per cent of land is acquired and left over land is below 5 acres dry or 2.5 acres wet or combination of both; (c) a project displaced family; and (d) any tenure holder, tenant, lessee or owner of other property in affected area or otherwise

¹⁸ A project displaced family means any family who on account of acquisition of his dwelling house in the village has been displaced from such dwelling house

¹⁹ Integrated Tribal Development Agency

conducted (September 2013-July 2014) in ten²⁰ selected²¹ major irrigation projects to ascertain whether:

- (i) implementation of R&R plans in these projects, including declaration of affected zones, declaration of resettlement zones, conduct of socio-economic survey, identification of PAFs / PDFs, publication of notifications, etc, was done as per the stated Policy with due care;
- (ii) R&R activities were completed in a timely manner and all the intended benefits were extended to PAFs/PDFs; and
- (iii) R&R was implemented efficiently and effectively so as to provide a better standard of living to the PAFs/PDFs.

Records at Commissioner (R&R)'s office, concerned project offices of I&CAD Department and PAs' offices were scrutinized in audit. Wherever necessary, information was obtained from other line departments/ implementing agencies²² also.

The details of number of villages submerged, number of families affected, R&R centres and Housing Units contemplated in all the projects and in test checked projects are as detailed below;

Table 3.10 – Details of villages submerged, PAFs/PDFs, R&R centres and Housing units contemplated across the State and in test checked projects

	No. of projects	No. of villages submerged			No. of families affected*		No. of R&R centres contemplated	No. of Housing units contemplated*
		Fully	Partially	Total	PAFs	PDFs		
Total projects	37	361	193	554	142230	138789	512	65275
Test checked projects	10	274	173	447	121953	120121	439	49508

* Excluding Khammam district in respect of Polavaram project which were yet to be assessed fully

Source: Information furnished by Commissioner, R&R

Project-wise details of test checked projects are shown in **Appendix -3.1**.

Audit findings

The process of Resettlement and Rehabilitation (R&R) of project affected/displaced families involves the following stages:

- **Identification and declaration of Affected Zone** under a project through notification of areas/villages/localities in the State Gazette;
- **Conducting Socio Economic Survey** of the affected persons and families;

²⁰ Galeru Nagari Sujala Sravanti Phase-I, Gundlakamma, Pulichintala, Polavaram, Thotapally, Vamsadhara, Veligonda projects Bheema, Flood Flow Canal of Sriramsagar Project and Yellampally projects

²¹ The criteria used for selection was - (a) Project with more than 5000 PAF in the affected zone or (b) Projects having more than 10 villages submerged partially or fully or (c) Projects in which more than ₹50 crore was spent on R&R activities

²² Municipalities, Gram Panchayats, Power Distribution Companies of the areas concerned

- **Publication of draft details of survey** in Gram Panchayat and after considering objections and suggestions, publication of final details of District Gazette;
- **Identification and declaration of resettlement zone** through notification of area acquired or proposed to be acquired for resettlement;
- **Preparation and publication of scheme/Plan** in consultation with representatives of PAF/PDFs, chairpersons of Panchayat Raj institutions including cost of R&R;
- **Acquisition of land required for resettlement**
- **Creation of basic amenities at Resettlement zone** in coordination with other line departments/agencies like Panchayat Raj, Roads & Buildings, Rural Water Supply, Municipality, Power Distribution Companies, etc;
- **Extension of other eligible R&R benefits to PAFs/PDFs** for readying the families for shifting to the new resettlement zone; and
- **Shifting of families to resettlement zone**

Audit observations on implementation of R&R in test checked projects are discussed below.

3.2.3 Minimizing the displacement

Audit observed that works under all the test checked projects were entrusted under Engineering, Procurement and Construction (EPC) turnkey system. In this contract system, the EPC agencies are required to conduct detailed survey and investigation, prepare designs and drawings of the project and after approval of the same by I&CAD Department, construct and deliver the project in full shape for a fixed price. The EPC agency also prepares the schedules of lands required for the project. It is the responsibility of I&CAD department to acquire and hand over the lands to EPC agencies for project construction.

As per para 4.5 of the R&R Policy, Administrator for R&R shall be responsible for minimizing the displacement of persons and identifying non-displacing or least displacing alternatives in consultation with the requiring body (i.e., I&CAD Department in case of irrigation projects).

However, there was no evidence in the records made available to audit that the respective Project Administrators (PA) had at any time consulted the irrigation authorities of test checked projects to explore the possibility of minimizing displacement. In I&CAD Department also, there was no evidence (except in Polavaram project) that options of alternative designs were considered to minimize displacement.

3.2.4 Declaration of affected zone

As per para 5.1 of the R&R Policy, if land acquisition for a project is likely to displace families from their lands and/or houses, it has to be notified in the Official Gazette with details of area of villages or localities as the 'affected zone' of the project.

In nine out of the ten test checked projects, Audit observed discrepancies between the Commissioner (R&R)'s report and Gazette Notifications:

Table 3.11 – Details of discrepancy between numbers of villages submerged

Sl. No	Project	No. of villages as per		Discrepancy w.r. to Commissioner (R&R)'s report
		Commissioner (R&R)	Gazette Notification	
1	Galeru Nagari (Phase I)	25	25	Nil
2	Gundlakamma	12	31	(+) 19
3	Polavaram	278	412	(+) 134
4	Pulichintala	28	21	(-) 7
5	Thotapally	20	66	(+) 46
6	Vamsadhara	20	66	(+) 46
7	Veligonda	11	30	(+) 19
8	Bheema	8	6	(-) 2
9	Flood flow Canal	23	21	(-) 2
10	Yellampally	22	20	(-) 2
	Total	447	698	(+) 251

Source: Information furnished by Commissioner, R&R and Gazette notifications furnished by PA/SE of projects concerned

The reason for discrepancy has not been explained by the department.

In the R&R Policy, the ‘affected zone’ is defined as (a) the ‘area falling under Full Reservoir Level (FRL) contour, and (b) dwelling house(s) falling within 100 meters of surface distance from FRL water line. The families living within affected zones are to be rehabilitated as per the R&R policy.

In Polavaram Project, after conducting project survey, the I&CAD Department notified (July 2005) 412 villages²³ as affected villages. Later, the department on realizing that 136 out of the 412 notified villages were not in the submergence areas of the reservoir but were falling along the alignment of right and left main canals did not take up any R&R activity in these 136 villages. However, these villages were yet to be de-notified (May 2014). Reasons for incorrect declaration of these villages were not furnished by I&CAD Department, when called for by Audit.

Further, the I&CAD Department later conducted fresh FRL studies and identified 62 more habitations coming under project submergence in Khammam district (by August 2009) and further 25 habitations in Khammam district and 2 more habitations in East Godavari district (by May 2014). Thus, the total number of villages coming under submergence of Polavaram project now works out to 365, excluding the villages incorrectly declared as affected. These changes are yet to be notified (May 2014) and R&R activities are yet to be taken up in the newly identified villages, even after nine years from the initial survey, which was not based on proper identification and notification of affected zone by I&CAD Department in the first place.

²³ which included 205 villages in Khammam, 82 in East Godavari, 71 in West Godavari, 28 in Visakhapatnam and 26 in Krishna districts

3.2.5 Conducting of Socio Economic Survey (SES)

R&R Policy stipulated that once declaration of affected zone is made, Socio-Economic Survey (SES) has to be conducted by the Project Administrator for R&R in the affected zone for identification and categorization of members of PAFs/PDFs for extending R&R benefits. The survey was to be completed within a period of 90 days from the date of declaration of affected zone.

Audit observed that there were delays ranging from five to 48 months in conducting SES in seven out of 10 test checked projects, as shown below:

Table 3.12 – Delay in conducting SES in test checked projects

	Project	No. of villages coming under submergence	Status of SES
1	Galeru Nagari	25	SES in 17 villages was completed with a delay of 58 months. SES in 8 villages was still pending.
2	Polavaram	278	SES stated to be completed. The date of completion was not furnished.
3	Pulichintala	28	SES completed with a delay of 41 - 52 months
4	Veligonda	11	Completed with a delay of 45 months
5	Bheema	8	Completed with a delay of 27 months
6	Flood Flow Canal	23	SES in 11 villages was completed with a delay of 18 months. SES in 12 villages was still pending
7	Yellampally	22	SES in 21 villages was completed with a delay ranging from 21 to 32 months. SES in one village was still pending

Source: Information furnished by Project Administrators of the projects concerned

Audit further observed that :

- As per the Commissioner (R&R), SES was completed in 205 villages in Khammam district under Polavaram Project and survey details were published in respect of 92 villages. However, Audit noticed that in a review meeting (December 2012) of Commissioner (R&R) and I&CAD Department, it was stated that the SES in respect of 92 villages conducted five years back was not in the prescribed format and the Project Officer, ITDA, Bhadrachalam was directed to conduct a re-survey and refine the SES data. It was also directed in the meeting to take up SES in the remaining affected villages in the district. However, no action was taken on these decisions for reasons not on record. Further, SES was yet to be conducted in the 87 newly identified villages in the district. Thus, R&R activity in the villages of Khammam district falling under this project is yet to take off even after nearly nine years since the project works were awarded (2004).

- In Veligonda project, 30 villages were originally declared (July 2005) as affected zone. Out of these, SES was conducted and R&R was being implemented in only four villages (June 2014). Reasons for non-conducting of SES in remaining villages were not forthcoming from the records of Project Administrator. Audit also observed that SES was conducted in seven new villages²⁴ which were originally not declared as project affected. Project Administrator did not furnish the reasons for taking up SES in these villages.

3.2.6 Approval and publication of details of survey

Once the SES is completed, the Administrator for R&R shall publish a draft in the Gram Panchayat concerned of the details of the findings of the survey for inviting objections and suggestions from all persons likely to be affected thereby. On expiry of 30 days from the date of publication of the draft details of survey and after considering the objections and suggestions, final details of survey shall be submitted with recommendations to the District Collector for approval. District administration shall publish final details of survey in the district gazette within 45 days from the date of receipt of recommendations from Administrator.

Audit observed that in seven out of the ten test checked projects, publication of final details of SES in Official Gazette after conducting the survey was delayed ranging from 1 to 65 months, as shown below:

Table 3.13 – Delay in publication of details of final survey in sample projects

	Project	No. of villages for which SES completed	No. of villages for which publication of details of survey was completed	No. of villages for which publication of survey details was delayed	Delay range (in months) in publication of details of survey
1	Galeru Nagari (Phase-I)	17	*	*	*
2	Polavaram	278	*	*	*
3	Pulichintala	28	28	28	2 – 65
4	Thotapally	20	20	19	1-9
5	Vamsadhara	20	20	20	7 - 51
6	Veligonda	11	5	5	4 – 38
7	Bheema	8	5	5	49 – 50
8	Flood Flow Canal	11	11	11	12 – 18
9	Yellampally	21	21	21	1 – 17
10	Gundlakamma	9	*	*	*

* Information not furnished by the Project Administrators

Source: Information furnished by Project Administrators of the projects concerned

Audit noticed that the above delays occurred at every stage, i.e. publication of draft survey details in the Gram Panchayats after completion of SES,

²⁴ Gundamacherla, Chintalamudipi, Katamarajuthanda, Sairamnagar, Ramalingeswarapuram, Krishnanagar, Laxmipuram

forwarding of final survey details to the District Collectors by the Project Administrators.

3.2.7 Preparation of R&R scheme/plan

Para 5.14 of R&R Policy prescribed that after completion of baseline survey and census of PAFs/PDFs and after assessment of requirement of land for resettlement, a draft scheme/plan shall be prepared in consultation with the representatives of PAFs and PDFs. Para 5.18 of policy lists out various details/information²⁵ to be contained in the draft plan. As per the Policy, the draft R&R scheme/plan has to be published in the village/locality and in the District Gazette. It was also stipulated therein that the cost of R&R scheme should be an integral part of the cost of the respective projects.

Audit observed that project wise comprehensive R&R plans were not prepared in any of the test checked projects. Only village wise cost estimates were being prepared without vital details like list of PAFs/PDFs, list of Scheduled Tribe families for preparation of Tribal Development Plans. Even the village-wise estimates were not comprehensive as they covered only the estimated cost of the monetary benefits to be provided to PAFs/PDFs and did not include details of lands identified for construction of R&R centres/allotment to PDFs/PAFs and estimated cost of land acquisition and development of R&R centres, time schedules for implementation of R&R plan, etc.

Further, preparation of even the village-wise estimates was not complete. Village wise estimates were prepared for only 84 out of 169 submerged villages of nine test checked projects (Information in respect of 278 villages notified under Polavaram project was not furnished to Audit) (details in **Appendix-3.2**).

Due to non-preparing a comprehensive R&R plans, the exact financial liability on account of R&R activities was not known in any of the test checked projects, even after nearly eight years since commencement of project works.

In reply, Commissioner stated that preparation of estimates for infrastructural works is a continuous process till all the PDFs are settled. But R&R Policy stipulates otherwise.

3.2.8 Development of R&R centres and resettlement of PDFs

As against the total of 439 R&R centres contemplated in test checked projects, land acquisition was completed only for 174 R&R centres and infrastructure facilities (like roads, drinking water and electricity facilities) were developed in only 97 centres, as of July 2014, as shown below:

²⁵ Which, inter alia, included the village wise list of PAFs, number of displaced persons, extent and nature of lands and immovable property in their possession before and after land acquisition for the project, list of agricultural labourers and persons losing livelihood, comprehensive list of R&R benefits to be provided to PAFs, details of Government and Patta lands available for acquisition and relocation of/allotment to PDFs/PAFs, details of basic amenities/infrastructure facilities to be provided for resettlement, time schedule for shifting/resettlement of PDFs, etc

Table 3.14 – Status of development of R&R centres in test checked projects

S. No	Project	Original Target date for completion of project	R&R centres contemplated	Status of land acquisition for R&R centres		No. of centres for which infrastructure facilities were provided		
				Fully acquired	Balance	Roads	Drinking water	Electricity
1	Galeru Nagari (Phase I)	October 2009	14	14	0	12	12	12
2	Gundlakamma	August 2007	24	22	2	18	17	15
3	Polavaram	July 2010	280	31	249	11	11	13
4	Pulichintala	March 2012	27	25	2	22	20	21
5	Thotapally	December 2012	21	19	2	15	15	12
6	Vamsadhara	March 2008	26	21	5	15	13	12
7	Veligonda	August 2013	8	5	3	0	0	0
8	Bheema	December 2009	10	8	2	6	3	1
9	Flood Flow Canal	August 2012	12	12	0	4	4	1
10	Yellampally	November 2011	17	17	0	10	10	10
	Total		439	174	265	113	105	97

Source: Information furnished by Commissioner (R&R)

Though the original target date for completion of these projects was long over, only 12091 out of the total of 74169 PDFs (excluding Polavaram project) have been resettled so far and 83.70 per cent PDFs were still to be rehabilitated, as shown below:

Table 3.15 – Status of resettlement of PDFs in test checked projects

S. No	Project	Original Target date for completion of project	Total No. of PDFs under the project	No. of PDFs resettled	Balance No. of PDFs to be resettled	Percentage of PDFs still to be resettled
1	Galeru Nagari (Phase I)	October 2009	7251	771	6480	89.37
2	Gundlakamma	August 2007	6559	2441	4118	62.78
3	Polavaram	July 2010	*	*	*	*
4	Pulichintala	March 2012	13231	2156	11075	83.70
5	Thotapally	December 2012	5915	1792	4123	69.70
6	Vamsadhara	March 2008	7104	1322	5782	81.39
7	Veligonda	August 2013	3863	0	3863	100
8	Bheema	December 2009	6156	0	6156	100
9	Flood Flow Canal	August 2012	11123	96	11027	99.14
10	Yellampally	November 2011	12967	3513	9454	72.91
	Total		74169	12091	62078	83.70

* Information in respect of Polavaram project was not furnished by the Project Administrators

Source: Information furnished by Commissioner (R&R) and Project Administrators of the projects concerned

The delay in progress of R&R implementation mentioned above was due to the deficiencies in declaration of affected zone, delays in conducting SES and approval/publication of SES results, and non-preparation of comprehensive plans, as discussed in earlier paragraphs.

3.2.9 Extension of R&R benefits

The R&R Policy prescribed various R&R benefits to be given to the affected families/persons (details in *Appendix - 3.3*) which included allotment of alternate house sites/agricultural lands, payment of house construction grant, cattle shed grant, transportation grant, income generating scheme grant, subsistence grant, agricultural wages for loss of livelihood, etc. Audit observed the following:

The purpose of paying one time housing grant to PDFs was to facilitate construction of house in the house sites allotted to them in R&R centres. Similarly, transportation grant was intended for transporting building materials, belongings, cattle, etc. to resettlement zone. Thus, these grants would be necessitated only after allotment of house sites to PDFs in R&R centres. However, audit observed that housing²⁶ and transporting grants amounting to ₹21.04 crore and ₹1.82 crore respectively were paid to some of the PDFs of Thotapally and Yellampally projects even before/without allotment of house sites (*Appendix - 3.4*).

Audit observed that the trend of disbursement of housing/transportation grants without allotment of house sites continued even after specific instructions issued (March 2011) by R&R Commissioner not to do so.

In reply, Commissioner stated that audit observations were forwarded to Joint Collectors/Project Administrators for compliance.

3.2.10 Financial control issues

In March 2008, Government issued orders permitting the PAs to operate bank accounts with scheduled/nationalized banks and make payments towards R&R benefits (financial assistance/grants/wages) to project-affected persons. It was stipulated therein that the funds deposited in bank should not be utilized for (i) Works, (ii) Land acquisition under R&R head, and (iii) administrative charges. However, audit observed that an amount of ₹43.53 crore was utilized towards land acquisition, infrastructure facilities in seven projects, contrary to Government orders, as shown below:

²⁶ including sanitary grant in some cases

Table 3.16 – Amounts intended for disbursement of R&R benefits but utilized for other purposes

(₹ in crore)

Sl. No	Project	Land Acquisition	Infra-structure facilities	Administrative expenses	Others	Total
1	Galeru Nagari (Phase I)	2.25	0	0	1.78	4.03
2	Gundlakamma	0	2.07	0	0.44	2.51
3	Polavaram (EG)	0.15	2.44	0.004	0	2.60
4	Pulichintala (Guntur)	1.37	0	0	3.00	4.37
	Pulichintala (Nalgonda)	0	7.60	0.05	0	7.66
5	Vamshadhara	0.23	8.56	0.22	0.17	9.18
6	Bheema	0.06	0	0.006	0	0.07
7	Yellampally (Adilabad)	12.25	0.85	0	0	13.11
	TOTAL	16.31	21.52	0.28	5.39	43.53

Source: Records of the Project Administrators of the projects concerned

Government orders also stipulated that interest earned on bank deposits shall not be utilized for any other purposes and should be remitted to interest head of account. However, it was observed that interest of ₹2.88 crore²⁷ earned on R&R deposits in respect of six projects kept in bank accounts was not remitted to the interest head account.

In Gundlakamma project, audit noticed that the R&R Project Administrator (PA) was not maintaining the cash book properly. It was noticed that the PA was not recording all the financial transactions in the cash book. For example,

- Four cheques amounting to ₹1.85 crore which were issued (November/December 2007 and January 2008) to Executive Engineers (EEs) of line departments duly showing them on the payments side of cash book. The EEs did not spend these amounts and returned (July/August 2008) the unspent amount of ₹1.85 crore to the PA, who did not record these refunds in the cash book.
- It was noticed that, the cash book showed a closing balance of ₹24.93 lakh on 6 April 2010. However, this amount was not carried forward as opening balance of the subsequent period.
- Further, interest amounting to ₹0.20 crore received on R&R funds and credited to bank account was not taken into cashbook as a receipt.

Audit also observed that the PA was not reconciling the cash book figures with the bank figures. Thus, there was no assurance that all receipts of public money and expenditure there from are properly accounted for in the cash book. Improper maintenance of cash book is fraught with the risk of misappropriation of public money.

²⁷ Bheema: ₹0.26 crore; Flood Flow Canal and Yellampally: ₹1.82 crore; Gundlakamma: ₹0.20 crore; Vamsadhara: ₹0.40 crore; and Galeru Nagari (Phase-1): ₹0.20 crore

3.2.11 Monitoring and Grievance Redressal mechanisms

Audit observed the following shortcomings in Monitoring and Dispute/ Grievance redressal mechanism:

- As per Para 8.1 of R&R Policy, there shall be a State Level Monitoring Committee chaired by Principal Secretary/Secretary of Revenue Department with Secretaries of various departments as members. This committee shall meet at least once in three months to review/monitor progress of R&R implementation in all projects. However, the Committee met only five times during the period 2006-14 (twice in 2011-12 and 2012-13 and once in 2013-14) as against the target of 32 meetings.
- As per para 8.3 of the Policy, a Project Level Monitoring Committee (PLMC) with Joint Collector as a convener was required to meet at least once in two months to review and monitor the R&R implementation. It was noticed that the stipulated number of PLMC meetings were not conducted during the period 2006-14 in any of the test checked projects as detailed below:

Table 3.17 – Shortfall in meetings of Project Level Monitoring Committees

	Name of the Project	No. of meetings to be held	No. of meetings held
1	Galeru Nagari (Phase I)	48	*
2	Gundlakamma	48	1
3	Polavaram	48	*
4	Pulichintala	48	5
5	Thotapally	48	3
6	Vamsadhara	48	2
7	Veligonda	48	Nil
8	Bheema	48	25
9	Flood Flow Canal	48	4
10	Yellampally, Adilabad	48	8
	Yellampally, Karimnagar	48	4

* Information not furnished by the Project Administrators

Source: Information furnished by Project Administrators concerned

- Para 8.2 of the Policy stipulated that a mechanism should be put in place for third party concurrent audit of implementation of R&R plan in each project. It was noticed that such mechanism was not put in place in respect of three projects viz., Bheema, Yellampally and Flood Flow Canal Projects. Third party audit was conducted only once in respect of Polavaram, Pulichintala, Thotapally, Gundlakamma and Vamsadhara projects.
- Audit noticed that no Ombudsman was appointed for time bound disposal of the grievances arising out of implementation of the Policy as required under Para 7.5 of the Policy.

3.2.12 Conclusion

Implementation of Resettlement and Rehabilitation (R&R) in all the test checked projects suffered from delays and deficiencies at every stage of the process. Deficiencies were noticed in identification and notification of affected areas, disbursement of R&R benefits to PAFs/PDFs, etc. Comprehensive R&R plans were not prepared in any of test checked projects. Development of R&R centres was not completed in any of the test checked projects and majority of PDFs were still to be rehabilitated even after more than eight years from commencement of the project works. Deficiencies were also noticed in management of finances, maintenance of cashbooks and monitoring on R&R implementation.

Transport, Roads and Buildings Department

3.3 Construction and maintenance of State Highways and Major District Roads

3.3.1 Introduction

State Highways (SH) constitute the secondary system of road transportation, after the primary system of National Highways. SHs provide linkages with the National Highways, District Headquarters of the State and important towns, tourist centers and minor ports. **Major District Roads (MDRs)** run within a district connecting areas of production with markets, rural areas to district headquarters and to State Highways and National Highways. SHs and MDRs carry medium to heavy traffic and are major carriers of road traffic in the State. The total length of SHs in the State was 8674 KM and that of MDRs was 32262 KM²⁸.

Transport, Roads and Buildings (TR&B) Department (Department) is responsible for construction and maintenance of SHs and MDRs. Engineer-in-Chief (State Roads) and Chief Engineer (Core Road Network) oversee the management and maintenance of SHs and MDRs. In addition, Engineer-in-Chief (Rural Roads), Chief Engineer (Buildings) and Chief Engineer (PPP) were also involved in execution of road works. 22 Superintending Engineers (SEs) at Circle level, 62 Executive Engineers (EEs) at Division level and Deputy/Assistant EEs at field level assist in execution of works.

3.3.2 Audit objectives, scope and methodology

Audit of construction and maintenance of SH and MDRs was conducted covering the five year period 2009-14 with a view to ascertain whether (i) overall planning of activities was sound and based on traffic census and inspection reports by field officers; (ii) contemplation of works was systematic and all necessary permissions/clearances were obtained from the authorities concerned prior to commencing the works; (iii) tendering process was fair, transparent and as per rules; and (iv) monitoring mechanism was regular and effective.

Audit was conducted (during July 2013 to June 2014) through a test check of records in the offices of the Engineer-in-Chief (State Roads), Chief Engineer (Core Road Network), and eight²⁹ out of 22 Circles (Superintending Engineers) and 16³⁰ out of 62 Divisions (Executive Engineers), selected through judgmental sampling (based on expenditure incurred and number of works taken up and covering all the three regions of the State).

²⁸ Source: Outcome budget of R&B Department for the year 2013-2014

²⁹ *Andhra and Rayalaseema regions* - (1) Chittoor, (2) Guntur, (3) SPS Nellore, (4) Srikakulam and (5) YSR Kadapa; *Telangana region* - (6) Khammam, (7) Nalgonda and (8) Nizamabad districts

³⁰ *Andhra and Rayalaseema region* - (1) Gudur, (2) Kadapa, (3) Madanapalle, (4) Narasaraopet, (5) Nellore, (6) Proddatur, (7) Tekkali, (8) Tenali, (9) Tirupati and (10) Srikakulam divisions; *Telangana region* - (11) Bhadrachalam, (12) Bodhan, (13) Khammam, (14) Miryalguda, (15) Nalgonda and (16) Nizamabad divisions

Audit Findings

3.3.3 Planning of activities

As per AP Budget Manual (para 13.1.1), the budget is to be based on the departmental estimates submitted by the heads of departments which in turn are based on the estimates submitted by the district offices. Further, as the divisions are responsible for construction and upkeep of roads, planning of activities was to be initiated from division level based on the field requirements/demand for road works assessed through conducting traffic census and periodical inspections.

3.3.3.1 Preparation of Annual Action Plans and Budget Estimates

Audit observed that at division/circle level there was no system of preparation of Annual Action Plans in respect of SHs and MDRs.

There was no system of sending budget proposals from district officers to higher authorities as stipulated in the budget manual. Instead, the budget proposals to Government as well as the quantum of releases to divisions from approved budgets were being decided by the Engineers-in-Chief/Chief Engineers without seeking proposals from field units under their charge.

GoAP replied (January 2015) that the Engineer-in-Chief prepares Annual Action Plans/budget estimates based on the requirements submitted by Circles/Divisions, spillover commitments, physical targets, etc. However, no documentation was found in the units audited and the replies furnished by audited units also confirm the audit observation that no budget proposals were being submitted by them and no action plans were prepared.

3.3.3.2 Identification and prioritization of works

As per Indian Road Congress (IRC) Code: 82-1982, early detection and repair of defects at initial stages can prevent rapid deterioration of pavements. The Code stipulated that it is desirable to assess the physical condition, structural capacity, riding quality of bituminous roads by conducting visual surveys every year (before and after monsoon season), to maintain kilometer-wise data of the results and use the data for planning, prioritizing and budget preparation for road maintenance works.

Further, the design of a road (width of carriage way, thickness and composition of crust, width of shoulders, etc.) depends on the volume of traffic³¹. IRC Code 9-1972 stipulates that periodic traffic census is a valuable source of basic data for highway planning and that traffic should be counted on SHs and MDRs at least twice every year, i.e. once during peak season of harvesting and marketing and once during lean season.

Audit observed that there were no departmental instructions to the field offices on conducting of physical inspections and taking traffic census periodically.

When the procedure followed for periodical physical inspections of roads was called for, the test checked Divisions gave a general reply that physical

³¹ IRC Code: 64-1990 prescribes the corresponding traffic capacities for upgradation of roads and IRC Code: 37-2001 contains the guidelines for designing pavements

inspections are conducted during routine visits by the Engineers. However, no information/records relating to periodical inspections and results thereof was furnished to Audit.

As regards traffic census on road, the details of total number of SHs and MDRs under the control of 12 of the 16 test checked divisions and year wise details of number of roads where traffic data was collected are given in the table below:

Table 3.18 - Details of Total number of SHs & MDRs and number of roads where traffic data collected

Sl. No.	Name of the Division	Total number of SHs/MDRs	Number of SH & MDRs on which Traffic Data collected during the years				
			2009-10	2010-11	2011-12	2012-13	2013-14
1	Narasaraopet	68	--	48	--	35	--
2	Tenali	60	33	--	48	--	--
3	Srikakulam	25	--	17	--	17	--
4	Tekkali	42	--	31	--	31	--
5	Nizamabad	41	--	--	17	1	--
6	Bodhan	50	37	37	37	37	37
7	Khammam	66	66	66	66	66	--
8	Tirupati	66	20	--	20	--	28
9	Madanapalle	82	18	--	12	--	12
10	Kadapa	32	--	6	--	32	--
11	Nellore	67	--	34	--	45	--
12	Gudur	43	40	--	40	--	29
	Total	642	214	239	240	264	106

* Information not furnished by Proddatur, Bhadrachalam, Nalgonda and Miryalaguda divisions.

As can be seen from the above table, no uniform procedure was followed across the Divisions. Out of the 12 divisions which had furnished the information, nine divisions were taking traffic counts once in two years, two divisions were taking traffic counts once in a year while in one division traffic counts were taken twice during five years. Further, in 11 divisions, traffic census did not cover all the roads under their jurisdiction and there was shortfall. As against a total of 642 SHs and MDRs available under the jurisdiction of these 12 divisions, the number of roads on which traffic census was conducted ranged from 106 to 264 in the last five years.

Thus, in the absence of any documentation relating to conducting of periodical physical inspections of roads and the results thereof in the departmental records and due to non-conducting of traffic census on all roads as prescribed in IRC codes, there is no assurance that requirement of works on all the roads are identified, prioritized and taken up.

IRC Code: 82-1982 also mentions that periodical renewal works are to be carried out on bituminous roads normally at three-six year intervals (depending on the type of road, traffic volume, rainfall, etc.). Audit observed that the department did not take up periodical renewal (PR) works for more

than 6 to 22 years as shown below in some road stretches in test checked districts:

Table 3.19 – Road stretches where renewal works not taken up

Sl. No.	District (Divisions)	Road stretches due for renewals but not taken up		Renewal works last taken up during	No of years for which renewals are pending
		Number of stretches	Length (in KM)		
1	Chittoor (Tirupati, Madanapalle)	47	328.07	2000-2007	6-13
2	Guntur (Tenali, Narsaraopeta)	27	303.98	1991-2007	6-22
3	Kadapa (Kadapa, Proddatur)	19	195.25	1998-2007	6-15
4	Nellore (Nellore, Gudur)	20	142.85	1993-2007	6-20
5	Srikakulam (Srikakulam, Tekkali)	*	*	*	*
6	Khammam (Khammam, Bhadrachalam)	29	343.30	1991-2007	6-22
7	Nalgonda (Miryalaguda)	63	408.80	1998-2007	6-15
8	Nizamabad (Nizamabad)	04	10.70	1995-2007	6-18

Source: All the information/data mentioned in this report is as per records of the department, unless mentioned otherwise

* Out of the two divisions in Srikakulam district, the above information was not being maintained by EE, Tekkali division, while Srikakulam division has taken up renewal works periodically as per schedule.

Note: The above information pertains to only test checked divisions in the respective districts

Government replied that traffic census was being conducted once in two years on all roads and works were being sanctioned after prioritization based on availability of funds, condition of roads and year of last renewal. The reply is not convincing, since traffic counts were not taken on all roads as shown in Table-3.18 and there was no documentation in the departmental records on prioritization of works. Reply was silent on lack of documentation on physical inspections and their results.

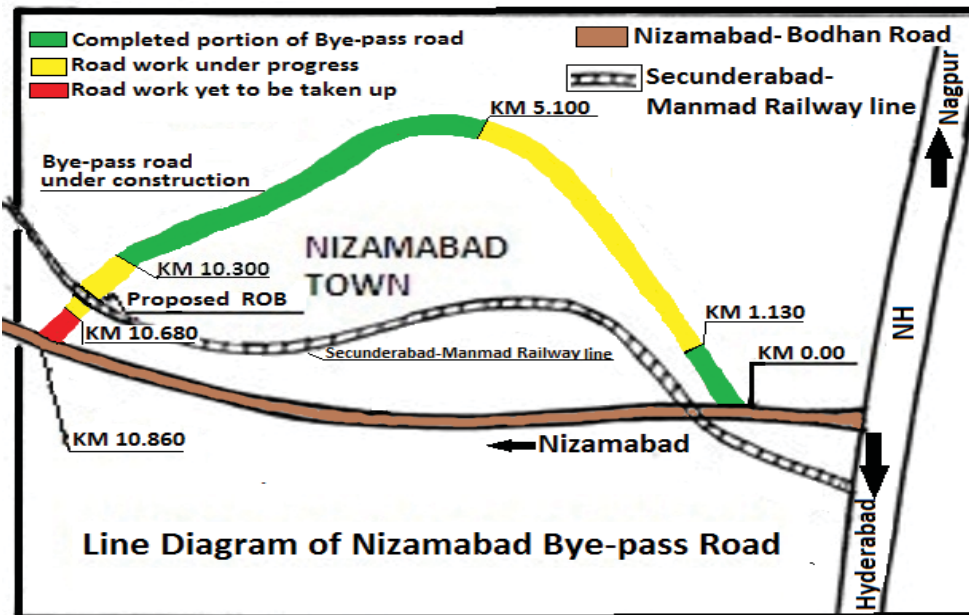
3.3.4 Deficient planning in taking up works

Instances of improper planning leading to non/delayed completion of works, as noticed in audit are discussed below.

3.3.4.1 Taking up bypass road without Road over Bridge

In Nizamabad district, the work of 'formation of bypass road to Nizamabad town from Km 0 to Km 10.86 was entrusted for ₹21.94 crore to an agency in February 2009 with due date for completion by August 2011. Formation of road from Km 0.0 to Km 1.130 and Km 5.100 to Km 10.300 has been completed and work from Km 1.130 to Km 5.100 is under execution. Audit observed that the road work from Km 10.68 to Km 10.86 was yet to be taken up as the Revenue Department was yet to acquire the required land though R&B Department deposited land compensation amount in March 2009.

Besides, the proposed bypass road has to cross a Railway line at Km 10.4- Km 10.6. As per existing policy the Railways do not permit new level crossings on highways and their bypass roads and permit either road over bridge (ROB) or road under bridge (RUB) only. Audit noticed that while preparing estimate for bypass road, the department was aware of the need for crossing the Railway line, but awarded the road work without initiating any proposal for ROB/RUB. The proposal for construction of an ROB at a cost of ₹9.7 crore was submitted to Government only in October 2012, i.e. after 45 months from the date of entrustment of bypass road work. The proposal is yet to be approved by Government (September 2014).



Source: Prepared by audit on the basis of records examined

Thus, unless construction of the ROB is completed, the intended objective of bypass road will not be achieved. Even after approval of the proposal for construction of ROB by Government, the actual construction of ROB, which has to be taken up in coordination with the Indian Railways, will take time. Thus, the expenditure of ₹16.85 crore incurred so far (August 2014) on the incomplete road work has been unfruitful.

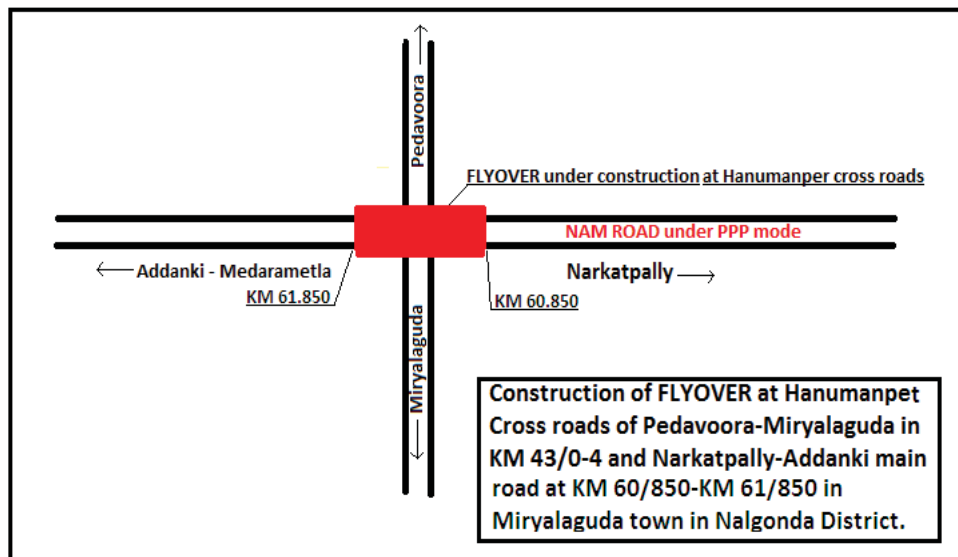
3.3.4.2 Taking up flyover work which is part of a PPP agreement

The work relating to Widening (to four lanes) of Narketpally-Addanki-Medarmetla (NAM) road (State Highway No 2) was entrusted under Public Private Partnership (PPP) mode to a concessionaire in July 2010 and was under construction. The PPP project was entrusted to a private agency on Design-Build-Finance-Operate-Transfer (DBFOT), that is on Toll collection basis, after tendering. The agency incorporated a Special Purpose Vehicle (SPV)³² and a concession agreement was concluded with a total concession period of 24 years including a construction period of 30 months. As per the

³² Government/Department is not a partner in the SPV

PPP agreement, the responsibility of improving all the intersections on the NAM road, either by developing at-grade junctions³³ or by constructing underpasses/flyovers as per the IRC Codes/MOSRTH³⁴ specifications, rests with the PPP agency. 'Hanumanpet cross road'³⁵ in Miryalaguda town limits in Nalgonda district' was one of the major junctions on the NAM Road. Audit observed that even before entrustment of the PPP project, there was a proposal for construction of a flyover at this junction in the CRF³⁶ and Buildings wing of the R&B Department and MoRTH had already accorded (July 2009) Financial Approval and Technical Sanction for ₹24.74 crore (GoI's share: ₹6.5 crore and GoAP's share: ₹18.24 crore) under Economic Importance Scheme.

Audit observed that there was lack of coordination between the PPP wing and CRF and Buildings wing of the R&B Department. Despite having knowledge of entrustment of NAM road project under PPP mode, the CRF and Buildings wing obtained separate administrative approval (September 2011) from GoAP for construction of flyover at this junction. Accordingly, the work of 'Construction of flyover at Hanumanpet cross road in Miryalaguda town limits in Nalgonda district' entrusted (March 2012) to a contractor for ₹18 crore for completion by March 2014, forced the Government to delete (June 2012) this stretch of road from the scope of PPP contract.



Source: Prepared by audit on the basis of records examined

As of July 2014, the flyover work was still in progress (43 per cent progress) whereas the widening work of NAM road (excluding the one Km stretch deleted from the contract) was completed and put into commercial operation in January 2014. Thus, lack of coordination between two wings of the department resulted in non-completion of flyover work despite completion of

³³ 'At grade Junction' means a junction where two (or more) roads intersect at the same level/grade

³⁴ Union Ministry of Shipping, Road Transport and Highways (now Ministry of Road Transport and Highways – MoRTH)

³⁵ of Peddavoora-Miryalaguda Road in Km 43/0-4 and Narkatpally-Addanki Road from Km 61/2-4

³⁶ Central Road Fund

the NAM road, thereby causing inconvenience to road users in this stretch. Besides, construction of the flyover, falling within the scope of an already ongoing PPP project, separately by the department resulted in unnecessary financial burden of ₹18 crore on Government. Government did not furnish reply on this issue.

3.3.5 Taking up of works without Pre-requisites

As per Government orders³⁷ (July 2003) administrative approval for works shall be given in two stages. First stage approval would be for preparation of project reports, obtaining forest clearance, preparation of designs and drawings, acquisition of minimum lands required, etc. Second stage of approval would be given after completion of the first stage activities. Technical sanction and entrustment of works after calling tenders would follow subsequently.

Audit however observed that the department awarded works without obtaining forest clearance, acquiring necessary lands and without finalizing designs in the following cases, leading to non-completion/stoppage of works mid-way resulting in unfruitful/avoidable expenditure.

3.3.5.1 Taking up of works without forest clearance

Audit noticed that in Tirupati division of Chittoor district, two road improvement works³⁸ were entrusted (February 2012 and June 2012) at a cost of ₹1.63 crore and ₹3.34 crore respectively without forest clearance. After incurring an expenditure of ₹1.07 crore and ₹1.75 crore respectively, both the works were stopped midway due to objections from the Forest Department, as some portions of the roads were running through Reserve Forest areas requiring permission from Forest Department which were not obtained. Audit noticed that the Department addressed Forest authorities for permission only in May 2012/ September 2012, i.e. 3 months after award of the road works in both cases. Road stretches for a length of 1.34 KM and 4.3 KM respectively were not taken up (May 2014) pending clearance of Forest Department.

Government replied that efforts were being made to get forest permission before taking up works. But the fact remained the department addressed forest authorities only after award of works.

3.3.5.2 Taking up of works before Land Acquisition

The department entrusted works discussed below to contractors before acquisition of lands:

- In Srikakulam district, the work 'Construction of HLB across Nagavali River at KM 2.00 (1/8) of Etcherla-Ponnada road' was entrusted in March

³⁷ GO.Ms.No.94 of Irrigation & Command Area Development (PW-COD) Department, dated 01 July 2003

³⁸ (i) Improvements to DN road to Pakala –Ganugapenta road (via) Bhavirangannacheruvu road from KM 0/0 to 4/6 and (ii) Improvements to Anupalli to Panabakam (via) Gokulapuram – RK Palli road from KM 0/0 to 9/400

2012 for ₹20.36 crore for completion by March 2014. However, designs were approved only in October 2012 (i.e. more than six months after entrustment) and land acquisition proposals were sent to Revenue authorities in December 2012 (i.e. eight months after entrustment). The lands required for approaches on both sides of the bridge could not be acquired and both the bridge portion and approaches remained incomplete (July 2014) resulting in non-achieving of intended objective even after incurring an expenditure ₹15.69 crore, till four months from the scheduled date.

- The work of 'Construction of Bridge across Nagavali river between Rushingi and Kimmi village of Veeraghattam Mandal in Srikakulam district' taken up (August 2012) at a cost of ₹25.55 crore was scheduled for completion by July 2014. Audit observed that the progress of work was only 30 *per cent* (work executed: ₹7.69 crore) as the land required for approaches was not acquired (July 2014). It was noticed that the work was awarded without acquiring necessary lands. Land acquisition process was initiated in July 2012 and an amount of ₹20 lakh was released to Revenue Department for this purpose. The amount lapsed due to non-utilization of funds during 2012-13. Thereafter the department has not released funds to Revenue Department so far and the lands were not acquired even now (July 2014), resulting in non-completion of work despite completion of agreement period. Further, there are electrical poles in the working area of approach road on Rushingi side which are required to be shifted to another place so as to construct the approach road. However, they are yet to be shifted and the work was resultantly hampered. The department has not even obtained estimate for shifting of electric poles from electrical authorities so far (July 2014).
- Widening work of Nagavali Bridge approaches from NH-5 to Dattatreya Temple from KM 0/0 to 1/615 in Srikakulam district was entrusted in March 2013 (agreement value: ₹4.28 crore). The work which was scheduled for completion by December 2013 was not completed as of July 2014 (work executed: ₹2.5 crore) due to non acquisition of land, non-shifting of electrical poles and time lost to convince some authorities (religious worship) objecting to the work. Land acquisition proposals were initiated only in July 2013 i.e. four months after award of work and the land compensation amount of ₹12 lakh sought (April 2014) by Revenue Department was not released so far (July 2014).

Award of works without initiating land acquisition process resulted in non completion of above works within stipulated period and non-achievement of intended objectives.

Government replied that it would be beneficial to take up land acquisition and work simultaneously and that there would not be any pressure on revenue authorities if land acquisition was taken up first which would lead to increase in project cost. But the sequence is contrary to Government orders mentioned above.

3.3.5.3 Non / delayed finalization of work designs

Audit scrutiny also revealed that the department was calling for tenders and entrusting works even before finalization of designs and drawings which is a violation of Government orders (July 2003) and had resulted in delay/non-completion of works in time, as shown below:

Table 3.20 – Works taken up without finalizing designs and drawings

Sl. No.	Division (District)	Work	Cost (₹ in crore)	Date of award of work	Stipulated date of completion	Designs approved in	Status of work
1	Kadapa (Kadapa)	Construction of HLB across river Penna at KM 1/600 to 2/400 of GNR college road to Kondapeta (via) Chennur	13.76	May 2009	May 2011	November 2010	Work completed (December 2012)
2	Tirupati (Chittoor)	Improvements to Vadamalapeta to NNP road (via) Tirumanyam dip in KM 1/800	0.68	February 2013	August 2013	December 2013	Work not commenced (June 2014)
3	Madanapalle (Chittoor)	Construction of HLB in KM 23/400 of Vayalpadu – Gundlur Road (via) Addavaripalli	4.74	April 2012	October 2013	August 2012 – June 2013	Work in progress. Expenditure: ₹3.61 crore (May 2014)
4	Bhadra-chalam (Khammam)	Construction of HLB across Sileru river and Improvements to Chinturu-Motu Road from KM 0/0 to 10/0	35.13	February 2012	February 2014	April 2014	Bridge work yet to start. ₹22.72 crore spent on road work. (September 2014)
5	Kavali (Nellore)	Work of approaches to ROB in lieu of L.C.No. 158 (Kavali yard) @ Railway KM 225/14-16 of Gudur - Vijayawada section at KM 0/0-6 of Kavali -Pedapavani	13.48	December 2012	December 2014	February / August 2014	₹1.03 crore spent on supplemental works. Main work yet to start (September 2014)

Non-finalization of designs and drawings before award of works resulted in non-completion/slow progress of the above works and consequent delay in achievement of intended objectives.

While accepting the delays in finalization of designs in above works, Government stated that construction work did not affect progress of works.

3.3.6 Road safety measures

Road safety interventions³⁹ are an integral part of designing/maintenance of roads which are aimed at preventing accidents and saving precious human lives. Audit noticed the following deficiencies:

3.3.6.1 Non-execution of road safety works

Government, while expressing concern over road accidents, ordered (April 2005⁴⁰) that estimates of road works should invariably include road safety interventions.

It was observed that road safety interventions were not included in the following major works:

Table 3.21 – Details of estimates sanctioned without road safety interventions

Sl. No.	District	Division	Work	Month/year of sanction
1	Nalgonda	Miryalaguda	Widening & Strengthening of Nereducherla – Janpahad Road KM 1/8 to 5/0	February 2009
2	Kadapa	Proddatur	Periodical Maintenance to Renigunta – Rayalacheruvu Road From KM 153/6 to KM 164/0	-NA-
3	Nellore	Gudur	Construction of HLB across Chennaimadugu at KM 16/4-6 of Gudur – Varagali Road	April 2009

NA : Information not furnished by department

Audit further observed that in the following works, though road safety interventions were provided in the estimates, they were not executed:

³⁹ Hazard markers and delineators, centre line marking, warning/caution boards etc.

⁴⁰ GO Ms.No.80 of TR&B (R.I) Department dated 25 April 2005

Table 3.22 – Works where road safety interventions were not taken up despite provision in the estimates

Sl. No.	District (Division)	Name of the Work	Amount provided for road safety works (₹ in lakh)
1	Khammam	Periodical maintenance to Khammam-Devarapally road from KM 107/2 to 110/3	1.00
2		Periodical maintenance to Khammam - Devarapally road from KM 12/0 to 23/8	4.82
3		Periodical maintenance to Khammam - Devarapally road from KM 95/110 to 97/400	3.00
4		Periodical maintenance to Khammam - Devarapally road from KM 81/560 to 89/152	3.00
5		Periodical maintenance to Khammam - Devarapally road from KM 89/216 to 94/795	3.00
6		Periodical maintenance to Khammam - Devarapally road from KM 40/300 to 43/00)	3.00
7		Periodical maintenance to Khammam - Devarapally road from KM 43/150 to 50/4	3.00
8		Periodical maintenance to Khammam - Devarapally road from KM 114/0 to 121/0	3.00
9	Nalgonda (Miryalaguda)	Widening & Strengthening of Nereducharla - Janpahad Road KM 5/0 to 10/2	2.00

Non-execution of road safety works defeated the objective of preventing accidents and poses risk to road users.

Government/Department replied that action was initiated and road safety works would be taken up.

3.3.6.2 Identification of black spots

Identification of accident prone locations (Black Spots) and taking up rectification/improvement measures in such locations plays a major role in preventing repetitive road accidents.

No information was available with the SEs of Guntur, Nellore, Kadapa, Nizamabad and Khammam Circles regarding black spots under their jurisdiction, history of accidents/fatalities and the remedial measures taken thereon.

In Srikakulam and Chittoor districts, though 31 black spots were identified⁴¹ between 2009 and 2014, road safety works were not taken up at 14 locations⁴²

⁴¹ Srikakulam (7), Tekkali (17) and Tirupati (7) divisions

⁴² Srikakulam division: one black spot identified in 2011-12 and two in 2013-14; Tekkali Division of Srikakulam district: five black spots identified in 2012-13; and Tirupati division of Chittoor district: six black spots identified in 2013-14

due to reasons like non-submission/approval of estimates, lack of response to tenders, etc.

Government replied that black spots were being identified, estimates submitted/ being prepared and works would be taken up on approval of estimates.

3.3.7 Monitoring

3.3.7.1 Encroachments

According to Para 27 of AP Public Works Department Code (APPWD code), Executive Engineers (EEs) are responsible for preventing encroachment of Government lands in their charge.

Audit observed that no uniform mechanism was put in place for identification of encroachments in the Right of Way (ROW) of the roads by conducting periodical inspections by EEs and reporting the results to SEs, as discussed below:

- While the EEs of Bodhan, Kadapa, Nellore, Nizamabad and Proddatur divisions replied that there was no specific system of identification of encroachments, EEs of Bhadrachalam, Khammam, Gudur, Narsaraopet and Tenali replied that encroachments were monitored during routine inspections. EE, Tekkali replied that information on encroachments was obtained from Revenue Department. EEs of Gudur and Nellore divisions replied that no records of encroachments were compiled/maintained.
- SEs of Kadapa, Khammam, Nellore and Nizamabad did not have the details of encroachments under their jurisdiction.
- In Khammam Division, last statistics on encroachments were taken during 2010-11 and identified encroachments were reported to have been evicted.

In Srikakulam Circle, 522 encroachments were identified alongside six roads, as per the information obtained by the department from Revenue authorities in December 2013. Out of these, 474 were stated to have been removed leaving a balance of 48 encroachments which are yet to be evicted (April 2014).

Government replied that encroachments were being monitored during routine inspections by field officers and action was being taken to evict encroachments as and when identified/complaints are received.

In absence of a proper system of periodical inspections and reporting, there is no assurance that all the encroachments are being identified in a timely manner and prompt action is being taken thereon by all the circles/divisions.

3.3.7.2 Inspections by senior officers

According to Para 16 of APPWD Code, every SE has to inspect the divisions under his control annually. However, Audit noticed that SEs were not conducting annual inspections, as shown below:

Table 3.23 – Details of pendency of inspection of divisions by SEs

SE	Divisions to be covered under inspection	Last inspection conducted in
SE, Nalgonda	Nalgonda	2010-11
	Miryalaguda	2008-09
SE, Khammam	Khammam, Kothagudem and Bhadrachalam	2012-13
SE, Kadapa	Kadapa, Proddatur, Rajampet and Pulivendula	2008-09
SE, Chittoor	Chittoor, Tirupati and Madanapalle	2011-12
SE, Srikakulam	Srikakulam and Tekkali	2007-08

Non-conducting of inspections by for such long periods indicates deficient monitoring over the divisions.

Government replied that inspections of some of the divisions had been completed and inspection of remaining divisions would be taken up.

3.3.8 Conclusion

Department did not have a standard system of conducting physical inspections/ traffic census at fixed intervals on all roads and using the results for planning the works as prescribed in IRC codes. There is no assurance that all the necessary works are identified, prioritized and taken up. There were cases of improper planning of works, taking up works without acquiring lands/obtaining forest clearance/finalizing designs, etc. Execution of road safety works was not fully ensured in all major works. There was no systematic approach for timely identification and eviction of roadside encroachments. Monitoring on the performance of field offices was deficient.

Transport, Roads and Buildings Department

3.4 Maintenance of National Highways

3.4.1 Introduction

National Highways (NHs) constitute primary system of transportation connecting major cities across the country. The total length of NHs in the country (31 March 2014) is 92851.05 Km, out of which 7068.15 Km (30 NHs) is in the erstwhile combined State of AP. Ministry of Road Transport and Highways (MoRTH) under Government of India (GoI) is responsible for development and maintenance of NH. Out of the 7068.15 Km long NHs in AP, maintenance of a road length of 4543.15 Km⁴³ was being done by the Transport, Roads and Buildings (TR&B) Department of GoAP. While MoRTH provides funds for development and maintenance of NHs, the NH Wing of the State TR&B Department executes the NH works (both Plan and Non-plan) and claims agency charges at nine *per cent* of value of works from GoI. The NH Wing is headed by Chief Engineer (NH) who monitors NH works at State level, assisted by three Superintending Engineers (SEs)⁴⁴ at circle level and nine Executive Engineers (EEs)⁴⁵ at field level.

3.4.2 Scope and Objectives of Audit

The audit of maintenance of NHs was conducted (December 2013 - February 2014) with a view to ascertain whether the works were properly identified, estimations done as per MoRTH norms and transparently entrusted, and whether adequate controls are in place. Records relating to 56 plan works and 33 non-plan works, at the offices of the Chief Engineer (NH), all the three Superintending Engineers and five⁴⁶ out of the nine EEs were scrutinized in audit covering the period from 2009-10 to 2013-14.

Audit Findings

Audit noticed deficiencies like lack of adequate mechanism for identifying the maintenance needs of existing roads, non-adherence to MoRTH guidelines etc. as discussed in the following paragraphs:

3.4.3 Non-conducting of periodical inspection of roads

Indian Road Congress (IRC) Code: 82-1982 stipulates that it is desirable to assess the physical condition, structural capacity and riding quality of roads by conducting visual surveys before and after monsoon season every year, maintain kilometer wise data of the results and use the data for planning/prioritizing road maintenance works.

The NH wing is taking up strengthening/improvement, periodical renewal, repair and maintenance works every year. These works are stated to be

⁴³ a length of 2525 Km was under the control of National Highways Authority of India (NHAI)

⁴⁴ Anantapur, Hyderabad and Vijayawada

⁴⁵ Anantapur, Chittoor, Eturunagaram, Hyderabad, Kadapa, Kakinada, Perkit, Vijayawada and Warangal

⁴⁶ Kadapa, Kakinada, Perkit, Vijayawada and Warangal

proposed and taken up after inspection of roads by field level officers. When reports of such inspections were called for by Audit, it was replied that engineers visit the roads frequently and note down the items to be attended and works are proposed after confirming their necessity. The test checked divisions did not produce any inspection reports/list of items thus noted down and the system followed for identifying the works to be taken up.

GoAP replied (January 2015) that Flood Damage Repair(FDR) and Ordinary Repair (OR) works were of urgent nature involving only patch works and were to be taken up immediately and that Annual Maintenance works were attended as and when need arises and not in a planned manner. No reply was furnished on non-availability of documentation on inspections and results thereof. In the absence of any record of inspections done, there is no assurance that physical inspections were carried out on all the road stretches periodically and all the necessary works are identified and taken up.

3.4.4 Non-adherence to MoRTH guidelines

In September 2002, MoRTH issued revised guidelines in respect of Improvements to Riding Quality Programme (IRQP) works and Periodical Renewal (PR) works. Audit observed deviations from these guidelines while executing works as discussed below:

3.4.4.1 Providing Bituminous Macadam in IRQP works

As per MoRTH guidelines on IRQP works, 50 mm of BM and 25 mm of Semi Dense Bituminous Concrete (SDBC) shall be provided for existing pavement with thickness of 300 mm or more, if the undulations⁴⁷ are less than 10 *per cent* of the surface area. If the undulations are between 10 to 20 *per cent*, 75 mm of BM and 25 mm of SDBC shall be provided.

However, audit observed that the Department had provided 50 mm BM in 21 cases without ascertaining the level of undulations. Thus, there was no assurance that BM is being laid with the required thickness specified in the MoRTH guidelines in all cases. Providing BM with less than the required thickness has a risk of early deterioration of the road. Government did not furnish specific reply on this issue.

3.4.4.2 Non-measurement of roughness values periodically

MoRTH issued instructions (April 1984 and May 2000) to immediately put in place a mechanism for periodical measurements of the roughness of all the National Highways with 'rougho-meter (Bump Integrator)'. Roughness measurement would be an important indicator of the quality of the works executed and also an input for prioritizing, renewal/strengthening programmes to be taken up in future. The Ministry stipulated therein the recommended roughness values for various types of road surfaces and instructed that roughness should be measured within one month immediately after completion of any improvement/periodical renewal work and twice a year (June and December) in respect of entire road network and submit reports thereof to the Ministry regularly.

⁴⁷ Ups and downs/uneven patches on road surface due to wear and tear or sunken portions of road

However, Audit observed that the department was not measuring roughness of roads either in renewal/improvement works or of the NH network under its jurisdiction. The Chief Engineer did not have any information about the availability and status of rougho-meters in the divisions.

Thus, there was no assurance that the quality of works executed and riding surface of NHs conformed to the stipulated standards. Government replied that works were periodically inspected by QC Wing of the Department to ensure quality and final bills were paid only after QC inspection. The reply is silent on non-adherence to MoRTH guidelines on measurement of roughness of road surface and furnishing of reports to the Ministry.

3.4.4.3 Short recovery of interest on machinery advance

MoRTH issued (April 2011) instructions to levy interest at the rate of ten *per cent* to be compounded quarterly on mobilization advance payable for all projects to be taken up after April 2011, for which bidding will be held by issuing amendment to clause 51.1 of standard bid document.

Accordingly, an addendum was issued (May 2011) to the tender notice for the work of “Construction of major bridge across river Godavari at Eturunagaram”⁴⁸ to the effect that mobilization advance would be deemed as interest bearing advance at an interest rate of ten *per cent* compounded quarterly.

The work was entrusted (February 2012) to a firm at a value of ₹206.69 crore and a total advance of ₹20.66 crore (₹10.33 crore each for mobilization of labour and equipment) was paid (March 2013) to the agency.

Audit scrutiny revealed that the department was recovering interest at ten *per cent* on mobilization advance of ₹10.33 crore only instead of ₹20.66 crore, and interest amounting to ₹1.07 crore (up to March 2014) was not recovered. On enquiry, Superintending Engineer, NH Circle, Hyderabad replied that the amendment to tender/agreement condition suggested by MoRTH mentioned interest on mobilization advance only and in the absence of specific mention of recovery of interest on equipment advance, the same was not recovered.

The reply is not acceptable since the amendment suggested by MoRTH was in respect of Advance paid under clause 51.1 of standard bid document which deals with mobilization advance in its entirety i.e., advance for mobilization of labour/ equipment.

3.4.5 Acceptance of single tenders at premium in the first call and awarding works without limit of tender premium

As per MoRTH instructions (April 2008) single tenders should not be acceptable in the first instance and NH wing of the State was requested to cancel the single tender received in the first call without opening the bid and re-invite tenders. Further, Government of Andhra Pradesh stipulated (November 2004) maximum ceiling of tender premium of five *per cent* up to which works can be awarded. As per the tender procedure followed in the State, bids quoting in excess of five *per cent* premium (i.e. plus five *per cent*

⁴⁸ Tenders called for in April 2011

over the estimated value of work) are rejected. This ceiling of tender premium is being followed in respect of works executed by all the departments in the State including the TR&B Department.

Audit observed that in four cases, the Department has accepted single tenders in the first call itself. Out of these, two were premium (plus) tenders while two were discount (minus) tenders. Reasons for accepting single tenders with premium in the first call itself were not on record.

In another case, though the Department had rejected single tender received in the first call as stipulated, the price bid was opened in contravention of MoRTH instructions before cancelling and re-inviting tenders.

Further, the Department had accepted five tenders with premium of more than five *per cent* in contravention of Government orders on tender conditions. The excess tender percentage resulted in extra burden of ₹9.69 crore on Government.

GoAP replied that for works costing below ₹5 crore, State Government procedure with five *per cent* tender ceiling was being followed and works costing more than ₹5 crore were being tendered as per MoRTH procedure without any tender ceiling. No justification was furnished for following different procedures for works executed with uniform specifications.

3.4.6 Non-reconciliation of DDs received towards agency charges

Since the NH wing of State TR&B Department executes NH maintenance works on behalf of GoI, it collects Agency Charges at the rate of nine *per cent* of cost of works executed by it. As per the existing procedure, the Department presents work bills for the various maintenance works to the Regional Pay and Accounts Officer (MoRTH), Bangalore/Hyderabad (RPAO) for arranging payment to contracting agencies. While passing each bill, the RPAO releases Agency Charges in the form a Demand Draft⁴⁹ to the Division concerned, which in turn forwards the same to the Principal Accountant General (A&E), Andhra Pradesh, Hyderabad, for crediting into the State Government Account.

Article 8 of AP Financial Code stipulates that it shall be the duty of every Drawing & Disbursing Officer (DDO) to ensure that all the amounts due to be received on behalf of Government are properly realized and credited into the Government Account. Para 16 of AP Budget Manual stipulates that the DDO/Chief Controlling Officer has to reconcile the receivables with that of the amounts credited into the Government Accounts by PAO/Accountant General.

Audit scrutiny revealed that Executive Engineers (R&B) NH, Vijayawada and Kakinada executed works valuing ₹275.57 crore during 2009-14. Thus, Agency Charges of ₹24.8 crore was to be received from the RPAO. However, as per the departmental records, Demand Drafts for a total amount of ₹23.31 crore⁵⁰ only was received from RPAO during 2009-14. Thus, there was a short realization of revenue of ₹1.49 crore. The Divisions were not aware of the

⁴⁹ Drawn in favour of the Principal Accountant General (A&E), Andhra Pradesh, Hyderabad

⁵⁰ 2009-10 - ₹8.78 crore; 2010-11 - ₹3.93 crore; 2011-12 - ₹2.49 crore; 2012-13 - ₹4.64 crore and 2013-14 - ₹3.47 crore

short receipt as they were not reconciling the receipts with RPAO and Accountant General.

Executive Engineers of Perkit, Warangal and Kadapa divisions did not furnish the details of cost of works executed and Agency Charges received by them.

Government did not furnish specific reply on short realization of agency charges and non-reconciliation of receipts with RPAO/Accountant General.

3.4.7 Conclusion

There was no documentation in the department to ensure that inspections of roads are conducted at regular intervals and all necessary works are identified and taken up. There were deviations from the guidelines issued by the Ministry of Roads, Transport and Highways (MoRTH) in some works. The Department was not reconciling the receipts towards Agency Charges with PAO/Accountant General.



(LATA MALLIKARJUNA)
Accountant General
(Economic & Revenue Sector Audit)
Andhra Pradesh and Telangana

Hyderabad
The

Countersigned



(SHASHI KANT SHARMA)
Comptroller and Auditor General of India

New Delhi
The

Appendices

Appendix 1.1

(Reference to paragraph 1.3, page 2)

List of Departments under Economic Sector

1. Agriculture and Co-operation
2. Animal Husbandry, Dairy Development and Fisheries
3. Energy
4. Environment, Forests, Science and Technology
5. Industries and Commerce
6. Information Technology and Communications
7. Infrastructure and Investment
8. Irrigation and Command Area Development
9. Public Enterprises
10. Transport, Roads and Buildings

Appendix 1.2

(Reference to paragraph 1.3, page 2)

List of Autonomous Bodies

- 1 Andhra Pradesh State Seed Certification Agency, Hyderabad
- 2 Andhra Pradesh Co-operative Rural Irrigation Corporation Ltd, Hyderabad
- 3 The Hyderabad Agricultural Cooperative Association Limited (HACA)
- 4 Andhra Pradesh Co-operative Union Ltd, Hyderabad
- 5 Andhra Pradesh Oil Fed, Hyderabad
- 6 Andhra Pradesh Co-operative Bank (APCOB), Hyderabad
- 7 Andhra Pradesh Spinfed, Hyderabad
- 8 Andhra Pradesh Co-operative Tribunal, Hyderabad
- 9 Andhra Pradesh MARKFED, Hyderabad
- 10 Acharya N G Ranga Agricultural University, Rajendra Nagar
- 11 Serifed, Hyderabad
- 12 Andhra Pradesh Sheep & Goat Development Co-operative Federation Ltd, Hyderabad
- 13 Andhra Pradesh Livestock Development Agency, Hyderabad
- 14 Andhra Pradesh State Fishermen Co-operative Societies Federation Ltd, Hyderabad
- 15 Andhra Pradesh INVEST
- 16 Andhra Pradesh Horticulture Agency, Hyderabad
- 17 Andhra Pradesh Dairy Development Cooperative Federation Ltd, Hyderabad
- 18 YSR Horticulture University Tadepally Gudem, W.G.District
- 19 Water & Land Management Training & Research Institute (WALAMTARI)
- 20 Andhra Pradesh Pollution Control Board
- 21 Andhra Pradesh Council of Science and Technology (APCOST)
- 22 Zoo Authority of Andhra Pradesh (ZAAP)
- 23 Andhra Pradesh State Biodiversity Board (APSBDB)
- 24 Society for Andhra Pradesh Network (SAPNET)
- 25 Sri Venkateswara Veterinary University
- 26 Andhra Pradesh Khadi Village Industries Board (APKVIB)
- 27 Andhra Pradesh State CAMPA
- 28 Environment Protection Training & Research Institute (EPTRI)
- 29 A.P State Co-operative Joint Farming & Labour Contract Societies Federation Ltd
- 30 Andhra Pradesh Electricity Regulatory Commission

Appendix 1.3

(Reference to paragraph 1.6.3, page 4)

Department-wise break-up of outstanding Inspection Reports and Paragraphs

Department	Number of IRs/Paragraphs issued up to 31 March 2014 and pending as of 30 September 2014	
	IRs	Paragraphs
Agriculture and Cooperation	801	3062
Animal Husbandry, Dairy Development and Fisheries	233	1019
Energy	5	20
Environment, Forests, Science and Technology	440	1094
Industries and Commerce	249	846
Information Technology and Communication	8	70
Infrastructure and Investment	14	87
Irrigation & Command Area Development [@]	1663	4821
Roads and Buildings	454	1321
Total	3867	12340

[@] Including IRs/paras pertaining to Pay and Accounts Offices (Works) under Finance (Works & Projects) Department

Appendix-2.1

(Reference to paragraph 2.1.8.3, page 15)

Details of testing facilities partially available at APPCB's Zonal Laboratories

Group	Category of tests	Number of mandatory parameters to be tested	Number of test parameters for which facilities were available at the Zonal Labs			
			Hyderabad (at Warangal)	Vijayawada	Visakhapatnam	Kurnool
A	Physical tests	10	10	8	8	10
B	Inorganic tests	13	16	15	15	13
	i) General and Non-metallic					
	ii) Trace metals	15	8	10	10	7
C	Organic tests (General and Trace organics)	5	5	7	7	4
D	Micro-biological tests	4	2	2	2	4
E	Toxicological Tests	1	--	1	1	-
F	Biological tests	3	3	1	1	3
G	Characterization of Hazardous Waste	3	--	4	4	3
H	Soil/Sludge/Sediment and Solid Waste tests	15	11	13	13	4

Appendix-2.2

(Reference to paragraph 2.1.8.3, page 15)

Status of testing equipment available at APPCB's Zonal Laboratories

	Name of the Equipment/Instrument	Number prescribed	Number available and functional or non-functional				
			RC Puram	Warangal	Visakha-patnam	Vijaya-wada	Kurnool
1	Gas Chromatograph with Air sampling port, PPID & PFPD detectors.	1	1 (N.F)	1 (N.F)	1 (N.F)	1	-
2	Atomic Absorption Spectro-Photometer (AAS Instrument with 58 accessories)	1	1	1	1	1	-
3	Conductivity Meter	1	1	1	1	-	1
4	Turbidity Meter	1	--	--	--	-	-
5	Mercury Analyser	1	--	--	--	-	-
6	Rotary Evaporator	1	1 (N.F)	1	--	--	-
7	U.V.Spectrometer	1	1	1 (N.F)	1 (N.F)	1 (NF)	1
8	BOD Incubator	1	1 (N.F)	--	1	1	1
9	Acquarium for bioassay test	4	--	4	--	--	-
10	Hot Air Oven	2	1	4	3	2	2
11	Hot Plate	2	1	2 (N.F)	1	1	1
12	Laminar flow	1	--	--	1	--	-
13	Ultra-sonic water bath	1	1 (N.F)	--	--	--	-
14	Micro-wave digester	1	1 (N.F)	1	1 (N.F)	1	1
15	RSPM sampler	4	5	10	19	5	5
16	Stock monitoring kit with high temperature probes	2	1	1	1 (N.F)	1	1
17	BTX Analyser	1	--	--	--	--	-
18	BTX Calibrator	1	--	--	--	--	-
19	Exhaust CO/HC analyser	1	--	--	--	--	-
20	Flue gas analyser	1	1	--	--	--	-
21	Handy sampler for gaseous monitoring	2	3 (N.F)	2	--	2	-
22	Smoke density meter	1	1	--	--	2 (N.F)	1
23	Ozone Analyser	1	--	--	--	--	-
24	SO2 Analyser	1	--	--	--	--	-
25	Soap bubble meter	1	--	1	1 (N.F)	1	1
26	NO – NO2 – Noxanalyser	1	--	1	--	--	-
27	Total organic Carbon (TOC) Analyser	1	1 (N.F)	--	1 (N.F)	1 (N.F)	1 (N.F)
28	Water quality Monitoring Instrument	1	1	1	1	1	-
29	Automatic COD digestion unit	1	--	2	2	2	1

N.F.: Non-functional

Appendix 2.3
(Reference to paragraph 2.1.10.8, page 22)

Details of short fall in conducting inspections of industries by the APPCB

Name of the Regional Office	Total no. of red category of industries					No. of inspections conducted					Shortfall in Inspections (@ at least one inspection per industry per year)				
	2009-10	2010-11	2011-12	2012-13	2013-14	2009-10	2010-11	2011-12	2012-13	2013-14	2009-10	2010-11	2011-12	2012-13	2013-14
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Hyderabad	129	140	153	163	165	59	110	51	97	79	70	30	102	66	86
Warangal							Information not furnished								
Sangareddy-I	196	221	235	262	286	120	127	142	140	178	76	94	93	122	108
Nalgonda	195	205	235	385	396	95	77	69	55	119	100	128	166	330	277
Vijayawada	215	248	260	277	421	57	127	171	95	128	158	121	89	182	293
Guntur	314	251	91	369	412	42	75	54	114	197	272	176	37	255	215
Vishakapatnam	244	269	292	383	443	30	73	72	109	131	214	196	220	274	312
Kakimada							Information not furnished								
Kurnool	181	192	221	241	353	52	58	48	56	58	129	134	173	185	295
Tirupati	594	594	594	594	594	103	109	109	86	92	491	485	485	508	502
Total	2068	2120	2081	2674	3070	558	756	716	752	982	1510	1364	1365	1922	2088

Appendix 2.4

(Reference to paragraph 2.2.9, page 47)

Details of Gaps identified in Research and Extension activities

Year	Product	Gaps Identified
2009	Rice	Timing of insecticides application for stem borer management is difficult.
		Demonstration to assess the feasibility of paddy seed production in Musi river area in coordination with SRTC & DAATC.
	Sunflower	Popularization of NDSH-1 sunflower hybrid. Maintenance of optimum plant population.
	Safflower	Popularization of safflower hybrid – DSH129 & NARI-SH-1
2010	Agricultural Ornithology	Training on wild boar management
2012	Maize	Popularization of newly developed maize hybrid (DHM-177)
	Rice	Management practices for sulphide injury.
		How to incorporate stubbles after harvesting
	Sorghum	Popularization of sorghum varieties and hybrids.
	Redgram	Popularization and timely management of pod borer in redgram
	Bio control	Documentation of parasites and predators of mealy bugs and Bt. Cotton.
		BIPM in rice, cotton and castor
		Popularization of Trichoderma sp. For the management of gummosis and dry root rot in sweet orange
		Awareness about bio-pesticides/bio fertilizers and their difference with bio products in the light of the court order.
	Fodder Crops	Awareness about quality assessment and management in bio-pesticides with special reference to NPV and Trichoderma.
		Popularization of different fodder crops.
	Soil Science	Farmers are using excess amount of fertilizers. Therefore wide publicity through media, DAATC's and KVK's may be made to farmer community
	Extension Group	Labour shortage in paddy
		Weed control
		Micronutrient management in sweet orange.
		Introduction of high yielding hybrids from ANGRAU in maize
Application of gypsum in groundnut.		
Availability of YMV resistant black gram.		
Indiscriminate use of phosphatic fertilizers in paddy and cotton		
Mangu mite incidence in sweet orange		
Zinc deficiency in paddy		
2013	Rice	Variety similar to MTU-1010
		Compatibility of insecticides, fungicides and Zn
		Conoweeder for weeding in rice sown with drum seeder.
	Pulses and Oil Seeds	Availability of wilt resistant redgram varieties.
		Suitable redgram varieties for STZ
		Short duration redgram variety for STZ
		Pest problem in pigeonpea Maruca

Appendix 2.5

(Reference to paragraph 2.2.9.1, page 48)

Details of new seed varieties released but there was low/nil demand

(quantity in Quintals)

Name of the crop	Year (No. of varieties released)	Name of the hybrid	Breeder seed produced during 2009-14	
Rice	2009-10 (7)	Amara (MTU 1064)	211.64	
		Ramappa (WGL 23985)	197.50	
		Srisatya (RGL 1880)	0	
		Taramati (RNR 23064)	34	
		Manairsona (JGL 3828)	130.58	
		Jagtial Samba (JGL 3844)	328.76	
		Nellore Mahsuri (NLR 34449)	695.90	
	2010-11 (6)	Sugandha samba RNR 2465	135.50	
		Vamsadhara RGL 11414	23.6	
		Bhavapuri Sannalu BPT 2270	82.4	
		Akshaya BPT 2231	79.71	
		Karimnagar Samba JGL 3855	237.47	
		Jagitial Masuri JGL 11470	274.32	
	2011-12 (8)	Pranahitha JGL 11727	66.7	
		Pratyumna JGL17004	41.4	
		Anjana JGL 11118	30	
		Krishna RNR 2458	1	
		Nellore Sona NLR 3041	5.5	
		Swetha NLR 40024	0	
		Sidhi WGL 44	88	
		Sheethal WGL 283	74.4	
	Maize	2009-10 (3)	BH40625 (DHM117)	76.11
			BH1620 (DHM113)	0
BH1576 (DHM111)			0	
Groundnut	2009-10 (4)	Kadiri 7 Bold (K1340)	497.09	
		Kadiri 8 Bold (K1341)	158.46	
		Kadiri 9 (K1375)	3044.02	
		Greeshma (TCGSAPNL888)	97.85	
	2010-11 (3)	Anantha (K1271)	276.2	
		Bheema (TG47)	0	
		Rohini (TCGSAPNL913)	0	
2012-13 (1)	Dharani (TCGS1043)	614.1		
Soya	2009-10 (1)	LSB 3	0	
	2012-13 (2)	Basara (ASB22)	0	
		Bheem (LSB18)	0	

Appendix 3.1

(Reference to paragraph 3.2.2, page 69)

Details of number of villages submerged, families affected, R&R centres and Housing Units contemplated in the test checked projects

S. No	Project	No. of villages submerged			No. of families affected		No. of R&R centres contemplated	No. of Housing units contemplated
		In full	Partial	Total	PAF	PDF		
1	Galeru Nagari (Phase I)	22	3	25	7251	7251	14	5828
2	Gundlakamma	11	1	12	6559	6559	24	4566
3	Polavaram	119	159	278	45952*	45952*	280	2489*
4	Pulichintala	27	1	28	13509	13231	27	10768
5	Thotapally	20	0	20	5915	5915	21	4112
6	Vamsadhara	20	0	20	8658	7104	26	4816
7	Veligonda	11	0	11	3863	3863	8	Not yet assessed
8	Bheema	7	1	8	6156	6156	10	2714
9	Flood flow Canal	18	5	23	11123	11123	12	5155
10	Yellampally	19	3	22	12967	12967	17	9060
	Total in test checked projects	274	173	447	121953*	120121*	439	49508*
	Total in the State	361	193	554	142230*	138789*	512	65275*

* Does not include data relating to Khammam district under Polavaram project which was yet to be fully assessed

Appendix 3.2

(Reference to paragraph 3.2.7, page 74)

Status of preparation of village wise R&R estimates in test checked projects

S No	Project	Submerged villages	Villages where SES was conducted	No. of villages where R&R estimates were prepared	Balance
1	Galeru Nagari (Phase I)	25	17	13	4
2	Gundlakamma	12	12	4	8
3	Polavaram	278	278	*	*
4	Pulichintala	28	28	15	13
5	Thotapally	20	20	20	00
6	Vamsadhara	20	20	00	20
7	Veligonda	11	11	00	11
8	Bheema	8	8	00	08
9	Flood flow Canal	23	11	11	00
10	Yellampally	22	21	21	00
	Total	447	426	84	64

* Information in respect of 278 villages notified under Polavaram project was not furnished by the Project Administrators

Appendix 3.3

(Reference to paragraph 3.2.9, page 76)

R&R benefits to be given to affected families as per R&R Policy

Para No. of Policy	Grant	Purpose	Amount / benefit
6.2	House site / Ex-gratia	For PDFs whose sites were acquired	House site of 202 SqM in rural and 75 SqM in urban areas
6.3	Housing grant as One time Financial assistance	For PDFs whose sites were acquired	₹50000
6.4	Allotment of land	PAFs becoming small or marginal farmers	2.5 Ha dry or 1.25 Ha wet land
6.7	Cattle shed grant	For PAFs having cattle	₹15000
6.8	Transporting grant	For transporting / shifting building materials	₹5000
6.9	Income grant	For rural artisan / small trader / self employed	₹25000
6.10	Wages if land owner becomes landless	For loss of livelihood in lieu of land acquired if no land is allotted	750 days minimum agricultural wages
6.11	Wages if land owner becomes marginal farmer	For loss of livelihood in lieu of land acquired if no land is allotted	500 days minimum agricultural wages
6.12	Wages if land owner becomes small farmer	For loss of livelihood in lieu of land acquired if no land is allotted	375 days minimum agricultural wages
6.13	Wages to labourers	For agricultural laborers	625 days minimum agricultural wages
6.14	Subsistence allowance	In addition all other benefits to PAFs who are also PDFs	240 days minimum agricultural wages
6.14	Pension	Vulnerable persons	₹500 a month

Appendix 3.4
(Reference to paragraph 3.2.9, page 76)

Housing and Transportation grants paid before allotment of house-sites

Name of the Project and Village	No. of PDFs	PDFs for which house sites allotted	Period of allotment	PDFs for which housing grant paid	Period of payment of housing grant	Housing grant paid (₹ in crore)	PDFs for which transport grant paid	Period of payment of transport grant	Transport grant paid (₹ in crore)
Thotapally									
Nandivanivalasa	27	27	January 2008	26	October 2005	0.10	23	September 2006	0.01
Naviri	341	339	November 2008	333	March 2006	1.33	290	September 2006	0.14
Naviri colony	62	62	November 2008	61	March 2006	0.24	56	September 2006	0.02
Gijaba	683	666	November 2007 June 2008	666	July 2007	3.53	589	April/ June/ July 2007	0.29
Basangi	430	0	Yet to be allotted (July 2014)	286	July 2009	0.51	262	November 2007 August 2008	0.13
Yellamapally									
Suraram	209	209	2013	227	February/ March 2011 July/October 2012	1.13	159	February/ March 2011 July/October 2012	0.08
Gullakota	819	819	2013	804	December 2010 March/ December 2011	4.02	687	December 2010 March/ December 2011	0.34
Padthanpally	336	336	Yet to be allotted (December 2013)	227	December 2008 February 2012	1.13	196	December 2008 February 2012	0.09
Karanamamidi	1054	1054	Yet to be allotted (December 2013)	998	2009 2012	4.99	763	2009 2012	0.38
Rapally	885	885	Yet to be allotted (December 2013)	813	February/ March 2009	4.06	678	February/ March 2009	0.34
Total						21.04			1.82

Glossary

Glossary

Air Act	: Air (Prevention and Control of Pollution) Act-1981
ANGRAU	: Acharya N.G.Ranga Agricultural University
APAU	: Andhra Pradesh Agricultural University
APKVIB	: Andhra Pradesh Khadi and Village Industries Board
APPCB	: AP Pollution Control Board
APPSC	: AP Public Service Commission
APPWD code	: AP Public Works Department Code
APSSDC	: AP State Seed Development Corporation
APT	: Agriculture Polytechnic
ARS	: Agricultural Research Station
BaP	Benzo(a) Pyrene
BM	: Bituminous Macadam
BMW	: Bio-Medical Waste (Management and Handling) Rules-1998
BOD	: Biochemical Oxygen Demand
BOM	: Board of Management
CFE	: Consent for Establishment
CFO	: Consent for Operation
CO	: Carbon Monoxide
CPCB	: Central Pollution Control Board
CRT	: Cathode Ray Tube
DAATTCs	: District Agricultural Advisory and Transfer of Technology Centres
DBFOT	: Design-Build-Finance-Operate-Transfer
DDO	: Drawing & Disbursing Officer
DICs	: District Industries Centres
DTFC	: District level Task Force Committee
EEs	: Executive Engineers
EP Act	: Environment (Protection) Act-1986
EPTRI	: Environment Protection Training and Research Institute
FIR	: First Information Report
GHG	: Green House Gas
GoAP	: Government of Andhra Pradesh
GoI	: Government of India

HCEs	:	Health Care Establishments
HLBs	:	High Level Bridges
I&CAD	:	Irrigation and Command Area Development
IA	:	Internal Audit
ICAR	:	Indian Council of Agricultural Research
IDA	:	Industrial Development Area
IGNOU	:	Indira Gandhi National Open University
IRC	:	Indian Road Congress
IRQP	:	Improvements to Riding Quality programme
ITDAs	:	Integrated Tribal Development Agency
JCs	:	Joint Collectors
KGMV	:	Khadi Gramodyog Maha Vidyalaya
KVIC	:	Khadi and Village Industries Commission
KVIs	:	Khadi and Village Industries
KVKs	:	Krishi Vigyan Kendras
MDRs	:	Major District Roads
MLD	:	Million Litres per Day
MM	:	Margin Money
MoRTH	:	Ministry of Road Transport and Highways
MoU	:	Memorandum of Understanding
MSW Rules	:	Municipal Solid Waste (Management and Handling) Rules-2000
MTD	:	Metric Tonnes per day
NAAQ	:	National Ambient Air Quality
NABL	:	National Accreditation Board for Testing and Calibration of Laboratories
NAM	:	Narketpally-Addanki-Medarmetla
NH	:	National Highways
NO ₂	:	Nitrogen Dioxide
O ₃	:	Ozone
OR	:	Ordinary Repairs
PA	:	Project Administrator
PAFs	:	Project Affected Families
PDFs	:	Project Displaced Families
Ph.D	:	Post Graduate and Doctorate
PLMC	:	Project Level Monitoring Committee

PMEGP	:	Prime Minister's Employment Generation Programme
PPP	:	Public Private Partnership
PR	:	Periodical Renewal
QC	:	Quality Control
R&R	:	Resettlement and Rehabilitation
RARS	:	Regional Agricultural Research Stations
RKVY	:	Rashtriya Krishi Vikas Yojana
ROB	:	Road over Bridges
ROs	:	Regional Offices
ROW	:	Right of Way
RPAO	:	Regional Pay and Accounts Officer (MoRTH), Bangalore/Hyderabad
RSPM	:	Respirable Suspended Particulate Matter
SAUs	:	State Agricultural Universities
SDBC	:	Semi Dense Bituminous Concrete
SE	:	Superintending Engineer
SES	:	Socio-Economic Survey
SH	:	State Highway
SO ₂	:	Sulphur Dioxide
SPCB	:	State Pollution Control Board
SPM	:	Suspended Particulate Matter
STPs	:	Sewage Treatment Plants
SVRC	:	State Varietal Release Committee
TDRs	:	Term Deposit Receipts
TDS	:	Total Dissolved Solids
TPD	:	Tonnes per day
TR&B	:	Transport, Roads and Buildings
TSDFs	:	Treatment, Storage and Disposal Facilities
UCs	:	Utilisation Certificates
ULBs	:	Urban Local Bodies
Water Act	:	Water (Prevention and Control of Pollution) Act-1974