CHAPTER I

PERFORMANCE AUDIT

This chapter contains four performance audit reports *viz*., Management of Co-operative Sugar Mills, National Rural Health Mission, Comprehensive Wasteland Development Programme and Computerisation of Land Records.

INDUSTRIES DEPARTMENT

1.1 Management of Co-operative Sugar Mills

Highlights

Tamil Nadu is the fourth largest sugar producing State in the country with an annual sugar production of about 22 lakh MT. Sugar cane is cultivated in about 2.35 lakh hectares every year in the State. There are 40 sugar mills of which 16 are in the co-operative sector, three in the public sector and 21 in the private sector. Three mills, one each in the co-operative sector, public sector and private sector, are defunct. The Commissioner of Sugar regulates the sugar mills in the State as the Cane Commissioner, monitors and supervises the Co-operative Sugar Mills (CSMs) as their Functional Registrar and implements Government schemes in the CSMs. A performance audit of the management of CSMs conducted between January and May 2009 revealed the following:

- **Accumulated losses of the CSMs in the State as of March 2008 was Rs 1,475.46 crore and 13 of these mills had negative net worth.**

(Paragraph 1.1.6)

- **Only 1,604 hectares were covered under a micro-irrigation programme for increase in sugar cane cultivation upto December 2008, against a target of 17,640 hectares to be covered by the CSMs during 2006-07.**

(Paragraph 1.1.7.5)

- **Diversion of sugar cane from the CSMs to other mills resulted in additional transport cost of Rs 1.25 crore during 2006-09 in the test-checked CSMs.**

(Paragraph 1.1.7.7)

- **Failure to adhere to the technical parameters in the sugar manufacturing process and deficiencies in upkeep of machinery led to low sugar recovery rates, contributing to a total loss of Rs 12.97 crore during 2004-09.**

(Paragraph 1.1.8.2 (i))

- **In six test-checked CSMs, 23 *per cent* of the time loss in excess of norms was due to mechanical breakdowns.**

(Paragraph 1.1.8.2(ii))

- **Sub-optimal operational efficiency of sugar mills resulted in loss of revenue of Rs 4.35 crore in the sale of bagasse during 2004-09.**

(Paragraph 1.1.8.4)

- **Low capacity utilisation of a distillery in Salem CSM caused revenue losses of Rs 13.46 crore during 2004-09.**

(Paragraph 1.1.8.6 (i))

- **Failure of the Salem CSM to maintain/replace bio-digesters resulted in excess expenditure of Rs 8.13 crore on purchase of furnace oil for the boilers of their distillery unit during 2004-09.**

(Paragraph 1.1.8.6(ii))

- **Inferior performance of a boiler resulted in less generation of electricity for export, leading to revenue loss of Rs 5.92 crore in MRK CSM during 2004-09.**

(Paragraph 1.1.8.7)

- **Due to the high upset prices and poor attendance at sugar auctions for sale of free sugar conducted by the Tamil Nadu Co-operative Sugar Federation, free sugar was converted into levy sugar, leading to a total loss of Rs 8.40 crore during 2004-09 for 11 CSMs.**

(Paragraph 1.1.9.1 (ii))

- **Five out of the six test-checked CSMs did not conduct Annual General Body meetings as prescribed.**

(Paragraph 1.1.10.3)

1.1.1 Introduction

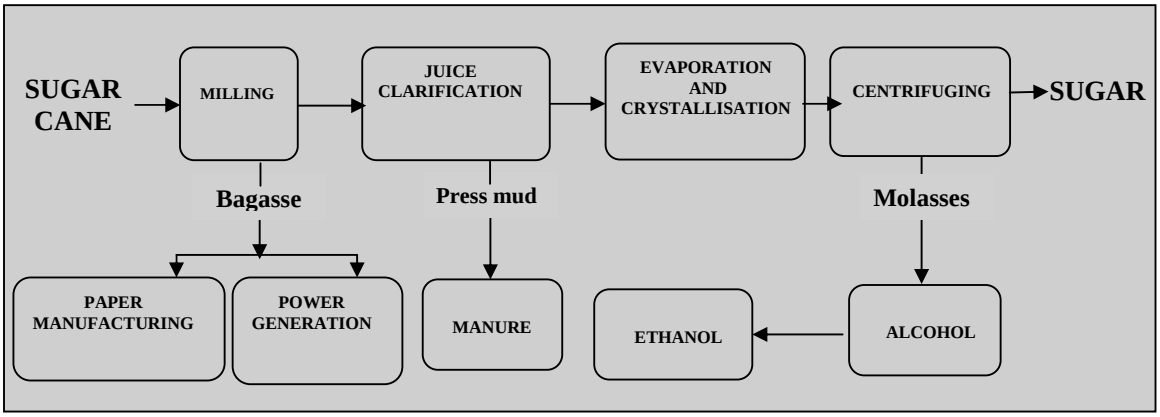
Tamil Nadu is the fourth largest sugar producing State in the country with an annual sugar production of about 22 lakh MT. Sugar cane is cultivated in about 2.35 lakh hectares every year in the State. There are 40 sugar mills of which 16 are in the co-operative sector, three in the public sector and 21 in the private sector. Three mills, one each in the co-operative sector, public sector and private sector are defunct. The Commissioner of Sugar (COS) regulates the sugar mills in the State as the Cane Commissioner, monitors and supervises the Co-operative Sugar Mills as their Functional Registrar and implements Government schemes in the Co-operative Sugar Mills.

The activities of CSMs can broadly be classified as sugar cane production, sugar mill operation and marketing of sugar. Each sugar mill is provided with a reserved area for cultivation. Sugar cane produced by registered growers in the reserved area is supplied to the concerned sugar mills. The sugar mills pay the State Advised Price[1] for the sugar cane supplied to them and also meet the cost of transportation of the cane from the fields to the factories. The prime crushing season is from October to March. During the off season i.e., from April to September, maintenance and other ancillary activities are carried out.

Ten *per cent* of the sugar produced by the mills is sold as levy sugar at rates fixed by the Government of India (GOI) and the balance quantity is sold as free sale sugar with reference to release orders[2] issued from time to time by GOI within the stipulated time. The Tamil Nadu Co-operative Sugar Federation fixes the upset price[3] for auction of free sale sugar with reference to the prevailing market rate of the previous day.

The sugar manufacturing process yields by-products such as bagasse[4], molasses[5], press mud[6], etc., as shown in **Chart 1.**

Chart 1 : By-products and downstream products



(Source : Tamil Nadu Co-operative Sugar Federation)

The effective functioning of CSMs depends on assured availability of sugar cane of good quality, optimum utilisation of machinery, capacity utilisation of mills and prudent marketing and financial arrangements.

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1 Price fixed through a tripartite agreement between the State Government, sugar mills and growers, which is always higher than the statutory minimum price for sugar cane fixed by Government of India.

2 Orders issued in the beginning of each month by the Chief Director of Sugar, Government of India under the provisions of the Essential Commodities Act, 1955, permitting the sugar mills to sell a specified quantity of sugar during the month.

3 The minimum floor price for sale of sugar through auction.

4 Bio-mass that remains after extraction of sugar, water and other dissolved solids from sugar cane.

5 Heavy, dark-coloured residual syrup drained away in the final stage of manufacture of sugar.

6 A by-product of sugar used as a manure.

During the last three years (2006-09), the 15 CSMs produced 5.63, 6.74 and 5.23 lakh metric tonnes of sugar, i.e., around 27 *per cent* of the total sugar produced in the State.

1.1.2 Organisational structure

The organisational structure for development and regulation of the sugar industry is given in **Appendix 1.1.** The activities of the main functionaries are given below:

(i) Commissioner of Sugar

While the Principal Secretary to Government, Industries Department is in overall charge of the CSMs, the COS has statutory and administrative powers in matters such as licensing for setting up of new sugar mills, expansion of crushing capacities of existing sugar mills, collection of sugar cane cess from sugar mills, allotment of sugar cane areas to sugar mills, ensuring industrial peace in CSMs and monitoring their activities. COS is also the Functional Registrar of CSMs.

(ii) Tamil Nadu Co-operative Sugar Federation

The Tamil Nadu Co-operative Sugar Federation, an apex co-operative body of all CSMs, is headed by a Special Officer in the rank of Additional Registrar of Co-operative Societies, drawn from the Co-operation Department. It is involved in providing technical, financial and marketing support to CSMs. The federation also sets the upset price for auction of free sale sugar.

(iii) Co-operative Sugar Mills

As elections for co-operatives have not been conducted since 1976, the Special Officers / Administrators appointed by Government manage the CSMs. The Special Officers /Administrators carry out the day to day functions of the CSMs and report to the COS. The Special Officer/Administrators are directly responsible for operation of the mills.

1.1.3 Audit objectives

The objectives of the performance audit were to assess:

- the efficiency of financial management in the CSMs;
- the system for ensuring adequate and timely availability of quality sugar cane for the CSMs;
- the efficiency and economy of CSM operations;
- the effectiveness of the marketing arrangements for sugar and its by-products and
- the effectiveness of the monitoring mechanism established by the Government and the COS.

1.1.4 Audit criteria

The audit criteria used for examining the various activities were:

- Provisions of the Sugar Control Order, 1966; the Sugar Development Fund Act, 1982; the Tamil Nadu Sugar Factories Control Act, 1949; the Tamil Nadu Co-operatives Societies Act, 1983 and other statutes.
- Policies of the Government, standing orders, specific Government orders, guidelines, etc.
- Goals set and targets fixed by the COS, budgets approved by appropriate committees, etc.
- Corporate plans of CSMs, technical standards and norms in sugar manufacturing, Generally Accepted Accounting Practices and good practices in management.

1.1.5 Audit coverage and methodology

The performance audit was conducted from January to May 2009 through test check of records in the Industries Department in the Secretariat, office of the COS, six[7] out of 15 CSMs, selected on random basis and the Sugar Research Institute, Vellore. The audit objectives and audit criteria were discussed with the Principal Secretary to Government, Industries Department during an entry conference held on 3 March 2009. Audit covered the five-year period from 2004-05 to 2008-09.

The audit findings are based on evidence collected from the records of the auditees, replies furnished by the officers concerned and analysis of data furnished in electronic form. The findings were discussed with the COS on 7 August 2009 in an exit conference.

Audit findings:

1.1.6 Financial management in Co-operative Sugar Mills

Accumulated losses of the CSMs was Rs 1475.46 crore and 13 mills had negative net worth as of March 2008

The performance of CSMs was hampered mainly due to the high cost of production, loan servicing and belated/non-receipt of eligible subsidy as discussed below:

As of March 2008, the total accumulated losses of the 15 CSMs was Rs 1475.46 crore (**Appendix 1.2**). Since, the liabilities exceeded the assets, 13 CSMs[8] had negative net worth. The total loan liability of all the 15 functioning CSMs as of March 2009 was Rs 1175.16 crore. The State

[7] Dharmapuri, M R Krishnamurthi (MRK), Nadippisai Pulavar KR Ramasamy (NPKRR), Salem, Tiruttani and Vellore CSMs.

[8] All the CSMs, except for Cheyyar and Kallakurichi II CSMs.

Government had invested Rs 56.88 crore in 15 CSMs in the form of share capital and extended loans totalling Rs 717.80 crore to them up to March 2009. Besides, the State Government had provided Rs 51.10 crore for development of sugar cane roads and sugar cane research during 2004-09.

Government of India provided financial assistance in the form of buffer stock subsidy, transport subsidy and loans for modernisation and sugar cane development. The CSMs also obtained loans from co-operative banks and the National Co-operative Development Corporation. Besides, loans at nominal interest were also available from the Sugar Development Fund[9] which could not be availed of by most of the CSMs due to their negative net worth.

1.1.6.1 Production Cost

The average cost of production of sugar and sale realisation during 2004-09 were as given in **Table 1**.

Table 1 : Cost of production against sale realisation

(Rs per MT)

	2004-05	2005-06	2006-07	2007-08	2008-09
Cost of production	1,778	1,894	1,730	1,765	1,904
Sale realisation	1,469	1,642	1,599	1,257	1,585

(Source: Tamil Nadu Co-operative Sugar Federation)

This indicated that the production cost was always higher than the sale realisation. The production cost in excess of sale realisation ranged from Rs 131 to Rs 508 per MT during 2004-09. The increase in production cost was mainly due to increase in sugar cane procurement prices. The State Advised Price (SAP) fixed by the State Government was invariably higher than the Statutory Minimum Price (SMP) fixed for sugar cane by GOI. The material cost alone accounted for nearly 71 *per cent* of the cost of production.

Added to this, the purchase tax payable by the sugar mills on purchase of sugar cane in the State was the highest in the country. The purchase tax and sugar cane cess were levied at the rate of Rs 60 and Rs 5 per MT respectively compared to Rs 24 per MT[10] levied in the State of Maharashtra, the highest sugar producing State. The huge accumulated loss was a result of high cost of production due to Government policies on fixation of sugar price and low sale realisation of sugar as discussed later in para 1.1.9.1.

1.1.6.2 Borrowings by Co-operative Sugar Mills

Interest payments by the CSMs accounted for 14.39 *per cent* of the cost of production during 2008-09

(i) High cost of loan servicing

Interest burden on long term loans and cash credit loans of CSMs accounted for 14.39 *per cent* of the cost of production during 2008-09. The total

[9] Fund constituted (1982) by Government of India with proceeds of sugar cess collected from sugar mills for every quintal of sugar produced.

[10] At the rate of three *per cent* of the Statutory Minimum Price fixed by Government of India for sugar cane.

outstanding loans of these mills was in the range of 1.82 to 38.69 times of the share capital, indicating excessive dependence on borrowed funds due to their low capital base. Scrutiny of records of the test-checked CSMs revealed that the rate of interest on borrowings from GOI and its agencies was up to 16.75 *per cent* while from the State Government, it was up to 17.25 *per cent*. These aspects had their impact on the cost of loan servicing and ultimately pushed up the cost of production.

Though the Tuteja Committee appointed (2004) by GOI to suggest measures to revitalise the sugar industry, recommended measures like rescheduling of loans and conversion of loans into equity share for revitalising the sugar industry, the State Government had not done any re-scheduling of loans after 2001. The State Government did not convert any loans into share capital during 2004-09, except converting dues of Rs 5.50 crore against MRK CSM as share capital.

The COS replied (September 2009) that the proposal for conversion of arrears of interest and loan into Government equity was under consideration of the Government.

(ii) Non-availing of loans from the Sugar Development Fund

Government of India created (1982) the Sugar Development Fund by levying a cess on sugar produced by sugar mills for development of sugar industry. Loans from the Sugar Development Fund were available at low interest rates for increasing sugar cane production, modernisation and expansion of sugar mills and for setting up of co-generation, ethanol plants, etc.

During 2004-09, the six test-checked mills had contributed Rs 14.12 crore as sugar cess to the Sugar Development Fund, but none of them availed of the loan facility from the Sugar Development Fund as the State Government was not inclined to extend guarantees to CSMs for availing of loans, due to their negative net worth. As a result, two CSMs ended up paying higher interest in respect of loans taken for setting up ethanol plants as shown in **Table 2** and lost the opportunity to save Rs 43.23 lakh towards interest payment (June 2009).

Table 2 : Higher interest liability

Name of the CSM	Month of completion of project	Project Cost	SDF Loan eligibility	SDF Interest rate (*per cent*)	Interest rate on open market loan (*per cent*)	Estimated interest saving* (Rs in lakh)
		(Rupees in crore)				
Salem	September 2008	3.50	2.62	4	13	19.65
Amaravathi	July 2008	3.50	2.62	4	13	23.58
Total						**43.23**

(Source – Calculation based on the reply of respective mills)
* Interest calculated from month of completion of the project to June 2009.

The COS stated (September 2009) that the mills had made earnest efforts to obtain loans from the Sugar Development Fund at cheaper interest rates, but did not succeed for want of Government guarantees.

1.1.6.3 Defective claims resulted in delays in receipt of subsidies from Government of India

(i) Buffer stock subsidy

Buffer stock subsidy and transport subsidy from Government of India were delayed due to defects in the subsidy claims

In order to stabilize the price of sugar, GOI ordered (August 2007) all sugar mills to maintain a buffer stock. The interest, storage and insurance charges for the quantities allocated as buffer stock were reimbursed to the sugar mills in the form of buffer stock subsidy. The claims for this subsidy were to be made in the prescribed format by the CSMs. As the Special Officers of the 15 CSMs failed to file their claims in the prescribed format with supporting documents containing stock details, bank interest rates, etc., GOI returned the claims to the respective mills during 2007-09. The Special Officers subsequently resubmitted their claims in the prescribed format with the required details.

(ii) Transport subsidy for export of sugar

To promote the export of sugar, GOI provided incentives in the form of transport subsidy at rates not exceeding Rs 1,350 per MT of sugar exported. The CSMs had to submit proof of export, proof for transport charges paid, etc., in order to receive the subsidy. However, it was found that due to non-furnishing of the required documents, GOI returned the claims made by the CSMs during 2002-08. Subsequent furnishing of required details by Special Officers of CSMs resulted in delay in receipt of the transport subsidy. As of March 2009, Rs 30.81 crore was to be received from Government of India towards transport subsidy by 15 CSMs.

The COS stated (September 2009) that deficiencies in the claims were being rectified.

1.1.6.4 Non-availing of carbon credits

Two CSMs with distilleries failed to avail of carbon credits

In the sugar industry, carbon credits[11] are available for generation of methane gas by treating distillery effluents in bio-digesters[12]. During the Chief Executives' meetings held in March 2008, the Special Officer of Amaravathy CSM was entrusted with the responsibility of obtaining carbon credits for the distillery bio-digesters installed at the Salem and Amaravathy CSMs. It was seen in Audit that a proposal for engaging an agency to carry out documentation for availing of carbon credit was initiated only in May 2009. As a result, the two CSMs had not yet availed of the financial benefits of carbon credits. Incidentally, it was noticed that a private sugar mill in the State had earned Rs 12.95 crore through carbon credits during 2006-08. The COS as the Registrar of CSMs, failed to ensure availing of carbon credits by the two entitled CSMs.

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[11] The United Nations Framework Convention on Climate Change awards one carbon credit for mitigation of one MT of carbon. Government and corporate bodies in developed countries purchase the carbon credits.

[12] Plants for treatment of distillery effluents wherein methane gas is separated through a biochemical process before discharging the treated effluent.

1.1.6.5 Non-receipt of claims for sale of bagasse

The Salem CSM entered (1981) into an agreement with the Tamil Nadu News Print Limited (TNPL), a joint sector company for sale of bagasse. Due to a dispute over the quantity of bagasse supplied, the company did not honour the claims of the Salem CSM amounting to Rs 11.97 crore for the period from 1988-89 to 2007-08. Accounting Standards 29 of the Institute of Chartered Accountants of India, stipulates that if the outcome of a claim that an enterprise is pursuing, is uncertain, it is to be treated as a contingent asset. Suitable disclosure is to be made in this regard in the annual accounts. However, it was observed that the Salem CSMs' pending claim of Rs 11.97 crore for the last 20 years with TNPL was not disclosed in its annual accounts as a contingent asset.

Though the Secretary to Government, Industries Department mediated between the Salem CSM and TNPL, the issue is still to be sorted out (September 2009).

1.1.7 Sugar cane development

Ensuring adequate production of good quality sugar cane is essential to achieve optimum capacity utilisation and higher recovery rates[13] of sugar.

The total cane area registered and the total cane crushed during 2004-09 was as shown in **Table 3.**

Table 3 : Year-wise cane area and cane crushed

Sugar season	Total cane area registered (in acres)	Sugar cane required for 100 *per cent* capacity utilisation (in lakh MT)	Total cane crushed (in lakh MT)
2004-05	1,16,696	60.02	26.00
2005-06	1,85,284		51.71
2006-07	1,88,690		58.27
2007-08	1,69,660		73.51
2008-09	1,59,610		54.69

(Source : Physical performance Reports/Performance budget)

CSM-wise details of cane area registered and cane crushed during 2006-09 are given in **Appendix 1.3**. Deficiencies in sugar cane development activities are discussed in the succeeding paragraphs.

1.1.7.1 Non-ensuring of the quality of sugar cane seed

To improve sugar cane yield, CSMs have to develop sugar cane seed through a three-tier nursery programme. Primary nurseries are to be raised by the CSMs

[13] The ratio of quantity of sugar manufactured to the quantity of sugar cane crushed. (Sugar manufactured / Sugar cane crushed) x 100.

by sourcing genetically pure breeder seeds from research stations[14]. The sugar cane setts[15] obtained from the primary nurseries are to be supplied to registered farmers to develop secondary nurseries. The yield from secondary nurseries are utilised by registered farmers to develop commercial nurseries, which in turn, yield sugar cane for bulk planting.

Under the three-tier nursery seed production programme, targets were fixed for CSMs to ensure seed quality. In the test-checked CSMs, it was seen that the targets had not been completely achieved during the period 2004-09 **(Appendix 1.4**), leading to non-ensuring of the quality of sugar cane seed. As for sourcing of genetically pure seeds for planting in primary nurseries by the test-checked CSMs, it was found that (i) three mills[16] did not source breeder seeds from the research stations (ii) three mills[17] sourced only a meagre quantity of less than 10 *per cent* from the research stations and (iii) three mills[18] sourced breeder seeds from private nurseries without ascertaining their quality. Despite having three research stations under the fold of Tamil Nadu Agricultural University, the COS, as Registrar of CSMs, failed to ensure availability of sufficient quantity of breeder seeds. The COS stated (September 2009) that due to the prevailing drought, the research stations could not supply breeder seeds.

1.1.7.2 Deficiencies in development of captive sugar cane farms

Captive sugar cane farms were to be developed in CSMs in order to (i) raise primary nurseries for seed supply, (ii) demonstrate new technologies/biological pest control methods, (iii) produce and sell bio-compost and (iv) participate in research/field trials for new varieties. Test check of six CSMs, however, revealed that

- Primary nurseries were not established in the captive sugar cane farms to supply quality seeds.
- Facilities for soil testing were not available.
- Except for the Salem CSM, none of the test-checked mills produced bio-pesticides and bio-fertilizers for supply to farmers to promote scientific farming.
- In two test-checked sugar mills[19], cultivation was not done in the captive sugar cane farms in 35 acres due to unsuitability of soil for cultivation as it was polluted by the factory effluents, as well as lack of fencing.

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[14] Research stations : Tamil Nadu Agricultural University, Cuddalore and Sirugamani and Sugar cane Breeding Institute of Indian Council for Agriculture Research, Coimbatore.

[15] Cane cuttings with one or two buds are known as setts or seed pieces.

[16] Dharmapuri, MRK and Tiruttani.

[17] NPKRR, Salem and Vellore.

[18] NPKRR, Tiruttani and Vellore.

[19] MRK and NPKRR.

The COS replied (September 2009) that Rs 3 lakh per CSM was provided in the budget for the year 2009-10 to develop the captive farms for effective technology demonstration. However, the fact remained that the captive cane farms could not perform their envisaged functions during 2004-09.

1.1.7.3 Failure to follow planting programme

The normal crushing season in the State is from October/November/ December to March/April/May. To ensure uninterrupted sugar cane supply during the crushing season, month-wise planting programmes were approved by the COS and targets were fixed for staggered planting and ratooning[20]. However, only 21 *per cent* of planting in the test-checked mills was done as per the planting programme during 2004-09. This indicated that the COS, as the 'Cane Commissioner' of the State, failed to ensure staggered cultivation of sugar cane. As a result, cane harvesting was not done as per the original programme and four of the test-checked mills crushed overage[21] sugar cane (**Appendix 1.5**) to the extent of 45 *per cent* of the total cane crushed during 2004-08, leading to low recovery rates during the closure of the crushing seasons (**Appendix 1.6**).

1.1.7.4 Deficiencies in sugar cane harvesting

The 'cut to crush' time of 20.50 lakh MT of sugar cane in two mills during 2004-09 exceeded the norm of 24 hours

The time span between harvesting and crushing of sugar cane was to be kept below 24 hours. Failure to crush the sugar cane within 24 hours would lead to less sugar recovery from sugar cane juice. In two test-checked mills[22], the 'cut to crush' time[23] in respect of 54 to 87 *per cent* of the sugar cane crushed exceeded 24 hours during 2004-09. The quantity of sugar cane crushed beyond 24 hours in these CSMs during 2004-09 was 20.50 lakh MT (78 *per cent* of the total cane crushed).

The field level officials of the sugar mills were required to test the maturity of the sugar cane before harvesting, using a hand held instrument[24]. However, this essential test was not carried out in Salem CSM. The shortfall in conducting the test before harvesting in other CSMs was in the range of 77 to 91 *per cent*.

1.1.7.5 Implementation of micro-irrigation programme

Government of India launched a Micro-Irrigation Programme in 2006-07 for encouraging micro-irrigation for various crops including sugar cane. GOI and the State Government jointly provided subsidy up to 50 *per cent* of the cost of installing drip irrigation facilities for sugar cane crops, subject to a maximum of Rs 28,000 per hectare. Drip irrigation would result in conservation of water

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[20] Germination of new plants from the root portion of the harvested cane.

[21] Overage : Above 13 months of plantation.

[22] Dharmapuri and Tiruttani.

[23] The time span between the time of harvesting and the time of crushing.

[24] Hand refractometer to test maturity of sugar cane.

to the extent of 40 to 50 *per cent* and also in increased yield by 15 to 30 *per cent*. Under the scheme, the COS fixed individual targets for CSMs. The subsidy was placed at the disposal of the Tamil Nadu Horticulture Development Agency, the nodal agency for implementing the scheme, for release to farmers based on the recommendation of CSMs.

Achievement under micro-irrigation programme was 1,604 hectares as against the target of 17,640 hectares

Audit noticed that the implementation was tardy as only 1,604 hectares (nine *per cent*) were covered as of December 2008, against the target of 17,640 hectares by 15 CSMs for 2006-07 under this programme. During discussion, the COS stated (August 2009) that the target was being reduced.

1.1.7.6 Diversion of registered sugar cane

The Tamil Nadu Sugar Factories Control Act, 1949 and the Sugar Control Order 1966, provide that farmers cultivating sugar cane in the reserved area of a sugar mill are not allowed to divert the sugar cane harvested from their registered fields to other sugar mills or for other purposes. However, it was found that there was continuous unauthorised diversion of sugar cane by farmers from the registered area of Tiruttani CSM. During 2008-09, an estimated 49,000 MT of registered sugar cane of the sugar mill was diverted to other mills in the State and in Andhra Pradesh. The diversion of sugar cane affected the capacity utilisation of the sugar mill. The average capacity utilisation of the mill was very low at 50 *per cent* as against the average capacity utilisation of 92.6 *per cent* for CSMs in the State during 2004-09, rendering it unviable. This large scale diversion indicated the failure of the COS in enforcing the statutory powers vested in him under the Tamil Nadu Sugar Factories Act, 1949 and Sugar Control Order 1966.

1.1.7.7 Avoidable expenditure on transport

The cost of transporting sugar cane from the fields to the mills was being borne by the CSMs from 2006-07 onwards. The transport costs accounted for nearly five *per cent* of the cost of production of sugar during 2006-09 in the CSMs in the State. In the test-checked CSMs, the rate for transportation of cane was not fixed through tendering, but through a system of negotiations by convening meetings of sugar cane growers and transport operators. Thus, the CSMs lost the advantage of competitive rates.

Diversion of sugar cane resulted in avoidable additional expenditure of Rs 1.25 crore in test-checked mills during 2004-09

Sugar cane registered by one mill could be diverted to another mill through orders of the COS under certain situations which include mechanical breakdowns, shortage of cane etc. As per the normal practice, if the diversion took place due to inability of a mill to crush the sugar cane produced in its registered area, the mill which diverted the sugar cane had to bear the transportation costs from the growers' fields to the receiving mill. On the other hand, if diversion took place due to shortage of sugar cane, the receiving mill had to bear the transport cost. It was noticed that while the average transport cost per MT in the test-checked mills during 2006-09 ranged from Rs 56.46 to Rs 137.21, the cost of transport of sugar cane on account of diversion ranged from Rs 72.26 to Rs 529 per MT due to coverage of more distance, contributing to an avoidable additional expenditure of Rs 1.25 crore during 2006-09 in all the six test-checked mills (**Appendix 1.7**).

1.1.7.8 Non-implementation of insurance scheme

National Agricultural Insurance Scheme was not implemented by the test-checked CSMs

The National Agricultural Insurance Scheme was in operation in the State to protect farmers against losses suffered by them due to crop failure, drought, flood, fire, pest/diseases etc. The CSMs were required to ensure enrolment of the farmers under the scheme. It was found that the test-checked sugar mills had not enrolled the sugar cane farmers of the registered area under this scheme. As a result, an estimated loss of Rs 17.35[25] crore, sustained by the growers due to crop failures in an extent of 11,985 acres in the test-checked mills during 2007-09 on account of pest attacks and water scarcity could not be recouped by them.

1.1.8 Sugar mill operations

The sugar manufacturing process involves crushing of sugar cane to extract sugar cane juice, clarification of juice, heating and evaporation of water from the juice, crystallization, drying, packing and storage of sugar.

The quantity of sugar cane crushed by the CSMs fluctuated from 26 lakh MT to 73.51 lakh MT during 2004-09[26] against the installed capacity of 60.02 lakh MT. During the 10 year period of 1998-2008, the share of CSMs (46.41 lakh MT) in sugar production was 26 *per cent* of the total production (175.65 lakh MT) in the State. While the production in CSMs all over India had increased by 35 *per cent* during the same period, production by the co-operative mills in Tamil Nadu was almost stagnant at around five lakh MT per annum. This was mainly because the average daily crushing capacity (2,327 MT per day) of the CSMs in Tamil Nadu as of March 2009 was far below the capacity (5,000 MT per day) suggested (2004) by the Tuteja Committee and even below the all India average capacity of 3,586 MT per day. Deficiencies noticed in sugar mill operations are discussed in the succeeding paragraphs.

1.1.8.1 Capacity utilisation

Capacity utilisation of sugar mills depends on sugar cane availability as well as the efficiency of the machinery and the manufacturing process. The daily average crushing capacity utilisation ranged between 61 and 88 *per cent* in three test-checked sugar mills and above 90 *per cent* in three mills during 2004-09 (**Appendix 1.8**). The sugar mills attributed non-operation of the mills at rated capacity to the poor performance of machinery.

The CSMs plan their dates of commencement of crushing well in advance and these dates are approved by the COS. It was found that the test-checked mills commenced crushing with delays of more than 15 days in 33 *per cent* of the crushing seasons during the years 2004-09. The delay was highest (87 days) in the Dharmapuri CSM during 2004-05 mainly due to delay in completion of maintenance work and non-availability of sugar cane.

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[25] Calculated on the basis of an average yield of 14 MT per acre for 11,985 acres at the 2007-08 SAP rate of Rs 1,034 per MT.

[26] Quantity of sugar cane crushed by CSMs: 2004-05: 26.00 lakh MT; 2005-06: 51.71 lakh MT; 2006-07: 58.27 lakh MT, 2007-08: 73.51 lakh MT and 2008-09 : 54.28 lakh MT.

The optimum age for harvesting is 12 months for sugar cane and 11 months for ratoons. Delayed commencement of the crushing season and operation of the mills below the rated capacity, coupled with the failure to encourage staggered planting (Paragraph 1.1.7.3), necessitated extension of the crushing season, leading to crushing of 21.88 lakh MT (45 *per cent* of the total cane crushed) of overage sugar cane during 2004-09 in four of the test-checked mills **(Appendix 1.5).** This led to decrease in the recovery rate, below the anticipated 9 *per cent* in 40 out of 60 months in the beginning and closing months of the crushing season during 2004-09 (**Appendix 1.6**) and contributed to lower annual recovery rates. The failure of COS, as the 'Cane Commissioner', to ensure timely cultivation and timely commencement of crushing season was the reason for the huge quantity of over-age sugar cane.

1.1.8.2 Failure to arrest losses within the prescribed norms

(i) Manufacturing losses in excess of ceiling

Failure to adhere to the required technical parameters in the manufacturing process and deficiencies in upkeep of machinery contributed to loss of Rs 12.97 crore

The recovery rate of sugar depends on the quality of sugar cane received for crushing and the manufacturing efficiency of the mills. The annual average recovery rate in the CSMs in the State, varied between 9.12 and 9.98 *per cent* during 2004-09. The sugar manufacturing process involves loss of sugar at various stages for which a normative ceiling of 1.80 *per cent*[27] had been prescribed by the COS. The daily manufacturing reports of the test-checked sugar mills revealed that the actual manufacturing losses exceeded the norms prescribed on an average of 48 to 96 *per cent* of the days of crushing for the period 2004-09, leading to a total loss of Rs 12.97 crore as given in **Table 4**.

Table 4 : Loss due to non-adherence to prescribed norms

Name of co-operative sugar mill	Number of days of crushing during 2004-09	Number of days with total loss in excess of 1.80 *per cent*	Quantity of sugar lost in excess of norms (MT)	Value of the quantity of sugar lost in excess of norms (Rs in crore)
Dharmapuri*	408	195 (48)	288.16	0.44
NPKRR	741	627 (85)	3298.56	4.79
MRK	882	549 (65)	1152.61	1.65
Salem	894	551 (62)	1459.92	2.20
Tiruttani	540	518 (96)	1997.83	2.83
Vellore	779	639 (82)	1066.89	1.56
Total	**4244**	**3079 (72)**	**9263.97**	**12.97**

(Source : Data extraction from Daily Manufacturing Reports)

* Figures for 2006-09 only as details in respect of 2004-06 were not available.

(Figures in brackets indicate percentage of total number of days crushed where the total loss exceeded the norm).

The factors that contributed to manufacturing losses in excess of the norms fixed are discussed below:

[27] Loss up to 1.8 MT of sugar is tolerable if the total cane crushed is 100 MT.

(ii) Loss of time

Twenty three *per cent* of time loss, in excess of norms, in the six test-checked mills was because of mechanical break downs

Sugar mills are to be operated uninterruptedly throughout the crushing season except for planned shutdowns to attend to minor maintenance works. Interruptions in the operation of sugar mills would result in extension of the cut to crush time and consequent losses due to low recovery of sugar.

The COS has prescribed that the time loss in a crushing season should be less than eight *per cent* of the total hours. It was, however, noticed that the time loss in the test-checked CSMs during 2004-09 was higher than the ceiling in all the mills except in Dharmapuri and Salem CSMs during 2004-05 as given in **Table 5.**

Table 5 : Time loss in test-checked CSMs

(Percentage of time loss to total time)

Mill	2004-05	2005-06	2006-07	2007-08	2008-09
Dharmapuri	6.79	10.46	9.63	10.27	NA
MRK	11.09	8.99	9.65	13.75	17.66
NPKRR	34.41	16.18	18.96	24.81	24.90
Salem	3.14	11.98	12.16	10.24	9.78
Tiruttani	38.15	14.17	16.14	19.74	28.97
Vellore	11.78	11.45	11.55	13.37	13.71

(Source : Annual returns furnished by CSMs)

The overall time loss during 2004-09 in the test-checked mills in excess of the ceiling of eight *per cent* was 6,994 hours. Of this, 1,582 hours were lost due to mechanical breakdowns, 2,378 hours due to shortage of sugar cane, 1,279 hours due to cleaning operations and 1,755 hours due to other reasons. Time losses due to mechanical breakdowns were due to deficiencies in maintenance work and failure to identify and replace worn out parts (**Appendix 1.9**).

(iii) Losses due to failure to maintain standard norm for imbibition and pH

While crushing sugar cane in the mills, hot water is added to soften the sugar cane fibre, in order to extract maximum juice from it. This process is known as imbibition of fibre. Juice extraction is also dependent on proper maintenance of milling rollers. Further, maintenance of the appropriate pH[28] level, temperature etc., at various stages of sugar manufacturing operations reduce the manufacturing losses of sugar.

As per the final manufacturing reports in respect of the test-checked mills for the years 2004-09, the annualised imbibition percentage was less than the desired level[29] in 41 *per cent* of the total crushing days. This meant that less hot water was added, leading to less recovery of sugar. Similarly, mill

[28] A measure of the acidity or basicity of a solution.

[29] Hot water weighing 30 to 35 *per cent* of the sugar cane weight is to be added for effective imbibition.

extraction was less than the norm of 94 to 95 *per cent* in 35 *per cent* of the crushing days during the same period.

Further scrutiny of data on pH of clear juice during January to March 2009 in the test-checked mills disclosed that the pH was below the standard norm of 7.0 to 7.1 in 27 *per cent* of the crushing days, resulting in loss of sugar in filter cakes[30], molasses, etc. This implies that less or more sulphur / lime was added to the sugar cane juice.

The above lapses indicated that the operations were not carried out with adequate supervision. The Chief Chemist (CC) and Chief Engineer (CE) are the two officers responsible for efficient operation and maintenance of the CSMs. Records revealed that as of May 2009, seven[31] CSMs neither had a CE nor a Deputy CE. Three[32] CSMs did not have a CC and Deputy CC. Further, the Special Officers were transferred frequently and the average tenure of Special Officers during 2004-09 was only eight months. The COS replied (September 2009) that action was being taken to fill up the vacancies.

1.1.8.3 Inefficient manpower management in Co-operative Sugar Mills

No system existed for redeployment of surplus staff and monitor employment of nominal muster rolls against vacancies

The sugar mills have regular and seasonal staff. Regular staff are employed throughout the year and seasonal staff are employed only during the crushing season. The seasonal staff are discharged from service during off-seasons and are paid only 30 to 50 *per cent* of their entitled salary as retention allowance. Vacancies in the cadre of regular and seasonal staff are filled up with workers on nominal muster rolls and also by casual labourers. The expenditure on salaries and wages of the sugar mills accounts for about eight to nine *per cent* of the cost of production.

The six test-checked CSMs had a sanctioned strength of 3,072 staff/workers as of March 2009. While 1,052 posts (regular - 563 and seasonal – 489) were vacant, the mills also operated 511 posts (regular – 237 and seasonal – 274) in excess of the sanction. The surplus manpower under various posts was continued even after the vacancies were filled up by employing workers on nominal muster rolls and casual workers. There was no system to train the surplus manpower under certain categories / posts to make them qualified for employment against vacant posts. Besides, there was no system to redeploy the surplus hands of one mill in other mills where vacancies existed for similar posts. The details of approved staff pattern, existing strength, vacancies and surplus in the 15 CSMs are given in **Appendix 1.10.**

The staff strength of CSMs was downsized during the reorganisation in 1999. However, the sanctioned strength in 13 mills was around 500, as against 355 in the Kallakurchi II CSM established in 1997. Audit noticed that expenditure on salaries and wages in Kallakurichi II CSM was the lowest and worked out to five to six *per cent* of the cost of production as against eight to nine *per cent* in the CSMs as a whole. Kallakurichi II CSM also had the highest net worth among the CSMs.

The COS had not established any system to train the surplus manpower under certain categories / posts to make them qualified for employment against

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30 A by-product of sugar.

31 Amaravathy, Ambur, Dharmapuri, National, NPKRR, Salem and Tiruttani.

32 Ambur, Salem and Tiruttani.

vacant posts. There was no system to redeploy the surplus hands in one mill to other mills having vacancies for similar posts. During discussion, the COS assured to take appropriate action to redeploy the surplus staff in CSMs.

1.1.8.4 Losses due to excess consumption of bagasse

Poor operational efficiency of sugar mills resulted in non-realisation of potential revenue to the tune of Rs 4.35 crore by sale of bagasse

Bagasse is a by-product of sugar and is used for generation of steam for sugar mill operations. As per the norms, burning of one MT of bagasse should generate two to 2.25 MT of steam depending on the make and technology of the boiler.

However, on an average, the test-checked mills generated only 1.94 MT of steam for one MT of bagasse. Further, the test-checked mills consumed steam in excess of the norms of 48 to 50 *per cent* of sugar cane crushed by weight. The combined effect of low generation of steam and high consumption of steam resulted in excess consumption of bagasse with reference to norms, leading to a total revenue loss of Rs 4.35 crore during 2004-09 **(Appendix 1.11)**. The COS stated (August 2009) during discussion, that the efficiency of the CSMs' operations would improve in the near future as modernisation of CSMs at a cost of Rs 322 crore was under consideration.

1.1.8.5 Low level of diversification

CSMs failed to reap the financial benefits of diversification

Sugar manufacturing yields by-products like bagasse, molasses, etc. Bagasse can be used in paper manufacturing and as boiler feed for power generation through cogeneration plants[33] in sugar mills. Molasses can be used as a raw material for production of alcohol products like rectified spirit, extra neutral alcohol, denatured spirit, ethanol, etc. which have a ready market and good profitability. In order to encourage diversification, Government of India provides soft loans at four *per cent* interest for establishment of ethanol plants and cogeneration plants.

The CSMs lagged behind in diversification of their business activities. While 18 of the 21 private sector sugar mills in the State had cogeneration plants for power generation using bagasse, only three[34] of the 15 CSMs had cogeneration plants. The State Government ordered (February 2008) the COS to provide cogeneration plants in all the co-operative sugar mills. Tenders received were under finalisation with the COS as of June 2009. Similarly, while the private sector had 12 distilleries with a licensed capacity to produce 17.77 crore litres of alcohol per annum, the co-operative sector had only two[35] distilleries with a licensed capacity of 3.10 crore litre per annum. Proposals to establish a distillery and ethanol plant in two sugar mills[36] were being processed by COS. Due to non-diversification, the CSMs had to sell molasses, bagasse etc., without converting them into valuable downstream products like alcohol, ethanol, power, manure, etc.

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33 Cogeneration Plant : Generation of steam by burning bagasse is a normal part of sugar mill operations to generate electricity for captive consumption and for boiling sugar cane juice. In mills with co-generation plants, higher capacity boilers are provided to generate steam in excess of their own requirements to power turbines of electricity generators for ultimate export of energy.

34 Cheyyar, Subramania Siva and MRK.

35 Salem and Amaravathy.

36 MRK and Cheyyar.

1.1.8.6 Poor functioning of distillery unit of Salem Co-operative Sugar Mill

Poor capacity utilisation of a distillery in Salem CSM resulted in revenue loss of Rs 13.46 crore.

(i) Loss due to poor capacity utilisation of distillery

Two of the 15 CSMs had distillery units attached to them to process molasses into alcohol products. The present performance audit covered one of the distillery units attached to the Salem CSM. The production performance of the distillery unit of Salem CSM is given in **Table 6**.

Table 6 : Capacity utilisation of Salem Distillery

Year	Annual capacity[37] (Kilo Litre)	Actual production (Kilo Litre)	Capacity utilisation *(per cent)*
2004-05	16,500	6,239	38
2005-06	16,500	4,462	27
2006-07	16,500	10,597	64
2007-08	16,500	8,174	49
2008-09	16,500	8,197	50

(Source : Salem CSM)

The poor capacity utilisation was mainly due to problems in the effluent treatment plant. The Central Pollution Control Board ordered the Salem CSM to stop distillery operations for 75 days and to restrict the production to below 14 Kilo Liter (KL) per day for 211 days and below 41 KL per day for 224 days during 2007-09 against the installed capacity of 55 KL per day. The poor capacity utilisation was also due to plant breakdowns, problems in storage of alcohol produced, etc., which resulted in revenue loss of Rs 13.46 crore during the five year period 2004-09, as worked out with reference to maximum production achieved in 2006-07 (**Appendix 1.12**).

(ii) Loss due to non-functioning of a bio-digester

Avoidable expenditure of Rs 8.13 crore due to non-functioning of bio-digester

As per the procedure, the effluents of a distillery unit pass through a bio-digester, wherein the pollutant level is brought down by a bio-chemical process. The methane gas released in the bio-chemical process is used as a boiler fuel to produce steam for the operations of the distillery. The bio-digester of the Salem CSM got choked and its performance came down from the year 2002, due to which there was inadequate supply of methane gas for use as fuel for operation of the distillery boiler. Based on a belated proposal (2006) of the CSM, the existing bio-digester was revamped and a new bio-digester was installed at a cost of Rs 2.85 crore, which started functioning only from March 2009. In the absence of a functional bio-digester, the distillery had to depend on furnace oil to run its boiler and had to spend Rs 8.13 crore during 2004-09 on procurement of the furnace oil. As methane gas from a bio-digester, a by-product in the effluent treatment process, is a sufficient and freely available source of boiler feed, the delay in setting up a functional bio-digester and in revamping the old bio-digester contributed to avoidable additional expenditure of Rs 8.13 crore on procurement of furnace oil.

[37] 55 Kilo Litre per day x 300 days per annum.

1.1.8.7 Poor performance of co-generation plant

Generation of steam at lower pressure resulted in revenue loss of Rs 5.92 crore in export of power

Three of the 15 CSMs had co-generation plants for generation of electricity. The co-generation plant of MRK CSM was provided with two high tension (HT) turbines of 2.5 mega watt (MW) capacity each to export five MW of power. Steam for the HT turbines as well as for the manufacturing operations[38] of the sugar mill was generated by a boiler with an installed capacity of 64 MT per hour. The quantity of steam required for operation of the HT turbines as well as for the mills own consumption, *vis-à-vis* the actual availability during 2004-09 was as given in **Table 7**.

Table 7 : Requirement and availability of steam

(MT/Hour)

Steam requirement for		Installed capacity of the boiler	Steam requirement as per design	Actual steam generation by the boiler	Actual steam available for turbines
Own requirement	Mill operations	64	18.00	58 to 61	40.50
	LT turbine		21.75		
Requirement for power export	Two HT turbines		35.50		17.5 to 20.50
Total		**64**	**75.25**	**58 to 61**	**58 to 61**

(Source : MRK CSM)

As seen from the above, the installed capacity of the boiler was insufficient to provide the required steam for the HT turbines. Therefore, as against the installed capacity to generate 1.20 lakh units[39] per day, the COS fixed a reduced target of 60,000 units per day. The mill, however, was unable to achieve even the reduced target due to supply of steam with reduced pressure of 37 kg/cm^2 against the requirement of 42 kg/cm^2 for HT turbines, owing to frequent repairs in the boiler and drops in pressure in the steam lines. Though minor repairs and replacements were carried out frequently, no significant steps were taken to repair them properly so as to achieve the desired output. As a result of this, even the reduced target of power export could not be achieved, depriving the CSM of possible revenue of Rs 5.92 crore **(Appendix 1.13).**

1.1.8.8 Idle investment on ethanol plants

Idle investment of Rs 7 crore on two ethanol plants

Ethanol is manufactured by further distillation of extra neutral alcohol (ENA), manufactured from molasses in the distilleries attached to sugar mills. Permission of the Commissioner of Prohibition and Excise is mandatory for establishing ethanol plants. The COS proposed (December 2006) setting up of an ethanol plant in two mills[40] at a cost of Rs 3.50 crore each. The State Level Advisory Committee[41] approved (December 2006) the proposal. As per the permission accorded by the Commissioner of Prohibition and Excise (October 2006), production of ethanol by the two mills was subject to the demand for potable alcohol in the State being fully met. The Commissioner of

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38 Steam is used for a low tension (LT) turbine to generate electricity for captive consumption and in the turbo drives that provide motive power to cane cutter, mill rollers etc.

39 5 MW = 5000 units per hour x 24 hours = 1,20,000 units.

40 Amaravathy and Salem.

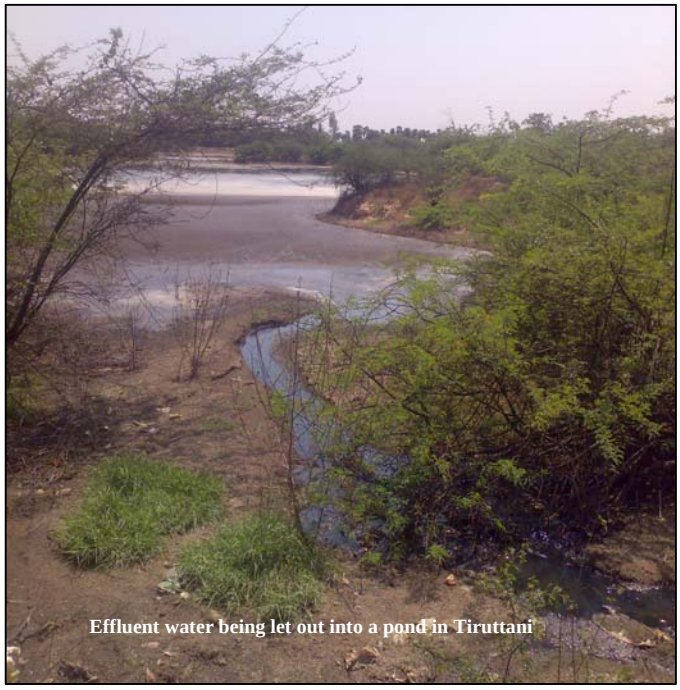
41 A Committee headed by the Principal Secretary to Government, Industries Department with powers to approve proposals of CSMs costing more than Rs 50 lakh.

Prohibition and Excise had not given permission for commercial production of ethanol till May 2009. It was, however, noticed that the COS, despite being aware of the fact that potable alcohol was in short supply, ventured to establish ethanol plants in the mills. As a result, the two ethanol plants established during August/September 2008 at a cost of Rs 7 crore had not commenced commercial production of ethanol as of May 2009, resulting in idle investment of Rs 7 crore.

1.1.8.9 Industrial Safety

Sugar milling being a heavy industry with a substantial work force, industrial safety assumes utmost importance. During 2004-09, in four of the test-checked CSMs[42], 233 accidents were reported with 150 injuries and two fatalities. All CSMs had sanctioned posts of one Medical Officer and three paramedical staff. However, it was found that the MRK and NPKRR CSMs did not have any Medical Officers. Further, the MRK CSM did not have an ambulance despite the occurrence of 129 accidents during the last five years. None of the test-checked mills had documented the procedures for responding to emergencies nor had sensitized the workers for emergency situations.

The sugar industry is classified under the 'red' category[43] for the purpose of pollution control and has to obtain consent letters from the Tamil Nadu Pollution Control Board for their functioning. Audit observed that four[44] test-checked mills did not have the Pollution Control Board's valid consent letter to run the mills, as they failed to adhere to the effluent treatment and air pollution norms. Further, even though the sugar mills were expected to treat their effluents and use the treated effluents to irrigate their sugarcane farms, these four test-checked CSMs allowed their treated as well as untreated effluents to flow into a nearby lake and river canals leading to pollution of the water bodies. When this was pointed out, the CSMs accepted (April 2009) the facts and stated that they were taking all possible steps to adhere to the specified norms.



Effluent water being let out into a pond in Tiruttani

[42] MRK, NPKRR, Salem and Vellore.

[43] The Tamil Nadu Pollution Control Board has classified the industries as per their pollution load into three categories. 'Red' category denotes highly polluting industries which are to be monitored at least once in four months.

[44] Dharmapuri, NPKRR, Salem and Tiruttani.

1.1.9 Marketing

1.1.9.1 Sugar marketing

Sugar is a partly controlled essential commodity and GOI exercises control through a mechanism of 'release orders' for marketing sugar. Government of India permits the sugar mills to sell 90 *per cent* of the quantity as free sale quantity through periodical release orders. The quantity so released is to be sold within the period specified (generally one month) in the release order. Ten *per cent* of the production of each mill is reserved for sale through the public distribution system as levy sugar. The price fixed for levy sugar was Rs 13.50 per kg during 2004-09.

(i) Fixing of upset price

The Tamil Nadu Co-operative Sugar Federation (Federation) is the designated agency for marketing sugar produced by CSMs. The Special Officer of the Federation fixes the upset price for sale of sugar based on market trends and the prices prevailing in nearby private mills. The Federation and the CSMs conduct sugar auctions in Chennai and in the mill premises respectively on alternate days. The Special Officer, Federation issues delivery orders to the bidders who quote rates above the upset price during the auction held at Federation. On the subsequent day, the auctions are held at the mill premises.

Audit noticed that in 135 out of the 315 auctions[45] (43 *per cent*), the rates quoted by the bidders were rejected as they were less than the upset prices. This indicated that the mechanism of fixing upset prices based on the sale prices of private mills was faulty. The Federation failed to recognise that while the sale of sugar in CSMs was on cash basis, the private sugar mills effected sale on credit also. Further, the Federation failed to consider the previous days' sale and offers received by it for free sale of sugar in CSMs, leading to inability in selling the released quantities. It was further observed that 28 *per cent* of the sugar samples of the test-checked sugar mills tested by the Sugar Research Institute, Vellore, during 2004-09 were below the desired standard.

(ii) Low number of bidders

The Federation had no system to advertise the sugar auctions. Test check of bidders' participation in the auctions conducted by the Federation in respect of seven test-checked months during 2004-09 disclosed that on an average, only eight bidders participated in the auctions conducted for 15 CSMs per day. A detailed study of sugar auctions during November 2008 and January 2009 by Audit disclosed that the Federation did not receive even a single offer in 163 out of 315 auctions (52 *per cent*), which indicated lack of publicity for these auctions.

[45] Conducted during 2007-09 in seven randomly selected months

Defective setting of upset price and lack of publicity for sugar auctions conducted by Tamil Nadu Co-operative Sugar Federation resulted in loss of Rs 8.40 crore

As a result of defective setting of upset price and limited participation of bidders in sugar auctions, the test-checked CSMs could not sell the entire quantity of sugar released for sale within the period specified in the release order. Test check by Audit disclosed that during 2007-09, the Chief Director of Sugar, Government of India ordered conversion of 33,029 MT of unsold free sugar in 11 CSMs as levy sugar to be sold through the public distribution system at Rs 13.50 per kg. As the price of levy sugar was less than that of the open market sugar, the 11 CSMs sustained a loss of Rs 8.40 crore due to failure to sell the released quantity within the release period during 2008-09 (**Appendix 1.14**). On this being pointed out by Audit, the COS initiated action through the Federation to give wide publicity for sugar auctions. Following this, 379 new dealers registered (August and November 2009) themselves with the Federation and the number of bidders participating in auctions went up to 75 per day. This indicated that the failure of COS to give regular wide publicity was the reason for the revenue loss to CSMs.

1.1.9.2 Marketing of alcohol

Non-convening of Alcohol Marketing Committee meetings resulted in accumulation of huge stock of alcohol products in Salem Cooperative Sugar Mill

The Federation markets the alcohol products[46] manufactured by the distilleries of Salem CSM and Amaravathy CSM through tender-cum-auctions. The Alcohol Marketing Committee headed by the Joint COS fixes the rates for alcohol products based on the tenders/offers received. The committee is required to meet once in two months. The rates fixed by the committee are valid till new rates are fixed.

The Committee met only 13 times during 2004-09 as against the requirement of 30 meetings during the period. As the alcohol market witnessed high fluctuations, non-revision of sale prices periodically resulted in accumulation of stock, necessitating the stopping of production for four months during 2004-09. Scrutiny of records at the Salem CSM disclosed that in 23 months during 2004-09, the sale of rectified spirit was less than 10 *per cent* of the stock. As a result, the monthly average of rectified spirit held in stock during 2004-09 was very high and the inability to market the same resulted in blocking of around Rs 1.67 crore.

1.1.10 Administration of Co-operative Sugar Mills

As stated earlier the general administrative control of all the CSMs vested with the COS, who was assisted by Special Officers appointed for each mill. The deficiencies noticed in the administration of the CSMs are discussed in the succeeding paragraphs.

1.1.10.1 Transfer of sugarcane area

Sugarcane availability is crucial for the successful operation of sugar mills. Based on the recommendations of the Area Delimitation Committee, Government took away (May 2007 to August 2008) 32,253 acres of sugarcane growing land from six CSMs and allotted the same to five new private sugar mills which were to be established. These five mills had not yet commenced crushing. While the average quantity of sugarcane crushed by the CSMs during 2001-06 was 40.53 lakh MT, it was 75.94 lakh MT during 2006-07 due

[46] Rectified spirit, denatured spirit, extra neutral alcohol etc.

to a bumper crop. The Committee, however, justified the transfer based on the sugarcane availability in 2006-07. The Committee adopted 15 km as the minimum distance between two sugar mills as against the Tuteja Committee's recommendation of 25 km. The percentage of sugarcane area transferred to private mills ranged from 14.41 to 50.16 in respect of six CSMs. The reduction in sugarcane availability for the six CSMs after the proposed transfer of area and resultant possible reduction in production of sugar worked out by Audit on the basis of average performance during 2004-09 are furnished in **Table 8.**

Table 8 : Likely impact of transfer of cane area

Name of sugar mill	Yearly average of		Percentage of existing sugarcane area transferred	As a consequence of transfer of sugarcane area	
	Sugarcane crushed during 2004-09	Sugar produced during 2004-09		Reduction in availability of sugarcane	Reduction in production of sugar
	(Lakh MT)			(Lakh MT)	
Kallakurichi I	4.53	0.42	37.60	1.70	0.16
Kallakurichi II	4.52	0.44	14.41	0.65	0.06
Subramania Siva	4.15	0.44	26.67	1.11	0.12
Chengalvarayan	5.25	0.47	50.16	2.63	0.24
Tirupathur	2.17	0.23	47.60	1.03	0.11
Salem	4.15	0.41	19.08	0.79	0.08
Total	**24.77**	**2.41**		**7.91 (32)***	**0.77 (32)@**

(Source : Government orders and minutes of Delimitation Committee)

* Figure in bracket indicates percentage to average sugarcane crushed during 2004-09 (Col.2).

@ Figure in bracket indicates percentage to average sugar produced during 2004-09 (Col.3).

As may be seen from the above, the percentage of anticipated reduction in sugarcane availability and the resultant reduction in production of sugar due to diversion of sugarcane area would be around 30 *per cent* of the average sugarcane crushed and sugar produced by the six CSMs during 2004-09. Further, the capacity utilisation of these mills was also likely to decrease to financially unviable levels during the year due to the transfer of land. The COS replied (September 2009) that based on the recommendations of the Area Delimitation Committee, cane areas of six CSMs were allotted to private sector mills. The reply was not on the issues raised by Audit.

1.1.10.2 Achievement under sugarcane road development scheme

As per Section 14(1) of the Tamil Nadu Sugar Factories Control Act, 1949, every sugar mill is required to contribute Rs 5 per MT of sugarcane crushed to the Sugarcane Cess Fund constituted by the State Government. Sixty *per cent* of the contribution is to be spent on road works in that area. Audit found that the CSMs were not prompt in remitting sugarcane cess. As of March 2009, a sum of Rs 9.53 crore was in arrears from the CSMs to the Sugarcane Cess Fund. It was also noticed that no road work had been carried out during 2004-09 in NPKRR CSM, despite its contribution of Rs 78.80 lakh during that period.

1.1.10.3 General body meetings in Co-operative Sugar Mills

Five out of six CSMs did not conduct annual general body meetings during 2004-09

Section 32 of the Tamil Nadu Co-operative Societies Act, 1983 provides that the meeting of the General Body of a registered society should be conducted at least once in a year. However, five out of the six test-checked sugar mills did not organise any General Body meeting during 2004-09. The Tiruttani CSM conducted only one such meeting during 2004-09. Member farmers had no role in the management of CSMs due to non-conducting of elections and failure to hold the meetings. This was against the basic principles of the co-operative movement and could erode the farmers' sense of belonging to the same.

1.1.11 Monitoring

1.1.11.1 Web-based monitoring

The Federation developed (2001) a web-based system for monitoring the functioning of CSMs. The system was upgraded in 2006 at a cost of Rs 1.10 lakh. The CSMs were to upload data relating to their mills on a daily / weekly basis. The module on manufacturing was designed to capture data on sugar cane crushed, sugar content, etc. The finance module was designed to capture data on expenditure control, physical performance, stock, etc. The module on sugar cane development was to capture data on registration, supply and payment details. Audit found that none of the test-checked CSMs had uploaded their complete data as required. Failure to upload critical data necessary for monitoring compromised the objective of creating the web-based monitoring system.

1.1.11.2 Inspection of cooperative sugar mills

Commissioner of Sugar had not inspected five of the six test-checked CSMs during 2004-09

Field inspections by officers is in practice in all Government Departments to monitor the activities of field units. Although Rs 774.68 crore was extended by Government in the form of share capital and loans to CSMs, it was found that the COS had not inspected five of the six test-checked CSMs during 2004-09.

1.1.12 Conclusion

The CSMs in the State suffered heavy losses due to high cost of production. They failed to diversify into power generation, distillery operations etc., to augment their revenue. Lack of a scientific approach in sugarcane development, problems in sugarcane linkage, crushing of overage sugarcane, frequent breakdown of machineries, non-maintenance of correct technical parameters in sugar mill operations etc., affected the efficiency of CSMs. Excess manpower, failures in marketing and excessive dependence on borrowed funds for working capital contributed to the high cost of production, which led to recurring losses and resulted in huge accumulated losses.

1.1.13 Recommendations

- Government intervention by way of loan restructuring is necessary to lessen the financial burden of the CSMs and to improve their overall functioning.
- CSMs should strengthen their cane farms and ensure cultivation of primary nurseries and supply of quality seeds to farmers.
- Stringent measures should be in place to ensure co-operative mills' adherence to norms on total loss and time loss.
- Government should speed up the diversification process and analyse the possibility for capacity expansion of CSMs.
- Government should revisit the staffing pattern of CSMs.
- The system of fixing upset price for free sale sugar needs to be reviewed and strengthened.

The above points were referred to Government in July 2009. Reply had not been received (October 2009).

HEALTH AND FAMILY WELFARE DEPARTMENT

1.2 National Rural Health Mission

Highlights

The National Rural Health Mission (NRHM) was launched in April 2005 by Government of India in all States to bring about significant improvements in the health system and the health status of the people, especially those in rural areas. The Mission seeks to provide universal access to equitable, affordable and quality health care which is accountable and at the same time, responsive to the needs of the people. A performance audit of the implementation of NRHM in Tamil Nadu brought out the following:

- **Though baseline surveys were completed, consolidation of data at the State level had not been done. Perspective Plans for the Mission period were not prepared by the State Health Society. District Action Plans were not prepared during 2005-08. Village and Block Plans were also not prepared during 2007-09 and 2005-09 respectively.**

(Paragraphs 1.2.6.1 and 1.2.6.2)

- **Rupees 359 crore out of Rs 965.57 crore (37 *per cent*) received by the State Health Society up to 2008-09 remained unspent. Poor utilisation of funds released for activities such as hiring of private anaesthetists and paediatricians and facilities for basic emergency obstetrics newborn care resulted in balances totalling Rs 62 crore, lying unspent with seven test-checked districts.**

(Paragraphs 1.2.7.1 and 1.2.7.2)

- **Rupees 53.95 crore were diverted from NRHM's funds to various Central, State and World Bank assisted schemes during 2006-09.**

(Paragraph 1.2.7.5)

- **Forty seven *per cent* of the posts of Laboratory Assistants were vacant in the State. Twenty two *per cent* of the posts of drivers and 12 *per cent* of the posts of pharmacists were also vacant.**

(Paragraph 1.2.8.2)

- **Block Primary Health Centres/Primary Health Centres and Health Sub Centres were not strengthened with adequate staff as per Indian Public Health Standards, in the test-checked districts.**

(Paragraph 1.2.8.2 (i))

- **None of the 21 Block Primary Health Centres test-checked in the seven districts had blood storage facilities. Eighteen of the 21 Block Primary Health Centres and 41 of the 42 Primary Heath Centres test-checked did not have emergency/ casualty rooms and 39 of the 42 Primary Health Centres did not have operation theatres. Thirty nine of the 42 Primary Health Centres and 41 of the 84 Health Sub Centres test-checked did not have staff quarters.**

(Paragraph 1.2.8.2 (ii))

- **Against 1,242 personnel required for programme management units in 29 districts and 385 blocks of the State, just 52 were appointed, leaving a shortage of 1,190.**

(Paragraph 1.2.8.2 (iii))

- **The State Government provided ambulances to 385 Block Primary Health Centres as against two fully equipped mobile medical units per district sanctioned by Government of India.**

(Paragraph 1.2.9.1 (i))

- **Eighty five operation theatres in 385 Block Primary Health Centres in the State were not functional during 2008-09.**

(Paragraph 1.2.9.3 (iv))

- **Collection of eyes by the Government sector in the test-checked districts was just three *per cent.* Spectacles were not supplied to 1,89,695 out of 3,53,575 children found to be with refractive errors during 2005-09.**

(Paragraph 1.2.10.4)

- **Monitoring committees were not formed at Primary Health Centres and Block Primary Health Centres and at the district and State levels. The absence of a 'public hearing mechanism' resulted in lack of the envisaged community participation in the Mission.**

(Paragraph 1.2.12.1)

1.2.1 Introduction

Government of India (GOI) launched the National Rural Health Mission (NRHM) in all the States including Tamil Nadu from April 2005 with the following objectives:

- Reduction in child and maternal mortality,

- Universal access to public services for food and nutrition; sanitation and hygiene and public health care services, with emphasis on services addressing health of women and children and universal immunisation,

- Prevention and control of communicable and non-communicable diseases, including locally endemic diseases,
- Access to integrated comprehensive primary health care,
- Population stabilization, gender and demographic balance,
- Revitalisation of local health traditions and mainstreaming Ayurvedic, Yoga, Unani, Siddha and Homoeopathy (AYUSH) and
- Promotion of healthy lifestyles.

1.2.2 Organisational structure

In Tamil Nadu, NRHM functions under the overall guidance of the State Health Mission (SHM), headed by the Chief Minister. The Principal Secretary, Health and Family Welfare Department is the Convenor. The Project Director, Reproductive and Child Health Project is the Mission Director and the Director of Public Health & Preventive Medicine is the Joint Mission Director. The activities of NRHM are being implemented by the State Health Society (SHS), registered under the Tamil Nadu Societies Registration Act, 1975. The organograms of SHM and SHS are given in **Appendix 1.15.** At the district level, the Collector is the Chairperson of the District Health Mission (DHM) which monitors the implementation of NRHM by the District Health Societies (DHSs), headed by Deputy Directors of Health Services as Executive Secretaries. District Family Welfare Bureaus, headed by Deputy Directors of Medical and Rural Health Services and Family Welfare implement the family welfare services. National Disease Control Programmes (NDCPs) are implemented by State level Disease Control Societies through District Disease Control Societies. The district level organogram is also given in **Appendix 1.15.** Procurement of drugs, medicines, ambulances and computers are done through the Tamil Nadu Medical Services Corporation Limited, the Tamil Nadu Medicinal Plant Farms and Herbal Medicine Corporation Limited and the Electronics Corporation of Tamil Nadu.

1.2.3 Audit objectives

The objectives of the performance audit were to assess whether :

- the planning processes at the village, block, district and State levels were adequate;
- the assessment, release and utilisation of funds were efficient and effective;
- capacity building and strengthening of physical and human infrastructure were as per the Indian Public Health Standard norms;

- the performance indicators and targets fixed, specially in respect of reproductive and child healthcare, immunisation and disease control programmes were achieved and
- the level of community participation, monitoring and evaluation was as per the guidelines.

1.2.4 Audit criteria

The criteria adopted to arrive at the audit conclusions were:

- The GOI framework on implementation of NRHM.
- Guidelines issued by GOI for various components, disease control programmes, financial aspects, etc.
- Circulars issued by GOI containing directions for NRHM activities.
- Orders and instructions issued by the State Government.
- Indian Public Health Standards (IPHS) for upgradation of health centres.

1.2.5 Audit coverage and methodology

In Tamil Nadu, NRHM is implemented in 29 districts[47] (except Chennai), of which seven districts[48] were selected using the probability proportionate to size method for test check. In each test-checked district, three Block Primary Health Centres (BPHCs), two additional Primary Health Centres (PHCs) under each Block PHC and two Health Sub Centres (HSCs) under each additional PHC were selected through the simple random sampling method without replacement for detailed study. There are 385 BPHCs, 1,036 PHCs and 8,706 HSCs in the State. Twenty one BPHCs out of 115, 42 PHCs out of 311 and 84 HSCs out of 2,704 were test-checked in the sample districts. A list of test-checked units is given in **Appendix 1.16.**

Records relating to implementation of the scheme for the period 2005-09 were scrutinised in the Health and Family Welfare Department of the State Secretariat, SHS, Disease Control Societies, Directorate of Public Health and Preventive Medicine, Directorate of Family Welfare, procurement agencies in Chennai, District Health Societies and District Family Welfare Bureaus, selected Block PHCs, additional PHCs and HSCs in seven test-checked districts between March and June 2009. Entry and exit conferences were held

[47] Twenty nine revenue districts divided into 42 Health Unit Districts for administrative convenience.

[48] 1. Erode, 2. Kancheepuram, 3. Kanyakumari, 4. Pudukottai, 5. Thiruvannamalai, 6. Vellore and 7. Villupuram.

in April 2008 and September 2009 respectively with the Principal Secretary, Health and Family Welfare Department.

Expanded forms of all abbreviations are given in a glossary.

Audit findings

Findings of the performance audit are discussed in the succeeding paragraphs.

1.2.6 Planning process

NRHM envisaged various activities including conducting of facility and household surveys in HSCs, PHCs, BPHCs and District Hospitals of each district with time lines for completion of such activities. The targets and achievements under important activities are given in **Appendix 1.17**.

1.2.6.1 Baseline surveys

Though baseline surveys had been completed, consolidation of data at the State level had not been done

Baseline surveys were required to be carried out and completed in all the districts by 2008. These baseline surveys were essential for planning and monitoring so as to construct a baseline annual Plan for each health facility with a clear assessment of financial and human resources and commitments of service guarantees. The household surveys were also intended for collection of information on availability of other determinants of health such as drinking water, sanitation, etc.

Though the household surveys were completed by 2008, data was still to be consolidated for the entire State due to non-receipt of inputs from The Nilgiris and Virudhunagar districts. The surveys covered only about 14 lakh households and 15 *per cent* of the rural population instead of the entire rural population as contemplated under NRHM.

Facility surveys of HSCs were conducted during November 2007. However, the data was not validated by Panchayat Raj Institutions (PRIs). Consolidation of the data at the State level had not been completed so far (May 2009). Facility surveys of PHCs was done by the Department of Economics and Statistics in December 2008 and their report was awaited (March 2009).

The Mission Director (MD), State Health Society attributed (December 2008) the deficiencies in conducting household surveys to shortage of manpower and stated that PRI validation of facility surveys would be obtained after consolidation of the data at the State level.

1.2.6.2 Framing of Action Plans

Based on the baseline surveys, village health Action Plans were to be prepared by the Village Health and Sanitation Committees headed by Panchayat members. The gaps in the health care facilities, identified through the baseline surveys, were to be addressed by devising suitable intervention strategies. The

village health Action Plans were to indicate the probable investment and the financial and physical targets. The village health Action Plans were also to form the basis for preparation of health Action Plans at block and district level and the Perspective Plan and Programme Implementation Plans for the State as a whole.

Audit, however, noticed that the Mission did not insist on village Action Plans for the first two years, as extensive capacity building was required to be undertaken at the village level for this purpose.

Perspective Plans for the Mission period were not prepared by SHS.

It was found that, the health Action Plans were not prepared at the village, block and district levels for the years as indicated in **Table 1**. Perspective Plans for the Mission period were also not prepared by the SHS.

Table 1: Non-preparation of Annual Action Plans

Nature of Plan	Years for which the Plan was not prepared	Authorities responsible for preparing the Annual Plan
Village Health Action Plan	2007-08 and 2008-09	Village Health and Sanitation Committee headed by a Panchayat member.
Block Health Action Plan	2005-06 to 2008-09	Block Health Monitoring and Planning Committee headed by a Block Panchayat member.
District Health Action Plan	2005-06 to 2007-08	District Health Monitoring and Planning Committees headed by a District Panchayat member.

(Source: GOI guidelines on NRHM)

Health Action Plans were not prepared by districts during 2005-08. Village and block Plans were not prepared for 2007-09 and 2005-09 respectively

Due to the absence of district Action Plans up to 2007-08, the SHS prepared the Programme Implementation Plan on its own. District Plans were prepared only from 2008-09 onwards.

1.2.6.3 Failure to set up a State Health System Resource Centre

As per the guidelines of NRHM, a State Health System Resource Centre (SHSRC) was to be set up at the State level with an annual corpus of Rs 1 crore for strengthening service delivery and operationalising new ideas. It was observed that the SHSRC had not been set up so far (March 2009) due to administrative reasons as stated by MD, SHS (September 2009).

1.2.7 Funding pattern, release and utilisation

1.2.7.1 Financial performance

The Mission was financed by GOI till 2006-07. From 2007-08, the funding was to be shared in the ratio of 85:15 between GOI and the State Government.

GOI released funds to the State Government for seven components[49] and to the SHS for five components[50] during 2005-09. GOI also released funds directly to other State Disease Control Societies up to 2006-07 and thereafter, through SHS for six components[51]. Receipts and expenditure under NRHM during the years 2005-09 are given in **Table 2.**

Table 2

(A) Funds released through State Government

(Rupees in crore)

Year	Funds received from GOI	Expenditure incurred	Cumulative balance
2005-06	170.41	180.52	(-)10.11
2006-07	158.73	235.55	(-)86.93
2007-08	280.98	246.83	(-)52.78
2008-09	369.33	336.18	(-)19.63
Total	**979.45**	**999.08**	**(-)19.63**

(Source : Fund release orders of State Government)

(B) Funds released based on Programme Implementation Plan – through SHS

(Rupees in crore)

Year	Approved allocation	Amount released by		Expenditure incurred	Cumulative Balance #	Total amount available	Percentage of cumulative balance to total amount available
		GOI	State Government				
2005-06	100.80	100.80	NR	13.13	87.67	100.80	87
2006-07	227.81	185.56	NR	102.95	170.28	273.23	62
2007-08	314.49	335.95	Nil	204.94	301.29	506.23	59
2008-09	468.19	282.65	60.61	285.40	359.15	644.55	56
Total	**1111.29**	**904.96**	**60.61**	**606.42**			

(Source : State Health Society)
NR: not required to contribute.
excludes interest accrued during 2006-07 to 2008-09 – Rs 9.21 crore.

Thirty seven *per cent* of funds received up to 2008-09 were not spent by SHS

The unspent balance with SHS, which was Rs 87.67 crore in 2005-06, swelled to Rs 359.15 crore[52] in 2008-09, accounting for 37 *per cent* of the funds (Rs 965.57 crore) received up to 2008-09. The National Programme Co-ordination Committee (NPCC) instructed (March 2008) the SHS to focus

[49] Area Project, Direction and Administration, Grants to State Training Institute, Procurement and Supply of Materials, Contraception, Rural Family Welfare Services and Urban Family Welfare Services.

[50] Janani Suraksha Yojana, NRHM Flexipool, Pulse Polio Immunisation, RCH Flexipool and Routine Immunisation.

[51] Integrated Diseases Surveillance Project (IDSP), National Iodine Deficiency and Disorder Diseases Control Programme (NIDDCP), National Leprosy Eradication Programme (NLEP), National Programme for Control of Blindness (NPCB), National Vector-Borne Disease Control Programme (NVBDCP) and Revised National Tuberculosis Control Programme (RNTCP).

[52] Lying with procurement agencies (Rs 92.22 crore), SHS (Rs 108.61 crore), training institutes (Rs 7.48 crore) and various DHSs and PWD Divisions (Rs 150.84 crore). Total : Rs 359.15 crore.

on utilisation of resources as the unspent amounts were very high. However, the SHS continued to obtain funds from GOI year after year, even though large unspent balances were available.

1.2.7.2 Utilisation of funds

The unspent funds in the seven test-checked districts increased to Rs 61.79 crore in 2008-09 from Rs 0.34 crore in 2005-06 **(Appendix 1.18)**. The main reason for the large unspent funds was non-utilisation of 50 *per cent* or more of the available funds during 2006-09 under various components as indicated in **Table 3**.

Table 3: Status of funds in test-checked districts

(Rupees in crore)

District	2006-07				2007-08				2008-09			
	No. of components	Amount released	Amount spent	Amount unspent	No. of components	Amount released	Amount spent	Amount unspent	No. of components	Amount released	Amount spent	Amount unspent
Erode	8	0.17	0.03	0.14	15	2.51	0.24	2.27	5	6.23	0.18	6.05
Kanyakumari	5	0.64	0.02	0.62	13	1.40	0.14	1.26	8	3.35	0.68	2.67
Pudukottai	8	0.20	0.04	0.16	14	1.27	0.19	1.08	9	3.07	0.06	3.01
Vellore	8	0.79	0.11	0.68	13	2.60	0.33	2.27	7	5.54	2.14	3.40
Villupuram	7	0.15	0.01	0.14	12	1.67	0.19	1.48	9	6.62	0.19	6.43
Kancheepuram	7	0.18	0.01	0.17	14	1.06	0.16	0.90	7	3.35	0.27	3.08
Thiruvannamalai	7	0.23	0.05	0.18	13	2.26	0.17	2.09	7	8.10	0.85	7.25
Total	**50**	**2.36**	**0.27**	**2.09**	**94**	**12.77**	**1.42**	**11.35**	**52**	**36.26**	**4.37**	**31.89**

(Source: Data collected from sample DHSs)

District-wise and year-wise details of components referred to in **Table 3** are furnished in **Appendix 1.19**.

Poor utilisation of funds resulted in large unspent balances in the test-checked districts

An analysis of funds released and utilised for various activities/components during 2006-09 in the seven test-checked districts revealed that of the total 196 instances indicated in **Table 3**, non-utilisation of available funds was 100 *per cent* in 96 instances; 76 to 99 *per cent* in 62 instances and 50 to 75 *per cent* in 38 instances during the period 2006-09. Poor utilisation/non-utilisation of funds was noticed mainly under hiring of private anaesthetists and paediatricians, provision of facilities for basic emergency obstetrics and newborn care and activities such as upgradation of PHCs to IPH standard, IEC activities and training.

1.2.7.3 Non-release/short-release of State share

From 2007-08, the State was expected to contribute 15 *per cent* of the annual outlay under NRHM. The State Government did not release its share of Rs 47.17 crore during 2007-08 and released Rs 60.61 crore during 2008-09 as against Rs 70.23 crore to be released, resulting in short release of Rs 9.62 crore. No specific reason was attributed by the State Government for the short release.

1.2.7.4 Under-utilisation of funds provided for administrative costs

The guidelines for NRHM permit incurring of administrative expenditure of up to six *per cent* of the total outlay for NRHM as approved by GOI every year under the Programme Implementation Plan. The actual expenditure on administration was less than one *per cent* in all the years except 2006-07 even with reference to the actual funds released as depicted in **Table 4.**

Table 4: Meagre utilisation of funds allotted for administrative expenses

Year	Funds released	Administrative cost permissible	Actual expenditure	Percentage of non-utilisation with reference Col. (3)
		(Rupees in crore)		
(1)	(2)	(3)	(4)	(5)
2005-06	100.80	6.05	0.50	92
2006-07	185.56	11.13	2.48	78
2007-08	335.95	20.16	1.15	94
2008-09	343.26*	20.60	2.23	89

(Source: Data furnished by SHS)

* Includes State's share of Rs 60.61 crore

Failure to form District Programme Management Units (DPMUs) and Block Programme Management Units (BPMUs) in the State with 1,190[53] personnel, as discussed in paragraph 1.2.8.2 (iii), was the main reason for the meagre utilisation of funds allotted for administrative expenses.

1.2.7.5 Diversion of NRHM funds

NRHM funds of Rs 53.95 crore were substituted for State's health expenditure during 2006-09

Scrutiny of records revealed that Rs 53.95 crore out of NRHM funds were diverted to other State, Central and World Bank assisted schemes during 2006-09 as indicated in **Appendix 1.20**, though the guidelines prohibited substitution of the State's health expenditure.

1.2.7.6 Embezzlement of NRHM funds

Deputy Director of Health Services, Kallakuruchi reported (August 2008) that Rs 8.21 lakh released for Reproductive and Child Health (RCH) and NRHM activities to G.Ariyur Block PHC, were embezzled by the Medical Officer (MO), the Superintendent and the Assistant between October 2007 and June 2008, by not depositing the cheques in BPHC's NRHM account.

No departmental/criminal action had been initiated against the officials concerned so far, though the embezzlement was reported to the SHS in October 2008. The Department replied (September 2009) that an internal inspection team had been formed for the purpose and that action would be taken based on the inspection report.

[53] Three posts each in 29 DPMUs and three posts in each 385 BPMUs as per NRHM norms. As against 1,242 staff required, only 52 were posted, leaving a shortage of 1,190.

1.2.7.7 Unadjusted advances

The SHS released advances to various procurement agencies for the purchase of drugs, equipments etc. However, a sum of Rs 92.22 crore[54], out of the total amount of Rs 182.31 crore advanced during 2005-09 was pending adjustment with agencies as of March 2009.

1.2.7.8 Guidelines for accounting not followed

Under the guidelines for accounting approved (December 2006) by the Empowered Programme Committee of NRHM, the GOI was to electronically transfer funds to the SHS for all programmes under NRHM through the interface bank (ICICI Bank) and maintain centralised data of releases and utilisations under all components[55].

GOI released (December 2007) Rs 5.13 crore to the Director of Public Health and Preventive Medicine for the Intensified Pulse Polio Immunisation Programme instead of releasing it to the SHS. The guidelines stipulated that the existing bank accounts maintained for individual National Disease Control Programmes should be closed on 31 March 2007 and the balance funds should be transferred to the new NRHM group account of SHS with effect from April 2007. However, audit scrutiny revealed that funds amounting to Rs 4.30 crore relating to RCH Phase I (Major Civil Works and Medical Kit Fund) remaining with the State Treasury were not transferred to the new NRHM account by the MD, SHS (March 2009) even after two years.

1.2.7.9 Maintenance of registers and concurrent audit

In the SHS and the seven test-checked District Health Societies, no specific format was developed for recording the cash transactions at all levels as prescribed by GOI, in the guidelines issued in December 2006. Further, there was no mechanism to monitor the accumulation of interest at various levels. The double entry system was not followed. The reconciliation of NRHM accounts with banks was not done in the test-checked districts except in Pudukottai. As for concurrent audit of NRHM accounts, Chartered Accountants (CAs) were appointed for seven districts[56]. CAs were, however, not appointed in the remaining 22 DHSs due to low remuneration offered by the SHS.

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54 Electronics Corporation of Tamil Nadu: Rs 2.40 crore, Tamil Nadu Medicinal Plant Farms and Herbal Medicine Corporation: Rs 6.91 crore and Tamil Nadu Medical Services Corporation: Rs 82.91 crore. Total : Rs 92.22 crore.

55 (a) Immunisation, (b) Integrated Diseases Surveillance Project, (c) National Iodine Deficiency and Disorder Diseases Control Programme, (d) National Leprosy Eradication Programme, (e) National Programme for Control of Blindness, (f) National Vector-Borne Diseases Control Programme, (g) NRHM Additionalities, (h) Reproductive Child Health Project and (i) Revised National Tuberculosis Control Programme.

56 Dharmapuri, Kanyakumari, Karur, Madurai, Sivaganga, Tirunelveli and Thoothukudi.

1.2.8 Capacity building

1.2.8.1 Creation and strengthening of physical infrastructure

Revamping of health infrastructure is one of the important aspects of the NRHM. The position regarding shortfall in creation of health centres, strengthening of BPHCs, PHCs and HSCs and upgradation of CHCs and BPHCs is discussed in the succeeding paragraphs.

(i) Shortfall in creation of Health Centres

The State had a network of 385 Block PHCs, 1,036 PHCs and 8,706 HSCs for delivery of rural health services. However, based on the population norms[57], a shortfall of 501 Primary Health Centres and 516 Health Sub Centres was noticed in the State as per the projected rural population of 4,61,11,478 (2007) as shown in **Table 5**.

Table 5: Shortfall in creation of Health Centres

Unit	Required no. of centres as per norms	No. of centres available	Shortage	Percentage of shortage
Block PHC	384	385	--	--
PHC	1537	1036	501	33
HSC	9222	8706	516	6

(Source: Data collected from SHS)

There was shortage of 501 PHCs and 516 HSCs in the State with reference to population norms for PHCs and HSCs

Further, a shortfall of 109 HSCs (68 *per cent*) in tribal areas like Sitheri hills (Dharmapuri District), Yercaud hills and Kolli hills (Salem District), Kalrayan hills (Salem and Villupuram Districts), Jawadhu hills (Vellore District) and Pachamalai hills (Trichirappalli District) as compared to the required number of 159 HSCs was noticed. The Joint Mission Director, SHS stated (August 2008) that the proposal for creation of 109 HSCs in tribal areas was pending with the State Government since 2006.

Audit observed that the shortfall in the number of PHCs with reference to the population norms of NRHM was calculated as 116 by the SHS, treating the 385 BPHCs as PHCs. Based on the proposal of the State Government, GOI approved (March 2008) the establishment of 116 new PHCs at a cost of Rs 42.60 crore. The State Government issued (January 2009) orders for establishment of 110 new PHCs and the SHS released (February 2009) Rs 23.97 crore as the first instalment for this purpose. The amount was released to the Public Works Divisions by the DHSs.

Of the 110 PHCs to be established, the construction work was in progress in 29 PHCs, construction was yet to start in 13 PHCs, tendering was in progress in 33 PHCs and land had not been handed over to the contractor in the remaining 35 PHCs as of September 2009. The Government was still to

[57] Population Norm – HSC: 1 per 5,000 (General area) and 1 per 3,000 (Tribal/desert area); PHC: 1 per 30,000 (General area) and 1 per 20,000 (Tribal/desert area); BPHC: 1 per 1,20,000 (General area) and 1 per 80,000 (Tribal/desert area).

identify the locations for six more PHCs for which sanction was obtained from GOI.

Release of funds even before handing over of the sites for 35 PHCs, indicated serious lapses in planning and financial management.

The shortage in health delivery units (PHCs and HSCs) in the test-checked districts was as shown in **Table 6**.

Table 6: Shortage in health delivery units

Name of the test-checked districts	Rural population (In lakh)	Required Number of Centres					
		PHCs			HSCs		
		R	E	Shortage	R	E	Shortage
Erode	24.01	80	66	14 (18)	480	412	68 (14)
Kancheepuram	24.72	82	37	45 (55)	495	364	131 (27)
Kanyakumari	14.84	54	31	23 (43)	315	267	48 (15)
Pudukottai	14.06	48	52	(-) 4	281	242	39 (14)
Thiruvannamalai	20.19	67	61	6 (9)	404	410	(-) 6
Vellore	30.17	100	67	33 (33)	562	441	121 (22)
Villupuram	30.90	103	58	45 (43)	618	557	61 (10)
Total	**158.89**	**534**	**372**	**162 (30)**	**3,155**	**2,693**	**462 (15)**

(Source: Data collected from SHS and sample DHSs)

R: Required; E: Existing; PHCs: additional PHCs

Note: Figures within brackets indicate percentage of shortage with reference to the required number.

In the test-checked districts, the shortage of PHCs ranged between nine and 55 *per cent* (except Pudukottai) and of HSCs between 10 and 27 *per cent* (except Thiruvannamalai).

(ii) Strengthening of BPHCs /PHCs and HSCs as per Indian Public Health Standards

Under the NRHM framework, a timeline for strengthening of BPHCs /PHCs and HSCs was fixed to provide service guarantees as per the Indian Public Health (IPH) standards. The position in the State as of March 2009 is given in **Table 7**.

193 BPHCs and 5224 HSCs were not strengthened, though the timeline for achievement was upto 2009

Table 7 : Status of strengthening of BPHCs, PHCs and HSCs

Activity	Timeline fixed	Position /Achievement in the state as of March 2009
Strengthening/ establishment of all 385 BPHCs with seven specialists and nine staff nurses in each.	30 *per cent* (116) by 2007 50 *per cent* (193) by 2009 100 *per cent* (385) by 2010	No BPHC was strengthened with the required number of specialists, though at least 193 BPHCs should have been strengthened by March 2009.
Strengthening of all (385 BPHCs and 1036 PHCs) PHCs with three staff nurses in each.	30 *per cent* (426) by 2007 60 *per cent* (853) by 2009 100 *per cent* (1421) by 2010	1376 (97 *per cent*) BPHCs/ PHCs had been strengthened with three Staff Nurses in each unit by March 2009.
Strengthening of all (8706) HSCs with two Auxiliary Nurse Midwife/ Village Health Nurse (VHN) in each.	30 *per cent* (2612) by 2007 60 *per cent* (5224) by 2009 100 *per cent* (8706) by 2010	None of the 5,224 HSCs to be strengthened by March 2009 were given an additional Auxiliary Nurse Midwife/ Village Health Nurse. All HSCs were functioning with only one VHN each.

(Source : Data collected from sample DHSs)

Although the State provided (March 2009) three staff nurses each to 1,376 BPHCs / PHCs and made them functional as 24 x 7 Delivery Care service facilities, the non-strengthening of 193 BPHCs and 5,224 HSCs as per IPH standards within the timeline prescribed, delayed the provision of health care services to the expected level.

(iii) Upgradation of Block PHCs to Indian Public Health Standards

Non-utilisation of Rs 9.90 crore released for upgradation of BPHCs

Government of India provided (November 2005) Rs 12 crore for upgrading 60 BPHCs to IPHS by identifying two BPHCs in each district.

SHS, however, released (July 2006) Rs 12 crore to all the 385 BPHCs at the rate of Rs 3.12 lakh for upgradation through minor civil works. The SHS received back Rs 9.90 crore from DHSs as the balance amount of Rs 2.10 crore spent by seven DHSs on minor civil works for BPHCs by May 2008. MD, SHS replied (September 2009) that most of the DHSs did not spend the amount due to administrative reasons though initial assessment of requirements had been made at the field level.

The distribution of funds to DHSs for minor civil works in BPHCs without identifying the actual requirement for upgradation of BPHCs as per GOI instructions resulted in blocking up of funds amounting to Rs 9.90 crore for two years.

(iv) Upgradation of BPHCs to 30 bedded hospitals

(a) Government of India released (August 2006) Rs 21 crore for upgradation of another 105 BPHCs into 30 bedded hospitals at Rs 20 lakh per BPHC. However, the State Government sanctioned (April 2007) Rs 41.25 crore (which included Rs 21 crore released by GOI and Rs 9.90 crore received back from DHSs, referred to in paragraph 1.2.8.1 (iii) above) for upgradation of 75 BPHCs at Rs 55 lakh[58] per BPHC. As of April 2009, works in respect of 42 BPHCs were completed and 27 were in progress at a cost of Rs 27.59 crore. Five works were in the tendering stage and the site remained to be identified in respect of the BPHC at Kethi, in The Nilgiris District.

Infrastructure created was not functional due to non-availability of equipment, staff, etc. in eight BPHCs

In the test-checked districts where 22 BPHCs were selected for upgradation, though eight buildings were handed over out of the 11 completed works, they were yet to become functional for want of staff, equipment, furniture, linen, etc., (May 2009). Ten works were in progress while in respect of one BPHC in Pudukottai, the tendering process was in progress as of March 2009.

(b) Government of India sanctioned (March 2008) Rs 35 crore for upgradation of 50 more BPHCs at Rs 70 lakh per BPHC. The State Government accorded sanction for the works in November 2008. As of

[58] Increased to a maximum of Rs 72 lakh for each BPHC in plain areas and Rs 82.50 lakh in hill areas by the State Government as per the Schedule of Rates for 2008-09.

April 2009, works were in progress in 29 BPHCs and at the tendering stage in 17 BPHCs while sites were not identified in respect of four BPHCs[59].

Audit noticed that in respect of four BPHCs, work could not be taken up due to non-identification of sites. Selection of BPHCs for upgradation without ensuring availability of land indicated defective planning.

1.2.8.2 Human Resources and Infrastructure

The availability of human resources for public health care activities in the State as of March 2009 is given in **Table 8.**

Vacancies in the posts of Laboratory Assistant and Driver in the State were 47 and 22 *per cent* respectively as of March 2009

Table 8: Shortfall in manpower

Sl.No.	Post	Sanctioned	Men-in-position	Vacant*
1.	Medical Officer	3,555	3,496	59 (2)
2.	Laboratory Assistant	1,056	558	498 (47)
3.	Laboratory Technician	145	221	--
4.	Auxiliary Nurse Midwife	1,876	1,833	43 (2)
5.	Pharmacist	1,415	1,241	174 (12)
6.	Driver	980	760	220 (22)

(Source: Data furnished by SHS)

* Figures in brackets represent percentage of vacant posts to sanctioned posts.

As may be seen from **Table 8,** vacancies were on the higher side in respect of the posts of Driver (22 *per cent*) and Laboratory Assistant (47 *per cent*).

The vacancy position in respect of various posts in the test-checked districts are indicated in **Appendix 1.21.**

Vacancies against the post of Laboratory Assistant/Laboratory Technician were noticed in Erode (29 *per cent*), Pudukottai (55 *per cent*), Thiruvannamalai (34 *per cent*) Vellore (20 *per cent*) and Villupuram (22 *per cent*) districts. Similarly, vacancies against the post of Pharmacist were 26 *per cent* in Kancheepuram and 19 *per cent* in Kanyakumari districts. Posts of Driver were vacant to the extent of 29 *per cent* in Kancheepuram, 24 *per cent* in Pudukottai, 40 *per cent* in Thiruvannamalai and 36 *per cent* in Vellore districts.

(i) Shortage of manpower with reference to Indian Public Health Standards

BPHCs, PHCs and HSCs were not strengthened with adequate manpower as per IPH standards, in test-checked districts

As per IPH standards, six specialist doctors/MOs, seven staff nurses and one public health nurse are required for each BPHC; two MOs, three staff nurses and one health educator are required for each PHC and two Auxiliary Nursing Midwives/Village Health Nurses are required for each HSC. The shortage of manpower in the test-checked BPHCs, PHCs and HSCs as of March 2009, with reference to IPH Standards is depicted in **Table 9.**

[59] Kammapuram, Sethiathope and Marugur in Cuddalore District; Okkiam Thoraipakkam in Kancheepuram District.

Table 9: Vacancy position in the test-checked districts

Post	Test-checked health centres								
	21 BPHCs			42 PHCs			84 HSCs		
	Req.	M.I.P	Sh.*	Req.	M.I.P	Sh.*	Req.	M.I.P	Sh.*
Medical Officer	126	82	44 (25)	84	79	5 (6)	NR	-	-
Staff Nurse	147	83	64 (44)	126	97	29 (23)	NR	-	-
Public Health Nurse/ Public Health Educator/ Public Health Worker	21	2	19 (90)#	42	-	42 (100)$	168	84	84 (50)@
Radiographer	21	5	16 (76)	NR	-	-	NR	-	-

Req. : Requirement as per IPH standard ; M.I.P : Men in position; Sh.: Shortage; NR: Not required

* Figures in brackets represent percentage of shortage.

: Public Health Nurses; $: Health Educators and @ : Health Workers

MD, SHS replied (September 2009) that it would not be possible for the State to meet the requirement of specialists at BPHCs and the gaps would be met by hiring and training the MOs.

(ii) Shortage in infrastructure with reference to IPH Standards

As of March 2009, there were wide gaps between the requirement of physical infrastructure and equipment as per IPH Standards and their actual availability in the test-checked units. The shortages in respect of various infrastructure facilities were as given in **Appendix 1.22.** It was found that :

Shortages were noticed in availability of blood storage facilities in BPHCs and staff quarters in PHCs with reference to IPH Standards

- out of 21 test-checked BPHCs, none had the facility of a blood bank and 18 (86 *per cent*) did not have any emergency/casualty rooms,
- of the 42 PHCs test-checked, 41 (98 *per cent*), 39 (93 *per cent*) and 39 PHCs (93 *per cent*) did not have any emergency/casualty rooms, operation theatres and staff quarters respectively,
- of the 84 HSCs test-checked, 76 HSCs (90 *per cent*) did not have separate public utilities.

The lack of infrastructure facilities defeated the objective of providing quality health care as envisaged in the Mission's vision.

(iii) Programme management unit

As against 1,242 personnel required for 29 districts and 385 blocks, only 52 were appointed, leaving a shortage of 1,190

NRHM guidelines envisaged constitution of district resource groups and setting up of block level resource groups to meet managerial and capacity development challenges. Government of India recommended (June 2005) the formation of programme management units (PMU) at the district level with core teams of three full time officials consisting of a District Programme Manager, a Finance/Accounts Manager and a Data Assistant. Similar PMUs were also required to be formed in blocks. Audit scrutiny revealed that PMUs had not been formed in any of the 29 districts and 385 blocks. The MD, SHS stated (May 2009) that 34 Accounts Assistants and 18 Data Entry Operators had been appointed on contract basis in 24 out of 42 Health Unit Districts

(HUDs). As against 1,242 personnel required for 29 districts and 385 blocks, only 52 were appointed, leaving a shortage of 1,190.

Non-formation of PMUs at district and block levels resulted in lack of support in management and monitoring.

(iv) Establishment of Centre of Excellence

GOI suggested establishment of a Centre of Excellence for the purpose of training a cross-section of health functionaries in basic health care as well as upper-end tertiary level health care. GOI sanctioned (August 2007) Rs 100 crore for the purpose and released (February 2008) Rs 79.50 crore. There was a delay in the selection of hospitals for establishment of the centre and administrative sanction was issued by the State Government only in September 2008 for Rs 39.75 crore. The SHS released the amount to the Public Works Department in the same month.

The Institute of Obstetrics and Gynaecology, Egmore (Chennai), Health and Family Welfare Training Centre, Egmore (Chennai) and Government Kasturba Gandhi Hospital, Triplicane (Chennai) were selected for establishment of the Centre. As of April 2009, even the tender process for civil works had not been started.

Thus, the Centre of Excellence sanctioned by GOI as far back as in August 2007 had not been established, even after two years.

1.2.9 Implementation

Audit findings in respect of some important activities such as Reproductive Child Health/ NRHM, Immunisation, Family Welfare and Disease Control Programmes are discussed in the succeeding paragraphs.

1.2.9.1 Reproductive and Child Health and National Rural Health Mission activities

(i) Deficiencies in Mobile Medical Unit services

GOI planned the setting up of Mobile Medical Units (MMU) consisting of two vehicles in every district across the country for improved access to health care services and to make health services available in underserved areas. The MMUs were required to be provided with equipment such as microscopes, portable X-ray machines, ECG machines, ultra-sound scanners, generators, etc., besides prescribed drugs and reagents.

As suggested by GOI, the composition of the team for each MMU was (i) two MOs, one of whom was to be a Lady MO, (ii) one Staff Nurse, (iii) one Laboratory Technician, (iv) one Pharmacist, (v) one Helper and (vi) two Drivers (one for the ambulance and one for the staff vehicle).

State Government provided 385 ambulances in place of Mobile Medical Units

However, the Government purchased 385 ambulances (one per block) during 2007-08 and 2008-09 but did not provide them with the prescribed drugs, reagents and equipment. The ambulances were operated for routine outreach activities.

The staff position in respect of the ambulances as of March 2009 was as shown in **Table 10**.

Table 10: Staff position in respect of ambulances

Sl. No.	Name of Post	Sanctioned	Men-in-position	Vacant
1	Medical Officer	385	350	35
2	Staff Nurse	385	100	285
3	Drivers	385	25	360
4	Sanitary Workers	385	13	372

(Source: Data furnished by SHS)

Drivers' posts were vacant in respect of 360 ambulances

There were 35, 285, 360 and 372 vacancies in the posts of MOs, Staff Nurses, Drivers and Sanitary Workers respectively as of March 2009. Also, the posts of Laboratory Technicians, Pharmacists and Helpers had not been sanctioned by the State Government, reasons for which were not on record.

MD, SHS stated (December 2008) that drugs and equipment were being procured based on local needs and that instructions had been issued to DHSs to fill up the posts of Drivers and Sanitary Workers.

Thus the provision of only ambulances in place of fully equipped MMUs resulted in non-achievement of the objective of improved access to health care services.

(ii) Janani Suraksha Yojana

The Janani Suraksha Yojana (JSY), one of the interventions in the Reproductive Child Health (RCH) component under NRHM, was initiated to reduce maternal and neo-natal mortality by promoting institutional delivery among poor pregnant women. The yojana is 100 *per cent* Centrally sponsored. Pregnant women aged 19 years and above, who are below the poverty line, are eligible for cash assistance of Rs 700 and Rs 500 for institutional and domiciliary deliveries respectively. Cash assistance has to be paid to women who deliver in Government health centres like HSCs, PHCs, BPHCs, district hospitals and accredited private institutions. The cash is to be disbursed at the centres at the time of registration/admission. For home deliveries, the money has to be given at the time of delivery or within seven days after delivery.

The financial and physical performance in respect of JSY during 2006-09 was as shown in **Table 11**.

Table 11: Financial and physical performance of JSY

Year	Release to districts (Rs in crore)	Expenditure (Rs in crore)	Physical Target (eligible JSY beneficiaries)	Achievement (JSY beneficiaries to whom payment made)
2006-07	21.50	20.20	2,74,147	2,88,224 (105)
2007-08	20.22	21.04	4,01,955	2,29,609 (57)
2008-09	35.32	26.72	4,41,745	3,86,688 (88)
Total	**77.04**	**67.96**	**11,17,847**	**9,04,521 (81)**

(Source: Data furnished by SHS)

* Figures in brackets indicate percentage of achievement.

The shortfall in coverage of targeted JSY beneficiaries during 2007-09 indicated delay in disbursement of cash benefits. As per the guidelines, the requirement of funds should have been based on the micro-birth plans to be prepared for each beneficiary at the PHC level. The number of beneficiaries should have been arrived at based on the initial records, such as Family Registers and Ante Natal (AN) Registration Registers.

Scrutiny of records in SHS and the seven test-checked districts revealed that

- micro-birth plans were not prepared in any of the test-checked districts during 2005-09,
- though the NRHM guidelines stipulated setting up of grievance redressal mechanisms in the PHCs/BPHCs, no such mechanisms had been set up in the test-checked PHCs/BPHCs and
- no private hospital had been accredited for delivery under JSY in the State.

(iii) Patient Welfare Societies (Rogi Kalyan Samithis)

As per GOI guidelines, registered Rogi Kalyan Samithis (Patient Welfare Societies) were to be set up in all District Hospitals, Taluk Hospitals, Non-Taluk Hospitals, Block PHCs and PHCs with people's representatives such as MLAs, MPs and members of local bodies besides health officials and local district officials.

The Patient Welfare Societies (PWS) were to ensure accountability of the public health providers to the community; transparency in management of funds and monitoring and supervision of the general performance of health centres.

The State Government constituted PWS in 29 District Hospitals, 235 Taluk/ non-Taluk Hospitals and 1,421 Block PHCs/ PHCs during 2006-07.

Scrutiny of records of PWS in seven test-checked districts revealed the following:

- There was no public participation and only Government officials were included in the committees,
- No monitoring committee as required under NRHM was formed,
- The PWSs diverted Rs 24.29 lakh for ineligible items of expenditure such as purchase of cameras, refrigerators, etc.
- Separate accounts for PWS, untied funds and annual maintenance grants were not maintained.

MD, SHS replied (September 2009) that action was being taken to rectify the deficiencies pointed out by Audit.

1.2.9.2 Immunisation

Strengthening of services to improve child survival is one of the major components of the RCH II programme. This mainly focuses on preventive aspects such as control of vaccine preventable diseases and acute respiratory infection among infants and children under five years of age.

The Routine Immunisation Programme was implemented from 1978 in the State to prevent six vaccine preventable diseases (VPD), *viz*. diphtheria, pertussis (whooping cough), tetanus, measles, poliomyelitis and tuberculosis and to reduce the mortality rate due to these diseases.

There was reduction in achievement in immunisation from 99 *per cent* in 2007-08 to 89 *per cent* in 2008-09 in the State.

The performance in the State and in the test-checked districts under the programme is given in **Appendices 1.23** and **1.24** respectively.

There was a 10 *per cent* reduction in achievement of targets from 99 *per cent* in 2007-08 to 89 *per cent* in 2008-09 in the State. Further, the achievement percentage in four of the districts was below 90 *per cent* (Kancheepuram, Pudukottai, Vellore and Villupuram) during 2008-09.

The Common Review Mission[60] of GOI observed (November 2008) that the shortfall in coverage was due to shifting of immunisation from the HSC level to the PHC level. The MD, SHS stated (September 2009) that Government had adopted (July 2008) a strategy to conduct immunisation programme under the supervision of MOs in BPHCs and PHCs due to the reported deaths of four children after measles vaccinations in Thiruvallur district, in April 2008.

1.2.9.3 Family Welfare Programme

(i) Performance under Family Welfare methods

Spacing methods

Oral pills, condoms and intra-uterine device insertions are the three main prevailing spacing methods of family planning to regulate fertility and promote the couple protection ratio.

[60] Evaluation team comprising officials from Ministry of Health, GOI for NRHM

An analysis of the performance under different family welfare methods in the State during 2005-09 (**Appendix 1.25)** showed that the expected level of demand was not reached during 2005-09 in respect of any of the methods. The percentage achievement was above 70 in respect of sterilisation during 2005-09 and intra-uterine device insertion during 2005-08. In respect of conventional contraceptive (CC) users and medical termination of pregnancy (MTP) methods, the percentage of achievement was 38 and 43 in 2006-07, 40 and 41 in 2007-08 and 44 and 40 in 2008-09 respectively. The oral pill (OP) programme however, showed gradual improvement in achievement from 61 *per cent* in 2005-06 to 76 *per cent* in 2008-09.

The percentage achievement under CC users ranged from 20 to 50 in three test-checked districts (Erode, Kancheepuram and Thiruvannamalai) while in the other four districts (Kanyakumari, Pudukottai, Vellore and Villupuram) it ranged between 32 and 86 during 2005-09. Under the MTP method, the percentage achievement ranged from 16 to 46 in all the districts during 2005-09, except Erode where it ranged between 46 and 59 as shown in **Appendix 1.26**.

The MD, SHS stated (December 2008) that the decline in performance under CC users and MTP was due to huge vacancies in the posts of Health Inspectors (50 *per cent*) and Family Welfare Assistants (95 *per cent*), who were responsible for promoting Family Welfare Programmes at the field level and also due to partial flow of data on MTP from private hospitals in which nearly 70 *per cent* of MTPs were performed.

Terminal methods

The performance of sterilisation under various methods in the State is indicated in **Appendix 1.27**. The percentage of achievement under all methods ranged from 79 to 88.

(ii) Status of no scalpel vasectomy

The 'no scalpel vasectomy' (NSV), an innovative method of sterilisation for males, was introduced along with vasectomy in 2006-07 to increase male participation in family welfare programmes and to reduce deaths due to sterilisation. During 2006-09, GOI released Rs 2.78 crore for the scheme, out of which an amount of Rs 1.18 crore (43 *per cent*) remained unspent, as of March 2009. The programme was yet to take off in the State as the achievement under conventional vasectomy/ NSV was only 0.7 *per cent* to the total sterilisations (2008-09). MD, SHS stated (September 2009) that creating awareness of NSV was affected due to huge vacancies in the posts of Health Inspectors and Family Welfare Assistants.

(iii) Status of sterilisation

The number of sterilisation operations decreased by nine *per cent* from 3.80 lakh to 3.44 lakh in 2008-09. The reason attributed (September 2009) by the Department was that the number of doctors trained in laparoscopic sterilisation

was less in the districts. The average number of deaths due to sterilisation was around 30 cases per year during 2005-09.

The MD, SHS stated (September 2009) that necessary guidelines and instructions to improve the performance without compromising the quality of care had been issued to all district officers and peripheral institutions.

(iv) Operation Theatres

Operation theatres were functional in 78 *per cent* of BPHCs during 2008-09

As part of the family welfare programme, tubectomy/ vasectomy/ laparoscopic types of sterilisation were conducted in the operation theatres (OTs) of the PHCs. Details regarding the availability of OTs in 385 BPHCs in the State and their status during 2005-09 are given in **Table 12.**

Table 12: Status of OTs in the State

Year	No. of OTs in PHCs	No. of OTs	
		Functioning	Not functioning
2005-06	342	214	128 (37)
2006-07	342	210	132 (39)
2007-08	374	260	114 (30)
2008-09	385	300	85 (22)

(Source: Data furnished by SHS)

(Figures in brackets indicate percentage)

The status of OTs in the test-checked districts during 2005-09 is furnished in **Table 13**.

Table 13: Status of OTs in the test-checked districts

Test-checked district	2005-06		2006-07		2007-08		2008-09	
	Av.	NF	Av.	NF	Av.	NF	Av.	NF
Erode	19	0	19	2 (11)	19	2 (11)	20	3 (15)
Kancheepuram	11	7 (64)	11	6 (55)	11	6 (55)	13	5 (38)
Kanyakumari	8	6 (75)	8	4 (50)	8	4 (50)	9	4 (44)
Pudukottai	9	5 (56)	9	4 (44)	10	5 (50)	10	3 (30)
Thiruvannamalai	16	13 (81)	16	13 (81)	18	6 (33)	18	2 (11)
Vellore	20	12 (60)	20	9 (45)	22	6 (27)	22	5 (23)
Villupuram	21	12 (57)	21	12 (57)	21	9 (43)	22	8 (36)
Total	**104**	**55 (53)**	**104**	**50 (48)**	**109**	**38 (35)**	**114**	**30 (26)**

(Source: Data furnished by sample DHSs)

Av. : Operation theatres available; NF: Not functioning.

(Figures in brackets represent percentage of OTs not functioning to total number available).

As of March 2009, out of 385 OTs in BPHC, 85 (including 30 OTs in test-checked districts), were non-functional due to non-availability of equipment and medicines, minor and major repairs, water problems etc., as reported by the MD, SHS (September 2009), thereby depriving the public of the intended family welfare services.

1.2.10 Disease Control Programmes

The performance of major programmes, *viz*., RNTCP, NLEP and MCP and FCP during 2005-06 to 2008-09 are discussed in the succeeding paragraphs.

1.2.10.1 Revised National Tuberculosis Control Programme

The objectives of the Revised National Tuberculosis Control Programme are to achieve and maintain a cure rate of at least 85 *per cent* among newly detected infectious (new sputum smear positive) cases and achieve and maintain detection of at least 70 *per cent* of such cases in the population.

The cure rate achieved in the State during 2006-09 ranged from 82 to 85 *per cent*.

1.2.10.2 National Leprosy Eradication Programme

The main objective of the National Leprosy Eradication Programme is the elimination of leprosy in all the States by the end of Eleventh Plan (2012). Multi-drug therapy was implemented in the State through the State Leprosy Society and 25 District Leprosy Societies. Under NRHM, GOI fixed a goal of leprosy prevalence reduction (LPR) from 1.8/10000 (2005) to less than 1/10000 thereafter.

The LPR fixed by SHS for the State was 0.50 for the year 2008-09. The achievement against the target was 0.51, which marginally fell short of the target.

1.2.10.3 National Vector-Borne Disease Control Programme

(i) Malaria Control Programme

The main objective of the Malaria Control Programme is to reduce the malaria mortality rate by 50 *per cent* up to 2010 and an additional 10 *per cent* by 2012.

The SHS fixed the malaria mortality reduction rate for the entire Mission period as zero. The rate achieved for 2008-09 was 0.009.

(ii) Filaria Control Programme

The objective of the Filaria Control Programme is to reduce the prevalence of micro-filaria by 70 *per cent* by 2010, 80 *per cent* by 2012 and elimination by 2015. The strategies of the programme are to increase the coverage of the targeted population and treatment.

The micro-filaria rate achieved was 0.005 against the target of 0.007 fixed for 2008-09.

1.2.10.4 National Programme for Control of Blindness

The main objective of the National Programme for Control of Blindness (NPCB) is to reduce the prevalence of blindness to 0.8 *per cent* by 2007 and to 0.5 and 0.3 *per cent* by 2010 and 2020 respectively. The strategies of the programme were conducting of cataract surgeries (through camps), collection of donated eyes, creation of donation centres and eye banks and strengthening of infrastructure by way of supply of equipment and training of eye surgeons

and nurses. The programme is implemented by the Tamil Nadu State Blindness Control Society.

Prevalence of total blindness as per the NPCB study conducted in 2002 was 0.78 *per cent* in the State while the national average was 1.1 *per cent.*

The details of eyes collected and utilised in the State during 2005-06 to 2008-09 are given in **Table 14.**

Table 14: Details of eyes collected and utilised

Eye collection and utilisation	2005-06	2006-07	2007-08	2008-09
Target	6,500	7,000	7,500	8,000
Total collection in Tamil Nadu	6,920	7,850	9,266	10,144
Total eyes utilised	3,179	3,829	4,969	4,405
Percentage of utilisation	46	49	54	43
Collected by Government sector	1,295	1,414	1,043	819
Utilised by Government sector	438	733	489	409
Percentage of utilisation	34	52	47	50

(Source: Data furnished by Tamil Nadu State Blindness Control Society)

While targets fixed for collection of eyes were achieved, utilisation of eyes so collected ranged between 43 and 54 *per cent* during 2005-09.

In the test-checked districts, it was found that

- only two *per cent* of the eyes collected by the Government sector and NGOs during 2005-09 were utilised in Erode District (eyes collected: 2,267; utilised: 51),
- there was no collection at all in Pudukottai District during 2005-09,
- collection of eyes by the Government sector in seven test-checked district was just three *per cent* of eyes collected (total eyes collected : 3,909; collected by Government sector : 110) during 2005-09.

Collection of eyes by the Government sector in the test-checked districts was just three *per cent* during 2005-09.

The MD, SHS stated (September 2009) that the reason behind poor utilisation was that the eyes collected after six hours, infected eyes and eyes collected from burnt bodies were not fit for corneal transplantation. The Project Director, Tamil Nadu State Blindness Control Society stated (November 2008) that the unutilised eyes were being used for research purposes. Moreover, the contribution of the Government sector in utilisation of eyes collected was only 50 *per cent* (2008-09).

Spectacles were not supplied to 1,89,695 children with refractive errors during 2005-09

The programme also envisaged screening of school children for refractive errors and supply of spectacles free of cost to poor children. The number of school children screened in the State decreased to 19,82,949 in 2008-09 from 25,85,663 in 2005-06. Spectacles were not supplied to 1,89,695 (54 *per cent*) out of 3,53,575 children with refractive errors during 2005-09, due to release of assistance based on reduced targets fixed by GOI.

1.2.11 Performance Indicators

1.2.11.1 Health indicators

The key health indicators in respect of the infant mortality rate (IMR), maternal mortality rate (MMR) and total fertility rate (TFR) for Tamil Nadu under NRHM and the achievement of the fixed goals were as given in **Table 15.**

Table 15: Health indicators

Key Health Indicators	Data 2005-06		NRHM Goal for 2012 fixed by		NRHM interim goal fixed for 2008-09 by SHS	Achievement	
	SRS (2006)	VES (2006)	GOI (All India)	SHS (Tamil Nadu)		As per SHS	SRS (2008)
IMR (per 1000 live births)	37	23.8	30	20	25	14.8	31 (2008)
MMR (per one lakh live births)	95	95	100	40	70	79	90 (2007)
TFR	Not available	1.7 (2005)	2.1	1.6	1.7	1.7	1.8 (NFHS III)

(Source: Data furnished by SHS and DFW)

VES : Vital Events Survey conducted by Directorate of Family Welfare.

SRS : 'Sample Registration System' done by Registrar General, GOI.

NFHS III : National Family & Health Survey.

In respect of IMR and TFR, the State made considerable achievement, while it made slow progress in respect of MMR till 2008-09.

The achievement in respect of IMR and MMR in the test-checked districts during 2008-09 is as furnished in **Table 16**.

Table 16: Achievements – IMR and MMR

Sl. No.	Test-checked districts	IMR (per 1000 live births)	MMR (per one lakh live births)
1.	Erode	15.5	120
2.	Kancheepuram	13.9	50
3.	Kanyakumari	8.1	60
4.	Pudukottai	17	140
5.	Thiruvannamalai	23	75
6.	Vellore	20.6	63
7.	Villupuram	23	120

(Source: Data furnished by sample DHSs)

While the State's interim goal for 2008-09 in respect of IMR was achieved in all the test-checked districts, the same was not achieved in respect of MMR in four districts.

The achievement in MMR needed improvement to achieve the State's goal by 2012. Though NRHM was rural area based, neither were any specific targets fixed for rural areas nor was the achievement watched by the SHS.

1.2.11.2 Infant and Maternal Deaths

Reduction in infant and maternal mortality is the first and foremost objective of NRHM. The number of infant and maternal deaths in the State during 2004-05 to 2008-09 is given in **Appendix 1.28.**

Of the 46.72 lakh pregnant mothers registered in the State during 2005-09, only 27.93 lakh (60 *per cent*) were supplied with iron folic acid tablets for guarding against nutritional anaemia.

Infant deaths and maternal deaths showed an overall decreasing trend (as of March 2009) from 2004-05 onwards. Out of the total infant deaths of 90,717 during 2004-09, 62,858 (69 *per cent*) accounted for neo-natal deaths i.e. death of children aged 0 to 28 days. The major reasons for neo/post-natal deaths were anaemia among pregnant women and low birth weight of infants.

Only 27.93 lakh (60 *per cent*) pregnant women out of 46.72 lakh registered in the State during 2005-09 were administered iron and folic acid (IFA) tablets for a period of 100 days for guarding against nutritional anaemia. The details of coverage of ante natal mothers administered IFA tablet during 2005-09 are given in **Appendix 1.29**.

1.2.12 Monitoring and Evaluation

NRHM envisaged an intensive accountability framework through a three-pronged process of community based monitoring, external surveys and stringent internal monitoring.

1.2.12.1 Monitoring

(i) Monitoring committees not set up and public hearings not conducted

Non-formation of monitoring committees at PHC, BPHC, district and State levels and absence of public hearings resulted in lack of envisaged community participation

As per the guidelines of NRHM, Health Monitoring and Planning Committees were required to be formed at PHCs, BPHCs and at the district and State levels to monitor the progress of NRHM. Though the MD, SHS stated (December 2008) that the instructions would be followed, these committees had not been formed at any level as of March 2009. Further, public hearings and public dialogues to strengthen transparency and direct accountability of the health care system to the community and the beneficiaries as required under the guidelines, were not organised to get feedback on NRHM in any of the 29 districts.

(ii) Delay in identification of NGOs

NRHM guidelines envisaged identification of NGOs for establishing the rights of households to health care and for monitoring and evaluating the health sector, delivery of health services, etc. A sum of Rs 2.03 crore received by SHS in May 2007 for this component remained unspent with interest of

Rs 13.32 lakh for two years (March 2009). The MD, SHS replied (April 2009) that seven mother NGOs[61] for 12 districts had been identified and that the plan of action was under progress.

(iii) Shortfall in conducting meetings

Shortfall in conducting of meetings of the State Health Mission, General Body and Executive Committee of the State Health Society

NRHM guidelines prescribed (June 2005) the constitution of a State Health Mission (SHM), a State Health Society (SHS), District Health Missions (DHM) and District Health Societies (DHS). Periodicity of meetings to be conducted and the nature of business to be transacted in the meetings were also prescribed. The shortfalls in conducting of meetings of the SHM, SHS Governing Body (GB) and Executive Committee (EC) at the State level during 2006-09 were as indicated in **Table 17.**

Table 17: Shortfalls in conducting of meetings - State Level:

Name of the Committee	Periodicity of meeting prescribed	Date of Registration of SHS	To be held	Actually held	Shortfall (Percentage)
SHM	Twice in a year	-	6	Nil	6 (100)
SHS – GB	Twice in a year	15.03.2006	6	1	5 (83)
SHS – EC	Once every month	15.03.2006	36	7	29 (81)

The State Health Mission did not meet even once during 2006-09. The General Body of the SHS was convened once against the six prescribed meetings and the Executive Committee met seven times against the 36 prescribed meetings during 2006-09. The position of meetings of DHM and DHS up to 2008-09 in the test-checked districts is given in **Appendix 1.30.**

Percentage shortfall in conducting meetings of General Body and Executive Committee of District Health Societies was 77 and 87 respectively up to 2008-09

Audit noticed that in the seven sample districts, the DHM did not meet even once. Since the registration of the District Health Societies in May, June and July 2006, out of the total possible number of meetings of 35 by the GB of DHS and 233 by the EC of DHS during 2006-09 respectively, there were shortfalls to the extent of 27 (77 *per cent*) and 203 (87 *per cent*).

Thus, non-convening of SHM and DHM meetings and the shortfalls in conducting GB/ EC meetings of SHS and DHS defeated the very objective of having meaningful deliberations on policy issues, implementation and monitoring.

[61] Mother NGOs identified: Deepam Educational Society for Health, Kottivakkam (Kancheepuram and Chennai Districts), Family Planning Association of India, Madurai (Madurai and Thoothukudi Districts), Gandhigram Institute of Rural Health and Family Welfare Trust, Gandhigram (Dindigul and Trichirappalli Districts), Mary Anne Charitable Trust, Chennai (Pudukottai District), Rural Education and Development Society, Sivaganga (Sivaganga and Ramanathapuram Districts), Socio Educational Trust, Chengalpattu (Thiruvallur District) and Tamil Nadu Voluntary Health Association, Chennai (Theni and Tirunelveli Districts).

1.2.12.2 Evaluation

Independent evaluation not conducted

An independent evaluation of implementation of NRHM was required to be conducted by the Planning Commission and other reputed bodies, *viz*., the International Population Research Centre, Indian Institute of Management, Institute of Public Auditors of India, etc. However, except for an evaluation covering the period 2005-06 to 2006-07 done by the Institute of Public Auditors of India in August 2007, no other agency had conducted any evaluation of NRHM so far in the State (March 2009). The beneficiary survey was also not conducted by GOI or by State Government as of March 2009.

1.2.13 Conclusion

Though facility and household surveys were completed, the data was yet to be consolidated at the State level rendering the survey inputs infructuous. No health Action Plans were prepared at the village and block levels up to 2008-09 and at the district level up to 2007-08. Community participation was not ensured through formation of monitoring committees and identification of NGOs and holding of public hearings which would ensure accountability and feed back on NRHM. Underutilisation of NRHM funds by SHS/DHS, diversion of NRHM funds to other schemes/works, indicated inadequate control over financial management. Shortfall in the availability of health centres, manpower/equipment/infrastructure affected the objective of the mission in providing quality health care. There were deficiencies in mobile medical unit services. There was no grievance redressal mechanism in any of the health units. On an average 52 *per cent* of eyes collected under National Programme for Control of Blindness were not utilised. The State Health Mission did not meet at all and meetings of the State Health Society, District Health Missions and District Health Societies in the test-checked districts were not conducted as envisaged, resulting in lack of monitoring at the State and district levels.

1.2.14 Recommendations

- The State Health Society should ensure preparation of Annual Action Plans at the block and village levels and use the inputs of baseline surveys for the said purpose.
- Substitution of NRHM funds for the State's health expenditure should be avoided.
- Filling up of vacancies and supply of equipment to needy health units should be taken up on priority basis.

- All the required equipment, manpower and drugs should be provided to Mobile Medical Units so that they can serve the underserved areas as contemplated.

- Action should be taken to make the 85 non-functional operation theatres in BPHCs functional.

- Close monitoring of eyes collected by Government and NGOs should be done to ensure better rate of utilisation.

- Monitoring committees at District/Block/Village levels should be formed and NGOs identified so that the health care delivery is monitored with community participation.

The above points were referred to Government in September 2009. Reply had not been received (October 2009).

AGRICULTURE DEPARTMENT AND REVENUE DEPARTMENT

1.3 Comprehensive Wasteland Development Programme

Highlights

Land is a natural resource of fixed availability and high economic importance. Conservation and sustainable development of land assumes importance in the context of rapid changes in land use patterns. To conserve and develop wastelands in the State, Government launched the Comprehensive Wasteland Development Programme (CWDP) in July 2001. A performance audit of CWDP disclosed inaccuracies of revenue records in respect of wastelands and deficiencies in planning and coordination among implementing agencies; financial management and monitoring.

- **Annual Action Plans indicating component-wise physical and financial targets were not prepared by the District Agencies, indicating absence of a structured approach for planning.**

(Paragraph 1.3.6.1)

- **Release of funds without assessing the progress in implementation of the programme resulted in idling of Government funds ranging from Rs 27.93 crore to Rs 53.80 crore in a Personal Deposit Account and bank accounts of implementing agencies.**

(Paragraph 1.3.7)

- **Government land of 272 hectares, leased out to corporate bodies for cultivation under the programme was not cultivated. The uncultivated land was not taken back from lessees.**

(Paragraph 1.3.9.1)

- **A total of 1,309 (27 *per cent*) out of 4,829 beneficiaries under the programme in the test-checked districts received less than one-fourth of the land proposed to be distributed.**

(Paragraph 1.3.9.2)

- **Government land measuring 1,585 hectares distributed under the programme to beneficiaries in 11 districts was in rocky areas, unfit for cultivation.**

(Paragraph 1.3.9.3)

- **Ninety eight *per cent* of the beneficiaries of the programme had to depend on the monsoon as a water source, as alternative sources were not created for lands which did not come under the cluster mode of development.**

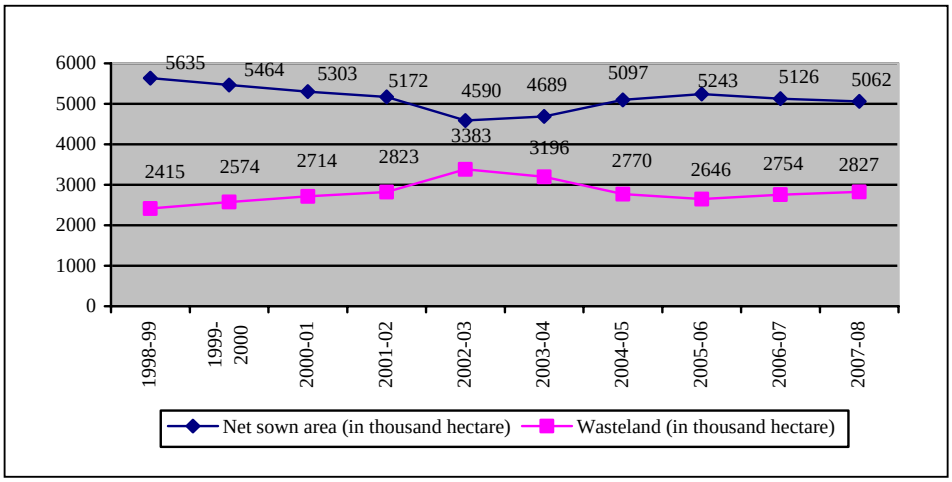
(Paragraph 1.3.11.1)

1.3.1 Introduction

Increase in population and developmental activities exert constant pressure on land. Land is subjected to regular degradation due to rain, wind and faulty cultivation practices, resulting in loss of fertility. This leads to poor yield, uneconomic returns, ecological imbalances, environmental pollution, droughts and floods. Hence, conservation, development and management of land resources are of prime importance for sustainable development.

Tamil Nadu has a total geographical area of 130.26 lakh hectares and its net sown area during 2007-08 was 50.62 lakh hectares (39 *per cent*). The *per capita* net sown area of the State at 0.08 hectare was much less than the all India *per capita* net sown area of 0.13 hectare. While there was a decline of 10.2 *per cent* in the net sown area of the State from 56.35 lakh hectares in 1998-99 to 50.62 lakh hectares in 2007-08, the area of wasteland registered an increase of 17 *per cent* from 24.15 lakh hectares to 28.27 lakh hectares during the corresponding period, as shown in **Chart 1.**

Chart 1: Trend in area of wasteland



(Source: Statistical handbook of Government of Tamil Nadu)

The Government launched the Comprehensive Wasteland Development Programme (CWDP) in July 2001. Government initially set a goal of reclaiming 20 lakh hectares of wasteland over a period of five years from 2002 to 2007. The strategy envisaged by the Government was to:

- develop private '*patta*[62]' lands with farmers' participation and
- lease out Government wasteland to corporates and Self Help Groups for development.

After four years of implementation, Government modified (2006) the programme with a goal to develop 3.78 lakh hectares of wasteland, based on a survey of the wasteland availability in the State. The modified strategy of the Government was to focus on following issues:

[62] Legal title for ownership of land.

- assigning of developed and unencroached Government land not exceeding two acres (0.8 hectares) to poor agricultural families,
- assigning encroached Government wasteland not exceeding 0.8 hectares to the encroachers after development and
- developing private *patta* land of marginal and small farmers.

The programme envisaged land levelling, bund formation, ploughing etc. to develop the land and planting of suitable crops. The approved cost ceiling per hectare was Rs 8,500. The programme was being implemented in all the districts except Chennai and The Nilgris.

1.3.2 Organisational structure

At the Government level, Secretaries to Government, Revenue and Agriculture Departments, are responsible for planning, coordinating and monitoring the activities related to CWDP. The Commissioner of Land Administration, the Commissioner of Agriculture and the Chief Engineer, Agricultural Engineering Department are in-charge of land identification and assignment, providing technical advice and agricultural inputs and land development activities respectively. The Executive Director, Tamil Nadu Watershed Development Agency[63] (TN Watershed Agency), heads the programme implementation at the State level. The organisational set up at the State, district and sub-district levels is given in **Appendix 1.31**.

1.3.3 Audit coverage and methodology

The performance audit of CWDP for the period from 2004-05 to 2008-09 was conducted from January to June 2009 at the Agriculture Department and Revenue Department in the Secretariat, offices of the Commissioner of Agriculture, the Commissioner of Land Administration, the Chief Engineer of the Agriculture Engineering Department, the TN Watershed Agency and 109 field units of Agriculture, Agricultural Engineering, Horticulture and Revenue Departments and District Watershed Development Agencies in six[64] out of 28 districts, selected through the random sampling method. Details of selected offices covered are given in **Appendix 1.32**.

Audit findings are based on evidence collected from the records of the auditees and replies furnished by the officers concerned. The audit objectives and the audit criteria were discussed with officers of the Agriculture and Revenue Departments in March 2009. The exit conference was held in October 2009. The audit team, along with officials of Horticulture Department conducted joint field inspections of land parcels[65] developed under the programme.

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63 An organisation registered under the Tamil Nadu Societies Registration Act 1975.

64 Coimbatore, Kancheepuram, Krishnagiri, Theni, Trichirappalli and Thiruvannamalai.

65 Chunk of land of any size.

1.3.4 Audit objectives

The objectives of the performance audit were to assess the :

- effectiveness of planning the activities under the programme, *viz* land development, planting, maintenance, identification of land for distribution to beneficiaries, development of land in cluster mode, supply of agricultural inputs, etc.;
- economy and efficiency in utilising Government funds for implementation;
- efficiency and effectiveness in execution of activities under the programme and
- effectiveness of the monitoring mechanism for the programme.

1.3.5 Audit criteria

The criteria adopted for assessment of the performance of the programme were:

- Operational guidelines, issued in May 2002, for CWDP.
- Revised CWDP guidelines issued in 2006.
- Codes and Manuals governing the release and utilisation of Government funds.
- Orders and instructions issued from time to time by the Government of Tamil Nadu.

1.3.6 Planning

1.3.6.1. Lack of structured approach

District Agencies did not prepare Annual Action Plan

The Tamil Nadu Agricultural University prepared (2001) a Perspective Plan based on satellite imagery[66], for development of wastelands in each block in all the districts over a period of 15 years. The Government directed (August 2001) the District Collectors to use the Plan for preparation of specific proposals under CWDP for development of all wastelands in each district within five years, following the micro-watershed development approach. However, it was observed that Annual Action Plans indicating component-wise physical and financial targets, were not prepared by the District Agencies. Targets were fixed only for distribution of land and not for planting suitable crops, resulting in 67 *per cent* of developed land lying uncultivated as stated in a study conducted by the Tamil Nadu Agricultural University during 2007-08.

[66] Wasteland was classified as per the system of categorisation followed by the National Remote Sensing Agency.

The guidelines envisaged implementation and monitoring the activities under the programme by the District Agencies. It was, however, observed that the District Agencies were not provided with sufficient staff to execute and monitor the activities. In the 23 District Agencies, 127 out of the 230 posts (55 *per cent*) were vacant as of March 2009.

1.3.6.2 Deficient scheme formulation

Inaccuracies in land records of Revenue Department led to deficiencies in programme formulation

The programme envisaged the development of 20 lakh hectares[67] of wasteland through the participatory approach[68] and the corporate sector, over a period of five years (2002-07). The actual target for developing the wastelands fixed by the Government for the years 2002-06 was only 2.25 lakh hectares (11 *per cent*). After modifying the programme in 2006, the Government conducted a survey (June –July 2006) through the Revenue and Agriculture Departments and fixed a goal of developing 3.78 lakh hectares over a five-year period (2006-11), under three[69] categories of land. Against this, the actual target fixed under the programme during the three-year period 2006-09 was to develop 99,725 hectares (26 *per cent*) of land.

Audit found that Government adopted unrealistic goals under the programme due to inaccurate data provided by the Revenue Department on the extent of wastelands available in the State. CWDP initially envisaged a goal of developing 20 lakh hectares of wasteland, which was scaled down under the Revised CWDP to 3.78 lakh hectares in 2006, after developing only 1.71 lakh hectares during 2002-06. The data on wastelands collected through the survey conducted in June-July 2006, included rocky and uncultivable land.

Formulation of the programme without accurate data on wastelands resulted in non-achievement of the goals set by the Government.

1.3.6.3. Absence of soil and water conservation measures

Watershed approach envisaged in the guidelines for sustainable development of land was not carried out

The operational guidelines envisaged that land development activities would be carried out by adopting the watershed approach[70]. Under the watershed approach, the focus was to be on soil and water conservation, upgradation of land, restoration of ecological balance through scientific management of land and rain water, reclamation of problem soils, etc. However, it was found that the actual implementation covered only planting activities like ploughing, manuring, planting and watering. Soil and moisture conservation activities were not planned by the TN Watershed Agency

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67 18.5 lakh hectares with rain-fed agro-forestry and fruit trees, one lakh hectares by leasing to the corporate sector and 0.5 lakh hectare of salt-affected land by suitable treatment. Total : 20 lakh hectares.

68 With participation of farmers owning wastelands.

69 Unencroached Government land : 0.77 lakh hectares, encroached Government land: 0.27 lakh hectares and private wasteland: 2.74 lakh hectares. Total 3.78 lakh hectares.

70 A watershed is a geo-physical unit which drains the rain water at a common point. The watershed approach for land development is based on in-situ soil and water conservation methods, altered land use based on resource capability assessment, greening of land areas etc.

initially. It was only after three years of implementation that the fourth Governing Council meeting of the TN Watershed Agency discussed (March 2006) a proposal to take up soil and water conservation activities. However, no decision was taken, as the programme was revised by October 2006.

Under the Revised CWDP, land development comprised only jungle clearance, land levelling, bunding and ploughing and creation of farm ponds, wherever needed. The programme did not envisage creation of water sources and soil and water conservation measures like check dams and percolation ponds, essential for the development of land. The Perspective Plan which had been prepared using satellite imagery was also not used. Development of land without ensuring sustainable water and soil conservation methods at various levels indicated lack of planning.

1.3.7. Financial performance

The programme is fully funded by the State Government. The Commissioner of Agriculture releases funds to the TN Watershed Agency, which in turn releases them to the District Agencies for further release to Sub-District Agencies and Village Development Associations (VDA) which execute the programme activities. The details of funds received and expenditure incurred on the programme during 2004-09 as reported by the TN Watershed Agency are given in **Table 1**.

Table 1 : Utilisation of funds

(Rupees in crore)

Year	Opening balance	Funds released for			Expenditure incurred on			Closing balance
		CWDP	Revised CWDP	Total	CWDP	Revised CWDP	Total	
2004-05	19.52	51.04	-	70.56	16.76	-	16.76	53.80
2005-06	53.80	16.53	-	70.33	40.69	-	40.69	29.64
2006-07	29.64	-	35.00	64.64	9.55	4.96	14.51	50.13
2007-08	50.13	-	-	50.13	2.93	8.7	11.63	38.50
2008-09	38.50	-	-	38.50	0.63	9.94	10.57	27.93
Total funds available - 122.09					**Total expenditure - 94.16**			

(Source: TN Watershed Agency)

Release of funds without assessing actual requirement resulted in blocking of funds in a PD account and bank accounts

Unspent amounts at the end of each year ranged from Rs 27.93 crore to Rs 53.80 crore during 2004-09. Out of the closing balance of Rs 27.93 crore in March 2009, TN Watershed Agency held Rs 25.02 crore in a Personal Deposit Account while the balance of Rs 2.91 crore was available in the bank accounts of District, Sub-District agencies and VDAs. Release of funds without assessing the requirements, slow progress in using available funds, non-creation of water sources and non- execution of activities such as training of farmers, maintenance of plants and community organisation, contributed to the large unspent balances.

Scrutiny of fund utilisation during 2004-08 under CWDP in the test-checked districts as detailed in **Appendix 1.33** disclosed that the expenditure of

Rs 16.04 crore on the programme activities was 72 *per cent* of the total funds available. The expenditure during 2004-08 in the test-checked districts ranged from 60 to 89 *per cent* of the total available funds**.** Of the unspent funds, Rs 4.95 crore was refunded to TN Watershed Agency/transferred to other District Agencies. The six District Agencies had an unspent balance of Rs 1.41 crore as of 31 March 2008, due to non-preparation of Annual Action Plans and release of funds by the TN Watershed Agency to the District Agencies without proper budgeting. The TN Watershed Agency responded to Audit stating (October 2009) that the excess funds would be recovered from the District Agencies.

1.3.7.1. Non-utilisation of interest earned on programme funds

Bank interest of Rs 2.76 crore earned on programme funds was lying idle

The TN Watershed Agency maintained a bank account for depositing interest earned on programme funds by District Agencies. The account had an accumulated balance of Rs 2.76 crore as of March 2009. Due to lack of any direction from the Government regarding utilisation of interest, the amount remained unutilised. The Executive Director, TN Watershed Agency stated (July 2009) that Government permission would be sought for utilising the funds for programme activities or to keep them in the Personal Deposit Account. Thus, in the absence of instructions from the Government, the interest income of Rs 2.76 crore lying in the bank was not utilised.

1.3.7.2. Fund management at the Village Development Associations level

The VDAs played the main role in land development under the programme. These Agencies, however, lost justification for their existence after modification of the programme. The TN Watershed Agency instructed (March 2007) the District Agencies to close the accounts of VDAs, remit their available funds and take custody of their records after completion of audit by authorised Chartered Accountants. Scrutiny of records in the test-checked District Agencies revealed deficiencies, as shown in **Table 2.**

Table 2 : Deficiencies noticed in records of VDAs

District	Deficiencies noticed
Coimbatore	Records of VDAs were not audited and returned to the District Agency.
Kancheepuram	The VDAs did not close and submit their records to the District Agency.
Krishnagiri	Seven VDAs held a total unspent balance of Rs 1.41 lakh.
Theni	Audit of accounts of 2006-07 of none of the 45 VDAs was taken up.
Trichirappalli	1. Audit was not conducted in any of the 23 VDAs. 2. The Presidents of the VDAs of Nallampillai and Enamkovilpatti and a Horticulture Officer misappropriated (2005 – 2007) Rs 8.03 lakh by way of excess drawal of scheme expenditure. The District Agency recovered Rs 3 lakh in June 2007. The District Agency lodged a police complaint. The balance amount of Rs 5.03 lakh was yet to be recovered (August 2009). 3. The President of the VDA, Panappatty withdrew scheme funds of Rs 7.93 lakh without proper sanction and had not rendered accounts (August 2009).
Thiruvannamalai	1. The records of VDAs were not audited from 2004-05 and no vouchers were produced for 2003-04. 2. Two test-checked VDAs had an unspent balance of Rs 1.38 lakh.

(Source: Records of VDAs)

On this being pointed out, the Government agreed (October 2009) to take follow up action.

1.3.8. Physical performance of the programme

1.3.8.1 Physical achievements

As against the target for development of 2.25 lakh hectares of wastelands for the period 2002-06, the achievement was 1.71 lakh hectares[71] (76 *per cent*).

The activities under the programme, after modification in 2006, involved identification of Government wastelands, development of the identified land wherever required and assignment of a maximum of two acres (0.8 hectare) to landless farmers. Similarly, private wastelands, belonging to farmers with less than two hectare holdings, were also to be developed through appropriate measures and handed over to them. Under the modified programme, the Government proposed to cover 3.78 lakh hectares during 2006-11. The target fixed for the three-year period 2006-09, however, was only 99, 725 hectares, against which the achievement was 83,220 hectares (83 *per cent*). The number of beneficiaries proposed to be covered during the five-year period 2006-11 was five lakh. As against this target, the achievement during 2006-09 was only 1.73 lakh. The category-wise achievement in distribution and development of land during 2006-09 is given in **Table 3.**

Table 3 : Achievement in distribution and development of land

(In hectares)

Detail of area	Unencroached Government land	Encroached Government land assigned to beneficiaries	Private land	Total
A. Distributed by Revenue Department / taken up for development	11,728	20,376	51,116	83,220
B. Allotted by Revenue Department to AED for development	10,129	15,706	32,334	58,169
C. Not needing development	5,366	13,954	19,610	38,930
D. Needing development (B-C)	4,763	1,752	12,724	19,239
E. Developed by AED	4,732	1,746	12,673	19,151
F. Balance (D-E)	31	6	51	88
G. Not yet handed over to AED for development (A-B)	1,599	4,670	18,782	25,051
H. No. of beneficiaries (in numbers)	29,237	67,252	76,788	1,73,277

(Source: Progress Report furnished by the TN Watershed Agency)

AED: Agricultural Engineering Department

District-wise achievement figures are given in **Appendix 1.34.**

[71] Agro-forestry : 66,655 hectares, horticulture : 93,513, hectares and fodder crops : 10,479 hectares. Total : 1.71 lakh hectares.

The Agricultural Engineering Department took up only 51,116 hectares (18.6 *per cent)* of private land belonging to 76,788 farmers and completed development works in 12,673 hectares.

Development of private wastelands did not receive adequate importance

Of the 2.74 lakh hectares of private wasteland identified in the State, 2.28 lakh hectares (83 *per cent*) were in six districts. Of them, only 23,756 hectares (10.4 *per cent)* were taken up for development and 4,249 hectares (1.9 *per cent*) were actually developed. The details are given in **Table 4.**

Table 4 : Development of private wastelands in six districts

District	Total available private owned wastelands (hectares)	Area taken up (hectares)	Area developed (hectares)	Percentage of achievement	
				Taken up	developed
Sivaganga	97,873	2,324	702	2.37	0.72
Thoothukudi	60,558	3,999	1,330	6.60	2.20
Virudhunagar	34,136	3,776	1,290	11.60	3.78
Tirunelveli	12,716	4,212	124	33.12	0.98
Madurai	11,947	5,509	709	46.11	5.93
Theni	10,391	3,936	94	37.87	0.90
Total	**2,27,621**	**23,756**	**4249**	**10.43**	**1.87**

(Source: Survey report of Revenue Department and Progress Report furnished by TN Watershed Agency)

This indicated that concerted efforts were not made by the district administrations to develop the private *patta* wastelands of marginal and small farmers[72]. The Chief Engineer, Agricultural Engineering Department, replied (October 2009) that this was due to excess cost required for development of land and reluctance of landowners to offer their land for development due to non-provision of borewells under the programme.

1.3.8.2. Development of land for cultivation

The programme envisaged distribution of land in cultivable condition to beneficiaries. Therefore, distribution of Government land was done in phases and each phase of distribution took three months for completion. As of March 2009, 10 phases were completed. As of March 2009, out of the 83,220 hectares of land identified for development, the Revenue Department allotted only 58,169 hectares (70 *per cent*) to the Agricultural Engineering Department for development. The remaining land of 25,051 hectares (30 *per cent*) could not be handed over due to deficiencies and non-updating of land records and delays in preparing lists containing details of land by the Revenue Department. The Government replied (October 2009) that the work of handing over the land to the Agricultural Engineering Department would be completed shortly.

[72] Farmers with total land holding not exceeding two hectares.

1.3.9. Distribution of land

1.3.9.1 Leasing of Government wastelands

With a view to develop agro-based industries, the Government proposed (2002) to develop one lakh hectares of wasteland under the programme by leasing it to corporate houses, self-help groups, small companies, co-operative societies etc. According to the guidelines, the maximum period for lease of land was 30 years and Government reserved the right to cancel the leases at any time.

During 2003-05, Government allotted a total of 88 parcels of land in 18 districts, measuring 1073 hectares, to corporate houses and self-help groups. Out of these, the allottees did not take possession of 588 hectares of land as they were not interested in taking over the land allotted to them. Out of the 485 hectares of land taken over by allottees, only 213 hectares (43 *per cent*) was under cultivation, indicating the failure of the programme in achieving its objectives.

Government land of 272 hectares leased to corporate bodies was lying barren and was not taken back

After modification of the programme, the Government decided (July 2006) to stop leasing of Government wastelands. The District Collectors were still to take back 272 hectares (57 *per cent*) of leased out land lying uncultivated with the lessees. Of the six test-checked districts, lease rent of Rs 9.08 lakh was still to be recovered in Coimbatore, Krishnagiri, Theni and Trichirappalli Districts (July 2009).

1.3.9.2 Distribution of small extent of land

27 *per cent* of beneficiaries in test-checked districts received less than one fourth of the extent proposed to be distributed to them

Under the Revised CWDP, the maximum extent of Government land assigned to a beneficiary was two acres (0.8 hectare). The Government, however, did not prescribe the minimum extent to be assigned per beneficiary. The average area assigned to the beneficiaries under the programme was 0.33 hectare. Audit found that the extent of Government land distributed to 1,309 out of the 4,829 beneficiaries (27 *per cent*) in five[73] test-checked districts was less than 50 cents[74] (0.2 hectare), i.e., less than one fourth of the programme objective of distributing two acres (0.8 hectare) of land. This included distribution of land measuring as low as 5 to 10 cents to 355 beneficiaries in three districts, as shown in **Table 5**.

Table 5 : Distribution of small areas of land

District	Total no. of beneficiaries	No. of beneficiaries to whom land was given		
		up to10 cents	11 to 50 cents	Total
Kancheepuram	170	0	21 (12)	21 (12)
Krishnagiri	1,914	292 (15)	339 (18)	631 (33)
Theni	626	0	44 (7)	44 (7)
Trichirappalli	1,287	33 (3)	393 (31)	426 (34)
Thiruvannamalai	832	30 (4)	157 (19)	187 (23)
Total	**4,829**	**355 (7)**	**954 (20)**	**1309 (27)**

(Source: List of beneficiaries furnished by Revenue Department)

(Figures in brackets represent percentages to the total)

[73] Kancheepuram, Krishnagiri, Theni, Trichirappalli and Thiruvannamalai.

[74] A cent is equal to 40 square metres.

Sustainable economic growth being the main objective of the programme, distribution of such small parcels of land would be of no use to the beneficiaries as the returns from the land would be meagre. Poor returns from the land would force the farmers to stay away from cultivation and would again contribute to increase in the area of wasteland.

1.3.9.3. Non-ensuring of physical possession of land

Verification of possession of land distributed

Under the programme of distribution of Government wastelands to landless agricultural families, the beneficiaries were to be the direct cultivators of the land assigned. The Commissioner of Land Administration, however, received (2007) complaints that land assigned under the programme were being cultivated by persons other than the assignees. The Commissioner instructed (June 2007) the Collectors / Tahsildars to verify and make enquiries in villages to find out violations of the conditions of assignment and take immediate follow-up action to cancel such land assignments. The Collectors, however, did not furnish any reports on the verification even as of October 2009. The Government replied (October 2009) that the reports were awaited from the Collectors.

Survey stones

Survey stones were not used for marking the lands

Survey stones are the basic boundary marks for demarcation of agricultural land. When a parcel of land is sub-divided into several parts for distribution among beneficiaries, each piece of the land should be marked with survey stones. The Revenue Department, however, did not lay any survey stones. The State Level Monitoring Committee, in its fifth meeting in September 2007 decided to provide the cost of boundary stones from the programme funds available with the District Agencies. The Commissioner of Land Administration asked (May and October 2007) the Collectors to provide the survey stones as the beneficiaries in certain areas were not even aware of the exact location of the land assigned to them. Despite this, it was found that in the six test-checked districts, survey stones were not used for marking the lands. The Government replied (October 2009) that the Collectors were taking action to provide survey stones.

Distribution of uncultivable land

Out of 33,414 hectares of land distributed, 1,585 hectares were uncultivable

As per information made available to Audit, out of 33,414 hectares of land distributed in 11 districts[75], 1,585[76] hectares were uncultivable, (**Appendix 1.35)**. The Agricultural Engineering Department could not develop the land as the land parcels were located in rocky areas and hence unfit for development. Further, in some cases the Agricultural Engineering Department required more funds than the sanctioned amount of Rs 8,500 per hectare to develop the land due to heavy undulations. Non-furnishing of sufficient details about the land/beneficiaries by the Revenue Department and the absence of survey stones was another reason for non-development of the allotted land.

[75] Six test-checked districts and five other districts *viz.*, Cuddalore, Dharmapuri, Dindugul, Salem and Vellore for which information was made available.

[76] 1287 hectares of unencroached Government land and 298 hectares of encroached Government land. Total : 1585 hectares.

Despite the difficulties involved in development, the Executive Engineers of the Agricultural Engineering Department did not take any follow up action either to approach the Revenue Department to cancel the allotments and provide alternative land to the beneficiaries or to send proposals to the Chief Engineer / District Agencies for sanction of additional funds. Instead, the above land was classified incorrectly as 'land not requiring reclamation' and included in the achievements under the programme. This resulted in denial of the benefits of the programme to the recipients of 1585 hectares of land under the programme. Further, the misreporting of facts by the Agricultural Engineering Department denied an opportunity to the Government to initiate action against the officials of the Revenue Department who were responsible for allotment of rocky areas.

1.3.10 Planting and crop management

1.3.10.1. Planting performance

The operational guidelines of CWDP envisaged sustainable development through planting of horticultural and agro-forestry crops. The year-wise planting and survival rates as per the records of the TN Watershed Development Agency as of July 2006 are given in **Table 6.**

Table 6 : Survival rate of plants

Year of planting	Area planted (hectares)	No. of districts in which implemented	No. of seedlings planted in lakh	Percentage of survival as of 31 July 2006
2002-03	21,771	10	23.66	42
2003-04	23,600	10	25.00	45
2004-05	51,386	23	48.40	61
2005-06	73,889	24	66.40	73
Total	**1,70,646**		**163.46**	**61**

(Source: Information furnished by TN Watershed Agency)

Survival rate of plants was only 32 *per cent*

In order to achieve 100 *per cent* survival of plants, the programme provided for replacement of withered plants in the second year. Though the TN Watershed Agency reported a State-level survival rate of 61 *per cent*, a joint physical inspection of 12 randomly selected beneficiary fields by Audit in July 2009 in three of the test-checked districts disclosed a lower average survival rate of 32 *per cent* as given in **Table 7.**

Table 7 : Survival rate of plants in farmers' fields inspected

Name of District	Number of farmers' fields inspected	Number of saplings planted in the fields	Number of plants which survived on the date of inspection (July 2009)	Survival rate (*per cent*)
Coimbatore	3	650	188	29
Krishnagiri	4	572	249	43
Thiruvannamalai	5	603	149	24
Total	**12**	**1,825**	**586**	**32**

(Source: Joint inspection conducted by the Audit Team along with Departmental officers)

According to the cost norms approved (July 2002) by the Government for planting activities, the District Agencies were allowed to incur an expenditure of Rs 3,800 per hectare on plant protection activities such as applying bio-fertilisers (Rs 800), initial manuring (Rs 300) and maintenance of crop for two years (Rs 2,700). Activity-wise expenditure under CWDP in the test-checked districts as compared to the required expenditure during 2004-06 is given in **Table 8**.

Table 8 : Activity-wise expenditure during 2004-06

District	Bio-fertilisers		Initial manuring		1st year maintenance		2nd year maintenance *	
	Expenditure (Rs in lakh)	P	Expenditure (Rs in lakh)	P	Expenditure (Rs in lakh)	P	Expenditure (Rs in lakh)	P
Coimbatore	Nil	Nil	0.09	1	1.74	2	Nil	Nil
Kancheepuram	1.24	2	0.81	14	13.57	22	Nil	Nil
Krishnagiri	1.75	18	6.48	50	2.17	10	0.20	1
Theni	13.82	135	Nil	Nil	52.60	86	5.73	12
Trichirappalli	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Thiruvannamalai	Nil	Nil	6.26	35	37.51	34	0.90	2

(Source: Information furnished by District Agencies)

* including tiller-ploughing and casualty replacement

P - Percentage of expenditure to the approved expenditure

Deficiencies in implementation of CWDP noticed by Audit are described below:

- According to the guidelines, the subsidy available for planting activities was Rs 8,500[77] per hectare, of which Rs 3,800 was earmarked for plant protection measures. Though sufficient funds were provided under the programme, the expenditure incurred on plant protection activities in all the test-checked districts was low as shown in **Table 8** above**,** indicating shortcomings in plant protection activities.

- Despite permission of the Government to carry out second year maintenance even after closure of the programme, three test-checked districts (Coimbatore, Kancheepuram and Trichirappalli) did not carry out second year maintenance of crops planted during 2005-06. In the other three districts, expenditure incurred was meagre, ranging from one to 12 *per cent.*

- The programme provided for imparting training to farmers to upgrade their skills. In the test-checked districts, the District Agencies did not utilise the funds provided for community organisation and farmer training in full. The percentage of utilisation of funds for community organisation and training was only 19 and 47 *per cent* respectively.

[77] Borewell: Rs 2,000, planting of seedlings: Rs 1,200, ploughing: Rs 1,000, bio-fertilizers: Rs 800, initial manuring: Rs 300, first year maintenance: Rs 1,800, second year maintenance: Rs 1,400 (watering-Rs 900, tiller ploughing- Rs 350, casualty re-plantation Rs 150). Total : Rs 8,500.

The failure to carry out the required activities as envisaged in the guidelines contributed to poor survival rate of the plants.

1.3.10.2. Non-supply of agricultural inputs

Agricultural inputs were supplied to 36,614 out of 1,73,277 beneficiaries (21 *per cent*)

Agricultural inputs *viz*, seeds, mini-kits, fertilizers etc. were to be supplied to beneficiaries by dovetailing the subsidies available under various State/Central Government schemes. As of March 2009, agricultural inputs had been supplied only to 36,614 out of 1,73,277 beneficiaries (21 *per cent*), covering a land area of 15,845 hectares out of the 83,220 hectares (19 *per cent)* of land distributed to them. In the test-checked districts, the percentage of coverage ranged from one to 45 in terms of extent and from one to 44 in terms of beneficiaries, as shown in **Table 9.**

Table 9 : Distribution of agricultural inputs

District	No. of beneficiaries who received agricultural inputs			Extent of land supplied with agricultural inputs (hectares)		
	Total number of beneficiaries	Number of beneficiaries supplied with inputs	Percentage of coverage	Total extent of land distributed	Extent of land supplied with inputs	Percentage of coverage
Coimbatore	1783	384	22	1356	275	20
Kancheepuram	4306	1912	44	2150	960	45
Krishnagiri	6185	65	1	2272	34	1
Theni	7268	1134	16	4966	913	18
Trichirappalli	5364	914	17	3078	288	9
Thiruvannamalai	6890	779	11	3344	255	8
Total	**31796**	**5188**	**16**	**17165**	**2725**	**16**

(Source: Information furnished by District Agencies)

Government replied (October 2009) that wherever possible, schemes of the Agriculture and Horticulture Departments were dovetailed to supply inputs to beneficiaries. District Collector, Kancheepuram, stated (October 2009) that the beneficiaries were reluctant to go over to the agricultural depots to collect inputs with subsidy portion as low as Rs 100. This indicated that the programme was not attractive enough to bring in more land under cultivation. The poor coverage in the distribution of agricultural inputs indicated the failure in dovetailing other schemes with the programme.

1.3.11 Development of land

Development of land in clusters

Wherever Government wasteland of four hectares and above or private (*patta*) wasteland of 20 hectares and above was available in contiguous blocks, land development was to be carried out through a cluster approach. Clusters were developed on project mode by providing borewells, farm ponds, drip irrigation facilities and planting of suitable horticulture/agro-forestry crops of long duration. The extent of developed land assigned to individual beneficiaries was not to exceed two acres (0.8 hectare).

Only 3,592 out of the 1,73,277 beneficiaries had assured irrigation facilities for the land assigned to them

1.3.11.1 Non-provision of irrigation facilities

Under the cluster approach, the average cost of development of land was Rs 58,951[78] per hectare, even as the normative ceiling for land development under CWDP was only Rs 8,500 per hectare. As of March 2009, the total number of beneficiaries under the cluster programme was 3,592, against 1,69,685 beneficiaries under the non-cluster mode. As such, 98 *per cent* of the programme beneficiaries had to depend solely on the monsoon for water, as alternative sources for irrigation and watering were not created for land which was not under the cluster mode of development.

1.3.11.2 Non- development of clusters

Delay in submitting proposals

The Agriculture Department, through a State-wide geo-physical survey, identified (January 2007) 244 parcels of Government land across the State with a total area of 2,043 hectares, for development as clusters. The District Agencies under the Collectors, however, submitted proposals for 142 identified clusters covering 1,044 hectares. As of June 2009, proposals were still to be received for the remaining 102 clusters. The Government sanctioned (February and October 2007) Rs 6.09 crore[79] for the 142 clusters. The development works in 102 clusters were completed and works in 40 clusters were in progress as of March 2009. Non-submission of proposals for the remaining 102 clusters resulted in non-development of these clusters.

Agro-forestry clusters

After another geo-physical survey in January 2008, the Agriculture Department ascertained the possibility of raising agro-forests in 3,003 land parcels covering 50,746 hectares of wasteland in 28 districts. The land was unsuitable for horticultural crops, but was considered suitable for agro-forestry[80] through suitable land development measures on the cluster approach. The TN Watershed Agency sought (January 2008) project proposals from District Agencies for development of the lands. However, no proposals were received (March 2009). Government replied (October 2009) that even after motivation, beneficiaries were not coming forward for agro-forestry plantations and there was no suitable area for the same. The reply is not acceptable as the geo-physical survey conducted in January 2008 had indicated the possibility of raising agro-forests in 50,746 hectares of wasteland.

Clusters in private lands

In November 2007, Government ordered the taking up of land development on the cluster approach in private lands (*patta* wastelands) of not less than 20 hectares. Government also approved 100 *per cent* subsidy by dovetailing the other scheme funds *viz.,* Drought Prone Area Programme, Integrated Wasteland Development Programme, National Watershed Development Project for Rainfed Areas etc. Till March 2009, 42 proposals of land development on the cluster approach, covering 939 hectares belonging to

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78 Rupees 11.69 crore incurred on 1,983 hectares of land : Rs 58,951 per hectare.

79 Rupees 4.07 crore under the programme and the balance by dovetailing other scheme funds.

80 Bio-mass plantation, timber and fodder tree plantation.

1,539 beneficiaries were sanctioned at a cost of Rs 5.60 crore. Development works in four clusters were completed and were in progress in the remaining 38 clusters. The accrual of benefits to the beneficiaries was delayed due to the non-completion of 38 clusters.

1.3.11.3 Creation of facilities and management

Provision of borewells and energisation

Borewells/open wells required for creation of irrigation facilities for land developed under the cluster mode were to be sanctioned by the TN Watershed Development Agency. During 2006-09, the TN Watershed Agency sanctioned 72 borewells for 41 clusters in the test-checked districts. As of March 2009, 15 of the sanctioned borewells were still to be erected. It was also noticed that out of the 57 borewells erected, five were not energised by the Tamil Nadu Electricity Board due to the bar on providing free electricity for horticulture crops. The Executive Director of the TN Watershed Agency replied (October 2009) that relaxation of the barring provisions was under consideration of the Government.

Drip irrigation facilities

Drip irrigation facilities were to be provided in the clusters, wherever necessary, on the recommendations of the Horticulture Department. Drip irrigation works sanctioned for clusters in five out of the six test-checked districts were completed. In Krishnagiri district, out of 19 clusters for which drip irrigation was sanctioned, the facility was still to be created in 11 clusters (March 2009).

Inter-cropping

As the tree crops in the clusters would come to yield after three to four years, the guidelines stipulated inter-cropping[81] with vegetables, pulses, oilseeds etc., in order to provide income to the beneficiaries during the interim period. In the test-checked districts, 37 clusters were developed. However, inter-cropping was not done in 25 clusters in three districts (Coimbatore - 1, Krishnagiri - 20 and Theni - 4). Failure to raise inter-crops would deprive the beneficiaries of income from the land during interim period.

Lift irrigation societies

According to the guidelines, lift irrigation societies were to be formed and registered under the Tamil Nadu Societies Registration Act, 1975 for the clusters, with the beneficiary farmers as members, for joint development and management of the common infrastructure. It was found that such societies had been formed in clusters in all the test-checked districts except Krishnagiri, where the societies were still to be formed in nine out of 21 clusters.

[81] Cultivating short duration crops alongside the main crop of long duration.

1.3.11.4 Deficiencies in cluster projects

Land development through the cluster approach was followed in five[82] out of the six test-checked districts. Scrutiny of records of implementation and maintenance of cluster projects and field inspection by Audit disclosed deficiencies, as shown in **Table 10.**

Table 10 : Deficiencies noticed in clusters

Cluster	Deficiencies noticed
Gudalur North cluster, Coimbatore District	1. Immature seedlings were planted – three month old seedlings were planted as against 12 month old seedlings provided in the guidelines. 2. Intercropping was not done and live fencing was not provided, though proposed in the formulation stage of the cluster.
Tirupattur cluster, Trichirappalli District	1. Amla seedlings (cost Rs 0.89 lakh) planted in the cluster did not survive at all due to high alkalinity of soil. No effort was made to reduce soil alkalinity through proper pitting and soil treatment. 2. Live fencing was not provided, though proposed in the formulation stage.
Kadappasandampatti cluster, Krishnagiri District	1. Though the cluster was sanctioned in August 2007, planting had not been done even as of June 2009. 2. Even though proposed in the project formulation stage, live fencing was not provided. 3. Pits dug for planting were not of the prescribed size of 3 x 3 x 3 feet.
Kommampattu cluster, Krishnagiri	Survival rate of mango saplings planted in this cluster was 10 *per cent* only due to failure of borewells.

(Source: Records of District Agencies and field inspection by Audit)

1.3.11.5 Farm ponds

As against the target of 45,200 ponds set by the TN Watershed Agency, the achievement was 9,716 ponds (21 *per cent*)

Farm ponds play a vital role in soil and moisture conservation and in supplementing irrigation for the crops raised. As per the norms prescribed by the Government, one farm pond was to be provided for land parcels measuring 0.2 to 0.4 hectare and two farm ponds were to be provided for land parcels measuring 0.4 to 0.8 hectare. The ponds were to be provided free of cost through local Panchayat Presidents at an unit cost of Rs 2,750 or Rs 4,650 per pond for small and big[83] ponds respectively. As against the target of 45,200 ponds set by the TN Watershed Agency, the achievement was 9,716 ponds (21 *per cent*) only for the State. In the test-checked districts, the achievement ranged from one to 24 *per cent* of the targets fixed, as given in **Table 11**.

Table 11 : Targets and achievements in creating farm ponds

District	Target for 2007-08 and 2008-09	Farm ponds created (31 March 2009)	Achievement (percentage)
	Number of ponds		
Coimbatore	1,050	108	9
Kancheepuram	500	6	1
Krishnagiri	1,700	67	4
Theni	1,500	249	16
Trichirappalli	1,600	312	20
Thiruvannamalai	2,300	557	24
Total	**8,650**	**1,299**	**15**

(Source: Information furnished by District Agencies)

[82] All the test-checked districts except Kancheepuram.

[83] Dimensions in metres: (length x breadth x depth): Small pond: 15 x 3 x 1.5, big pond: 15 x 6 x 1.5.

Audit observed that the reasons for the low achievement were as follows:

- The District Agencies were to release funds to the Village Panchayat Presidents to provide farm ponds in beneficiaries' fields. The payments were made on completion of the works. In Kancheepuram District, the Village Panchayat Presidents were reluctant to take up works due to non-payment of advances by the District Agency.

- The farmers could not be motivated for provision of farm ponds in their land as the pond would occupy about seven cents of their land.

The State Level Committee decided (September 2007) that an incentive package must be evolved by the Agriculture Department for *patta* land developed under CWDP. Audit could not ascertain the follow-up action on the matter, as no meeting of the Committee had been convened thereafter.

1.3.11.6 Soil health cards

The CWDP contemplated soil testing of each field and issue of soil health cards free of cost to the beneficiaries by the Agriculture Department. The cards were to carry specific recommendations on the cropping programme. It was, however, noticed that out of 1.73 lakh beneficiaries of the programme, 1.24 lakh (71 *per cent*) beneficiaries were provided with soil health cards as of March 2009. Non-issue of soil health cards to 0.49 lakh beneficiaries denied them an opportunity to take up cultivation of the right crops and to apply the right nutrients based on soil health cards.

1.3.12 Monitoring and Evaluation

1.3.12.1 Non-convening of State Level Committee

Government constituted (2006) a State Level Committee headed by the Chief Secretary to monitor the implementation of the programme but did not prescribe any periodicity for the Committee meetings. The Committee met five times between July 2006 and September 2007 and did not meet thereafter. Failure to convene the Committee meetings regularly resulted in non-monitoring of the programme after September 2007.

1.3.12.2 Reconciliation of area coverage

Reconciliation of data on the extent of land distributed by the Revenue Department and the extent of land developed by the Agricultural Engineering Department assumes importance as there could be a possibility for the assigned land remaining undeveloped. The Revenue Department and the Agriculture Department did not conduct any reconciliation of the data maintained by them respectively on achievements in the areas distributed and developed under the programme.

1.3.12.3 Verification of planting

Government stipulated (June 2006) that the land distributed to the beneficiaries under the programme should be brought under cultivation within two years, failing which, it would be at liberty to cancel the assignments and take the land back. It was, however, noticed that neither the Agriculture Department nor the District Agencies conducted any field surveys to find out whether the allotted land had been brought under cultivation within the prescribed period.

1.3.12.4 Evaluation of the programmes by other agencies

The Department of Evaluation & Applied Research of the Government evaluated the implementation of the CWDP in 2006 and submitted its report to the Government in February 2008 i.e. after a period of nearly two years of implementation. The findings of the study were as follows:

- Beneficiary participation was very low.
- Spacing norms adopted were more than the norms fixed by the Tamil Nadu Agricultural University, leading to planting of less number of plants.
- The programme mainly related to planting of seedlings without carrying out essential activities for soil and moisture conservation like village ponds, percolation ponds and check dams. A holistic approach was not followed.
- In 65 *per cent* of sample farmers' holdings, the survival rate of plants was 50 *per cent* and below.

The Centre for Agriculture and Rural Development Studies of Tamil Nadu Agricultural University, Coimbatore, conducted a mid-term evaluation of the programme during 2007-08. The study revealed that:

- Wastelands with poor fertility, which were not amenable for cultivation were allotted in four districts (Nagapattinam, Thanjavur, Permabalur and Dindigul), where further reclamation was needed.
- Even after land development and reclamation works, land was not cultivated in four districts (Cuddalore, Perambalur, Thiruvallur and Villupuram) due to litigation.
- Land distributed had relatively more gravel and stones in the soil in two districts (Dindigul and Perambalur) and were along hill ranges menaced by wild animals.
- Out of 416 hectares allotted to sample beneficiaries in 26 districts, 280 hectares (67 *per cent*) were not cultivated.

The issues flagged by the studies continued to exist as similar points were noticed during the performance audit as discussed in this report.

1.3.13. Conclusions

Though an extent of 1.71 lakh hectares and 0.19 lakh hectares of wasteland were developed under CWDP and the Revised CWDP respectively, the achievements under the programmes could not effectively arrest the rapid and continuous increase in the area of wasteland. Another objective of the programme to spur economic growth in rural areas did not receive the right impetus as the possibility of taking up cultivation in small land parcels, land in rocky and remote areas and in land without water sources, was bleak. Coverage of private wasteland for development was very low. Monitoring at all levels was not adequate.

1.3.14. Recommendations

- Government should adhere to the Perspective Plan and follow the watershed approach as contemplated therein.
- Immediate action should be taken to wind up all Village Development Associations and to get back the unspent balances.
- Uncultivated land leased out to corporate bodies should be recovered immediately.
- Government should ensure that land parcels below 50 cents are not assigned, as small pieces of land cannot provide sustainable income to beneficiaries.
- Government should intensify the coverage of private land by reducing the minimum area coverage under clusters to four hectares as in the case of clusters in Government land.
- Water sources (borewell, ponds etc) essential for survival of plants and continued use of the land developed may be created wherever necessary and feasible. Suitable soil and water conservation measures should be implemented.
- It may be ensured that only cultivable lands are distributed to the beneficiaries to derive agricultural income from the land.
- Meetings of the State Level Committee should be convened regularly to monitor programme implementation at all levels.

REVENUE DEPARTMENT

1.4 Computerisation of Land Records

Highlights

Computerisation of Land Records, a Centrally Sponsored Scheme, though in its twentieth year of operation, was still to achieve an optimal functional level even after an expenditure of Rs 27 crore had been incurred on it. In the implemented areas, namely the 'A' register and 'Chitta', the data was incomplete and still contained errors. Errors and deficiencies pointed out in an earlier review of this scheme in 2002-03 had still not been addressed. New components taken up in 2006 viz., 'cadastral mapping' and 'Adangal' remained in their initial stages. The software did not ensure that the information processed by the systems met the desired control objectives, such as completeness, correctness, timeliness and validity of data and preservation of integrity.

- **Out of Rs 36.98 crore sanctioned by GOI during the period 2000-08, Rs 9.94 crore remained blocked with the Electronics Corporation of Tamil Nadu.**

(Paragraph 1.4.6.1)

- **Computers and peripherals procured at a cost of Rs 8.21 crore remained unproductive for want of backbone connectivity and application software.**

(Paragraph 1.4.6.2)

- **Avoidable expenditure of Rs 45 lakh was incurred on procurement of Digital Audio Tape (DAT) drives for backup of data while the computers had already been provided with DVD writers.**

(Paragraph 1.4.6.3)

- **A sum of Rs 3 crore sanctioned for e-Governance initiatives was diverted for unintended purposes.**

(Paragraph 1.4.6.5)

- **Lacunae pointed out earlier with regard to computerisation of 'A' register and '*Chitta*' had not been fully addressed despite the Department's assurance to the Public Accounts Committee.**

(Paragraph 1.4.7.1)

- **Due to lack of validation controls, capture of data from the manual 'A' register remained incomplete. The total numbers of**

sub-divisions in the villages and the extent of land therein were not reconciled with the manual system.

(Paragraph 1.4.7.2)

- **Incomplete computerisation of the '*Adangal*' register resulted in unproductive expenditure of Rs 1.68 crore.**

(Paragraphs 1.4.8 and 1.4.8.1)

- **The cadastral mapping project, scheduled to be completed in 30 months, lagged behind with only three *per cent* cases completed even after 18 months of its commencement.**

(Paragraph 1.4.9.1)

- **Due to deficient software, the area of land calculated for each survey number did not agree with the sum total of its sub-divisional areas in 18 *per cent* of the test-checked data.**

(Paragraph 1.4.9.4)

1.4.1 Introduction

The Centrally Sponsored Scheme, 'Computerisation of Land Records' (CLR) was launched in 1988-89 to carry out effective land reforms and provide better delivery of citizen services. Its objectives included the following:

- Development of a modern, comprehensive and transparent land records management system
- Smooth distribution of Records of Rights[84] (ROR) at reasonable rates
- Digitisation of all spatial and non-spatial data

The key records maintained in the Department like the 'A' register, '*Chitta*', *'Adangal'* and Field Measurement Sketches (FMS) (also called cadastral mapping) were to be computerised under the scheme. The 'A' register contained details of land while '*Chitta*' was a record of ownership and *'Adangal'* stored details of tenancy and cultivation. Cadastral mapping contained sketches of all sub-divisions of land. Out of an outlay of Rs 37 crore, an amount of Rs 27 crore had been spent on CLR till date (April 2009). While capture of data relating to the 'A' register and the '*Chitta*' was complete and the related functions computerised, capture of data relating to the other two functions, namely, '*Adangal*' and cadastral mapping was in progress. The National Land Reforms Management Programme (NLRMP) integrating the CLR and SRA (Strengthening of the Revenue Administration) schemes introduced by Government of India (GOI) in September 2008 was in its initial stage in the State.

[84] Records to establish ownership of land.

1.4.2 Organisational structure

The Department functions under the Commissioner of Survey and Settlement, supported by an Additional Director, at the State level. The State is divided into four regions. Each region is headed by a Deputy Director. Each district is headed by an Assistant Director of Survey and Land Records. The districts are further divided into sub-divisions and taluks. The sub-divisional offices do not have any survey personnel on their rolls and are headed by Revenue Divisional Officers. Inspectors, Deputy Inspectors, Sub-inspectors of Survey etc., carry out the functions of the Department at the Taluk level.

1.4.3 Audit objectives

The objectives of audit were to assess whether :

- the observations and recommendations of the previous review conducted in 2002-03 had been duly addressed and the integrity of the database had improved;
- functions, computerised after the last review *viz*. digitization of '*Adangal*' and cadastral mapping were as per the guidelines issued and met the objectives of the Department;
- funds released by GOI were effectively utilised and purchase of hardware and software were commensurate with the requirement and
- the application software developed for digitization of '*Adangal*' and cadastral mapping had adequate controls to ensure completeness, accuracy and reliability of the data.

1.4.4 Audit criteria

The criteria for the review included:

- Survey Manual, Chain Survey Manual, Rules and Regulations in force.
- Scheme guidelines issued by the GOI.
- Previous Review Report and Public Accounts Committee (PAC) proceedings.
- Policy Notes of the Department of Survey and Settlement.
- Manual records maintained in Taluk Offices.

1.4.5 Audit coverage and methodology

The review commenced with an entry conference held with the Additional Chief Secretary to the Government and Director of Survey and Settlement in March 2009. Data relating to 'A' registers and '*Chittas*' from 25 taluks

(selected at random) were obtained and examined for its reliability. It was also checked if the deficiencies pointed out in the last review and discussed in the PAC were duly addressed.

'*Adangal*' data captured for the *Fasli* 1414[85], obtained from 20 taluks were checked to assess if the same was in line with the Departmental requirements. Its utility *vis-à-vis* the expenditure incurred thereon was also assessed.

As 32 *per cent* of the data captured under cadastral mapping related to Perambalur District, data from that district was obtained and examined. The progress of its implementation, the provision of hardware and infrastructure and the utilisation thereof were also examined.

Field visits were made to five taluk offices, two district offices and one sub-divisional office to have a further detailed study and confirm the observations raised. A questionnaire enquiring into the quantum of data capture, the utility of machines supplied to them and constraints if any, was drawn up and replies obtained from the district offices.

The review concluded with an exit conference held (July 2009) with the Commissioner of Survey and Settlement wherein the audit observations were discussed.

Audit Findings

1.4.6 Planning

1.4.6.1 Utilisation of Funds

An amount of Rs 9.94 crore remained blocked with ELCOT due to poor planning

The State Government permitted Government Departments to use the services of the Electronics Corporation of Tamil Nadu (ELCOT), a State Government Undertaking, for procurement of computer hardware. Funds for the CLR project released by GOI were, therefore, transferred to the account of ELCOT as and when received. Though funds were released by GOI based on specific requests from the State Government, they were not fully utilised and the balances were allowed to accumulate with ELCOT due to poor planning. Instances of unutilised funds lying with ELCOT are given below:

- An amount of Rs 8.67 crore was obtained (March/May 2006) from GOI for purchase of two servers and 20 computers for each of the 30 districts for cadastral mapping and transferred to ELCOT. The servers were not purchased and one of the computers was used as the server. Savings due to non-purchase of the servers, amounting to Rs 4.80 crore, was allowed to remain with ELCOT,

- An amount of Rs 1.03 crore sanctioned (November 2003) by GOI based on a specific request from the Department, for imparting training on CLR was not utilised and remained (April 2009) with ELCOT for over five years.

[85] Agricultural year staring from 1 July 2004 to 30 June 2005.

Due to such inadequate planning, out of a total release of Rs 36.98 crore, the amount accumulated with ELCOT from 2000 to date (July 2009) was of the order of Rs 9.94 crore.

1.4.6.2 Computers procured at a cost of Rs 8.21 crore were not utilised for the intended purpose

Computer hardware procured at Rs 8.21 crore remained unutilised for the intended purpose for more than four years.

Based on a specific request from the State Government, an amount of Rs 10.11 crore was sanctioned (November 2003 and December 2004) by GOI in two instalments for connecting the Taluks and the State Headquarters through the sub-divisions and the district offices. Out of this, Rs 8.21 crore was spent (October 2005) on purchase of servers, computers, DAT drives, printers, UPS systems etc. However, the systems could not be utilised (July 2009), for want of web-based applications developed for the purpose. In this connection, it was also observed that

- the purchase of computers and peripherals were made much ahead of time when no connecting backbone was available,
- the sub-divisions were supplied with servers costing Rs 1.56 lakh each and district offices were supplied with high end servers at Rs 1.90 lakh each, though these offices did not have any need for hosting server applications and
- servers and nodes were supplied to sub-divisional offices which did not have any survey personnel on their rolls to utilise them.

Thus, the hardware purchased was not utilised even after four years of their procurement, rendering the expenditure incurred on it unproductive. The Department, in their reply, stated (February 2009) that GOI was addressed for sanction of funds for development of a web-based application. However, it was observed that while a request for funds for hardware was sent to GOI in October 2004, request for funds for developing application software was sent to GOI only in October 2008, after a delay of four years, indicating poor planning.

1.4.6.3 Avoidable expenditure of Rs 45 lakh on purchase of Digital Audio Tape (DAT) drives

Avoidable expenditure of Rs 45 lakh on purchase of DAT Drives

In March 2007, under e-Governance initiatives, all the 206 Taluk Offices were supplied with one server each. These servers were to be equipped with a DAT drive each, costing Rs 22,000 a piece, for backing up of data, involving a total investment of Rs 45.32 lakh. The servers were also equipped with DVD writers which alone were be used for backups, rendering the supply of DAT drives superfluous. The DAT drives purchased and paid for, were neither installed nor taken to stock in any of the Taluk offices. On this being observed in audit in July 2009, the suppliers were asked (September 2009) by the Department, after two and a half years of their supply, to install the DAT drives. This delayed action further confirmed that the users did not have any requirement for this drive as they preferred to take backups using DVD writers. Thus, provision of DAT drives proved to be unnecessary and resulted in an avoidable expenditure of Rs 45 lakh.

1.4.6.4 Computers supplied under 'cadastral mapping' lying unutilised

Computers and infrastructure valued at Rs 1.78 crore remained unutilised for over 20 months due to shortage of manpower

An expenditure of Rs 3.87 crore was incurred on supply (September 2007) of 20 computers and related infrastructure for each district, under the cadastral mapping project. The utilisation of these machines, however, remained poor on account of shortage of manpower. Sample study in 16 districts disclosed that for a total of 320 computers supplied, only 173 persons were deployed. Thus 46 *per cent* of the system and infrastructural resources valued at Rs 1.78 crore remained unutilised. Keeping the computers idle for over 20 months indicated poor utilisation of resources and deficient planning in purchase of computers disproportionate to the available manpower.

The Department replied (July 2009) that the district offices were instructed to post sufficient personnel and utilise all the systems.

1.4.6.5 Diversion of funds sanctioned for e-Governance initiatives

Rupees 3 crore sanctioned for e-Governance initiatives was diverted for unintended purpose

The State Government sanctioned (December 2004) an amount of Rs 3 crore towards e-Governance initiatives *viz.* development of software and acquisition of hardware. The amount was drawn and placed (March 2005) with ELCOT. A separate proposal seeking Rs 6 crore for e-Governance was then sent to GOI and the funds released by the State Government were diverted (March 2007) for strengthening computer hardware at the Taluk, district and State level offices.

The funds sanctioned for a specific purpose, after remaining idle with the Department for two years, were spent for strengthening the hardware systems in the field offices, though there were no specific requests from these offices. Thus, the intended objective of the Government remained unachieved even after the amount sanctioned was fully spent. The Department replied (July 2009) that the Government had been addressed in this regard.

1.4.6.6 System Documentation

Software developed without going through the process of System Development Life Cycle did not meet the departmental requirements

The software for computerisation of '*Adangal*' and FMS was developed by National Informatics Centre (NIC) without going through the regular process of a System Development Life Cycle (SDLC). No User Requirement Specifications (URS) and Systems Requirement Specifications (SRS) had been drawn up and got approved by the Department. Several of the deficiencies brought out in the succeeding paragraphs in respect of *Adangal* and cadastral mapping, could be attributed to lack of planning at the system development stages. The Department replied (July 2009) that only user manuals had been supplied.

1.4.7 Computerisation of 'A' register and '*Chitta*'

1.4.7.1 Assurance given to Public Accounts Committee

Lacunae pointed out in earlier Audit Report not fully addressed

The 'A' register and '*Chitta*' contain information required for the issue of documents like Records of Rights (ROR) to the public. In the Report of the Comptroller and Auditor General of India for the year ended 31 March 2003 (Civil) Government of Tamil Nadu, lacunae in their computerisation leading to an unreliable database was pointed out, after a sample study of data

obtained from 10 selected Taluks. The Department was required to cleanse the data in its entirety and improve its integrity. Consequently, in a PAC meeting, the Department assured (January 2008) that the lacunae pointed out would be duly addressed. In order to ascertain the action taken by the Department, data obtained from 25 Taluks was examined in the current review. It was noticed that departmental action with regard to correction of errors was still incomplete even in respect of Taluks for which discrepancies were pointed out in the previous review. The data still lacked integrity as brought out in **Appendix 1.36**.

The Department, in its reply stated (July 2009) that the task of rectifying the errors had been entrusted to the Commissioner of Land Administration.

1.4.7.2 Capture of data in 'A' register

Computer system had no controls to ensure completeness of data capture by checking against village figures

In the manual 'A' register, the total area of lands under different survey numbers in a village was reconciled with the total area of the village and exhibited as an abstract for ensuring the correctness and completeness of the information. The computerised system did not have a provision in the form of a validation control for such reconciliation at the data capture stage, which resulted in incomplete/incorrect capture of data.

Unless the data in the computer system was reconciled with the manual records, the existing database would remain unreliable. The Department replied (July 2009) that instructions would be issued to all the district officials to reconcile the system data with the manual registers.

1.4.8 Computerisation of '*Adangal*'

The '*Adangal*' register is maintained at the village level and contains information on utilisation of each subdivision of land, including crop related details. Computerisation of land records was considered incomplete without the '*Adangal*' being computerised. GOI sanctioned (November 2002) Rs 2.44 crore for capture of '*Adangal*' data of which Rs 1.18 crore had been spent (July 2009) and Rs 50 lakh was due for payment. The expenditure remained unproductive on account of several factors as brought out in the succeeding paragarphs.

1.4.8.1 Computerisation of '*Adangal*' data–unproductive expenditure of Rs 1.18 crore

The capture of '*Adangal*' data for the *Fasli* 1414 (July 2004 to June 2005) was outsourced. The data captured was to be verified by respective Village Administrative Officers (VAOs). The entire process for *Fasli* 1414 was to be completed within the *Fasli* itself and data captured for subsequent *Faslis* was to be done by the staff of the Department within the respective *Fasli* year. However, the process relating to *Fasli* 1414 itself remained incomplete even as of July 2009. In the test-checked 118 Taluks, data capture had been completed in 110 Taluks and verification was complete only in 46 Taluks. The process being incomplete, capture of data for subsequent *Faslis* could not be taken up.

The Department, in its reply stated (July 2009) that the delay was on account of their personnel being involved in other welfare schemes. They also stated that they planned to proceed with capture of further data only from the *Fasli* year in which the task re-commenced. Thus, the entire expenditure incurred on data capture for *Fasli* 1414 amounting to Rs 1.18 crore was rendered unproductive.

1.4.8.2 System design

(a) A key aspect of '*Adangal*' was to keep track of the lessees or the persons involved in cultivation of land. Though the original proposals on digitization of '*Adangal*' contemplated the capture of such information, the computerised '*Adangal*' did not contain the required provision. The data organisation was thus deficient and not in line with the objectives of the Department.

The Department replied (July 2009) that remedial action would be taken in consultation with NIC.

(b) It was observed that in the data entry screen for '*Adangal*', the *Fasli* year was to be picked out from a list box for each entry. While an estimated 3.60 crore records had to be captured for each *Fasli*, repeating this entry on the data entry screen for that many number of times would be waste of time and manpower. The identity of the *Fasli*, ('1414' in the present case) could have been 'hard-coded' into the application program or passed as a parameter during customization of the software. The technique adopted also resulted in wrong entry of the *Fasli* year in 9,01,510 records.

In reply, the Department stated (July 2009) that a report would be called for from the districts and action would be taken to correct the errors, besides introducing proper validation controls in consultation with NIC.

1.4.8.3 Input controls/validation checks - '*Adangal*' database

An examination of the '*Adangal*' data relating to 20 Taluks disclosed that the application software developed by NIC did not have adequate controls to ensure correctness or completeness of data captured through input controls/validation checks and control totals, as brought out below:

- The manual '*Adangal*' register contained information on all the sub-divisions of land in a village, bringing out the utility thereof like housing, agriculture, etc. It also contained an abstract indicating the total extent of land under each activity and agreed their sum to the total extent of land in the village. In the computerised system, the application software did not use control totals to ensure completeness of data capture. A test check of data relating to 2,100 villages disclosed that as against the 5,47,612 survey numbers as per the 'A' register, only 5,24,440 survey numbers had been captured.

- The '*Adangal*' database contained repeated entries for the same crop under the same sub-division in the same season. Lack of input controls had permitted 15,729 such duplicate entries in '*Adangal*'.

- The application software had a provision to display the area of the sub-division for which the data was being entered. However, there was no validation check to ensure that the area of crops cultivated in a sub-division of land was within the total area of that sub-division. In 9,962 instances, the areas under different crops in a sub-division exceeded the total area of the sub-division itself.

- In 1,59,989 instances, the extent of land in which crops were cultivated was given as zero. There was no input control to ensure that the extent column was not left blank.

- In '*Adangal*', different groups of crops like 'foodgrains', 'pulses', 'oil seeds', 'paddy', etc were represented by codes 1 to 13. However, in 70,899 instances, codes other than the numerals 1 to 13 were allowed to be entered due to the absence of a validation check to ensure that only authorised codes were keyed in. Thus the identity of the crop groups could not be established through the system.

When the above deficiencies in data capture were pointed out, the Department replied (July 2009) that necessary controls would be introduced in consultation with NIC.

1.4.9 Cadastral mapping project

As computerisation of Field Measurement Sketches (FMS) was considered an integral part CLR, the Department decided to generate an FMS through the computer system. The available 'ladder data'[86], using which the original manual sketches were drawn, was taken as the basis for the computerised system also. The required funds amounting to Rs 8.67 crore were obtained (March 2006 and May 2006) from GOI. Computers and application software were supplied to all districts by December 2007 and capture of data commenced immediately thereafter. The project, apart from being considerably delayed had several deficiencies as brought out hereunder.

1.4.9.1 Implementation

Slow progress in implementation of cadastral mapping

Capture of data for computerisation of FMS commenced in December 2007 and was to be completed in 30 months. However, the progress was slow and even after 18 months (June 2009), only three *per cent* of the work was completed. The Department, in their reply, stated (July 2009) that the delay was due to deployment of lesser number of personnel than required and that they were planning to train and deploy more people.

[86] Ladder data comprises a set of figures representing imaginary lines called G-lines and offsets therefrom, which identifies the vertices of an FMS. This is the standard survey procedure for drawing an FMS.

1.4.9.2 Mosaicing of FMS

The planned objective of mosaicing of Field Measurement Sketches to form village maps could not be achieved

One of the prime objectives of the cadastral mapping project was to mosaic the FMS generated to form a village map. The software, however, generated the sketches of each survey number without considering the size and shape of its surrounding survey numbers. As a result, during mosaicing, the sketches did not mesh with each other to form the village map.

The computer system was not capable of generating village maps, which had to be maintained manually. The project therefore, could not achieve one of its prime objectives. The Department acknowledged (August 2009) that mosaicing of FMS may not be possible with the present software.

1.4.9.3 Analysis of system generated FMS

Discrepancies existed between the system generated sketches and the dimensions displayed thereon

From the ladder data, the system generated an FMS and displayed the dimensions and area thereon. The FMS, however, differed from its manual version, both in shape and dimensions. The software had a provision to alter the displayed dimensions alone, without altering the sketch. The Department used this provision to match the displayed dimensions in the system-generated FMS with the manual FMS. Thus the system-generated sketch (claimed to be 'to-scale') was disproportionate to the dimensions and the area printed thereon. The ROR, a legal document, to be furnished to the public with these sketches would thus contain discrepancies. An analysis of data obtained from Perambalur District disclosed the following.

- In respect of 96 *per cent* of the sub-division of lands, the system calculated area was at variance with the related area captured in the system from manual records.

- Similarly, the lengths of boundary lines calculated by the system were at variance in the corresponding lengths captured from manual records in 62 *per cent* of the cases.

The Department in their reply stated (July 2009) that the deficiency pointed out in the software would be discussed with NIC and appropriate modifications carried out.

1.4.9.4 Extent of land calculated by the computer system

Areas of survey numbers did not agree with the areas of the component sub-divisions in 18 *per cent* of the digitized Field Measurement Sketches

The software was designed to draw the FMS of a plot of land with all its sub-divisions, from the same ladder data. It calculated the area of each sub-division of land and the total area under that survey number independently. The area of land calculated for each survey number had to be the sum total of the areas of all its component sub-divisions. It was, however, observed through a sample study, that due to lacunae in the application software, there were variations in 18 *per cent* (3907 survey numbers) of the digitized FMS. In respect of 953 survey numbers, the variations observed were in excess of five *per cent* of the total area.

The Department, in its reply (July 2009) promised to take up the matter with NIC for remedial action.

1.4.9.5 Capture of data in cadastral mapping system

The computer system stored areas of divisions of land under survey numbers, both as calculated by the system and as contained in the manual records. However, in respect of sub-divisions, the areas as per manual records were not stored. The Department adopted manually calculated areas in respect of divisions of land and system calculated areas in respect of sub-divisions while furnishing sketches to the public. This could lead to discrepancies. The Department stated (July 2009) that the issue would be discussed with NIC to make appropriate modifications in the software.

1.4.9.6 Maintenance of two sets of data in cadastral mapping database

The Department stored two sets of data for each Field Measurement Sketch with the intention of not disclosing system-calculated figures

The system had been designed to generate FMS based on dimensions calculated by the computer system but provided for display of dimensions and areas corresponding to the original manual sketches. Thus the Department stored two sets of data for boundary lengths and areas, (i) as maintained by the Department manually and committed to the public and (ii) a refined set of data calculated by the computer system from the ladder data. The latter was deemed to be more accurate than the earlier, on account of the sophisticated computer system involved and was free from manual compromises and miscalculations. Despite this, the Department decided not to exhibit any of the system-calculated figures in the digitized FMS to the public and to persist with the original manual figures.

The Department while accepting that having two sets of data could lead to complications, stated (July 2009) that efforts would be made in consultation with NIC to sort out the issues.

1.4.10 Conclusion

Due to inadequate planning, funds to the tune of Rs 9.94 crore received for this project were allowed to remain with ELCOT from 2000 to date without serving any purpose. Hardware procured at a cost of Rs 8.21 crore was not put to intended use for want of application software for four years and hardware/infrastructure valued at Rs 1.78 crore, provided for the purpose of cadastral mapping, remained idle for over 20 months. The Department was still to take corrective action regarding the deficiencies pointed out in the earlier review despite assurances given to the Public Accounts Committee and data continued to remain incomplete and lack integrity. The process of data capture for the '*Adangal*' project also remained incomplete and contained errors due to deficiencies in the software. The data relating to the '*Adangal*' project, captured at a total cost of Rs 1.68 crore, was not put to use, rendering the expenditure wasteful. The progress of the cadastral mapping project was poor and one of its objectives, i.e., mosaicing to form village maps could not be achieved.

The computerisation efforts lacked proper planning and the progress of implementation was unsatisfactory. The deficiencies in the software resulted in incomplete, inaccurate and unreliable data that could not be used effectively for the intended purpose.

1.4.11 Recommendations

Audit would like to make the following recommendations to address the above mentioned deficiencies:

- Data relating to the 'A' register and '*Chitta*' may be reviewed to ensure their correctness and completeness.
- Funds received and allocated for the project should be managed efficiently, so as to avoid blocking of resources.
- Proper utilisation of the purchased hardware and other infrastructure may be ensured through proper planning and monitoring of the scheme.
- Efforts should be made to complete the data entries relating to '*Adangal*' in a time-bound manner to achieve the intended objectives.
- Necessary input controls and validation checks should be incorporated in the systems in use to ensure correct and complete capture of data.
- The practice of having two sets of data in the Field Measurement Sketches, one for departmental use and one for displaying to the public, should be sorted out.
- Development of the required web-based applications should be expedited and the equipment provided for connectivity should be put to intended use.

The above points were referred to Government in October 2009. Reply had not been received (October 2009).