

4. Audit Findings

4.1 Planning

4.1.1 Programme formulated without reliable data

The Ministry had reported that as of May 2001 there were 1.41 lakh unconnected habitations eligible for assistance under the programme. However, the data for eligible unconnected habitations under the programme kept changing frequently after its launch as given in Table 3.

Period	Number of eligible unconnected habitations			Total
	Above 1000	500-999	250-499	
May 2001	50,728	75,646	14,711	1,41,085
December 2003	58,789	80,590	21,414	1,60,791
May 2004	59,844	81,054	29,782	1,70,680
December 2004	59,890	81,510	29,710	1,71,110
March 2005	59,855	81,466	31,451	1,72,772

The figure of May 2001 was adopted by the Ministry as a measure of the magnitude of the problem to be addressed. The source or the basis of this data was, however, not on the records of the Ministry. The figures of March 2005 made available by the States after identification of the core network (CNW) indicated that about 1.73 lakh unconnected eligible habitations needed to be considered for coverage under the programme which represented 22.7 per cent increase over the magnitude projected while launching the programme. Frequent upward revision of the number of eligible unconnected habitations was necessitated even during the course of execution on the basis of the reports from the States. It was noted that under the new strategy called Bharat Nirman announced in February 2005, the Ministry had proposed implementation of the programme in two phases and accordingly set a revised goal for providing connectivity to all the villages with population above 1000 persons by the end of 2009.

4.1.1.1 Audit examination of the records in the States revealed that the data furnished by them were not always reliable.

- In **Tamil Nadu**, the data on habitation-wise population adopted by DPIUs against the roads proposed under the programme were not supported by any documents and were not verifiable in audit.
- In **West Bengal**, no survey was conducted for assessing the number of unconnected habitations and the road length to be constructed under the programme prior to its launch. There was no documentary evidence in support of the data used while launching the programme.

- In **Chhattisgarh**, 12,561 eligible unconnected habitations were reported to the Ministry which figure was revised to 13,761 habitations while implementing the programme after including 1,200 habitations with population ranging between 250 and 499 in the tribal and hilly areas without survey or any other evidence in support.

4.1.1.2 The exact quantum of work involved in terms of the number and length of the roads and approximate cost were not available when the Ministry fixed the targets for connectivity. The Parliamentary Standing Committee during oral evidence of the representatives of the Ministry in February 2001 expressed the view that a time limit be fixed for setting up DPIU in each district and preparing DRRP before launching the programme, so as to ensure proper utilization of scarce resources. Audit did not notice any evidence of compliance with these recommendations.

4.1.1.3 The Ministry in reply to the audit observation stated (November 2005) that they launched the programme without reliable data as they preferred to avoid delay. The reply only underscored the unreliability of the data of habitations eligible for assistance under the programme, which rendered fixation of targets and purposeful monitoring of the progress of the programme extremely difficult.

4.1.2 Non-assessment of the capacity of the States to handle works of such magnitude within the limited period

The programme initially aimed at providing connectivity to 50,728 habitations within three years (2000-2003) and the remaining 90,357 habitations by March 2007. To achieve this time bound objective, the annual target of coverage for each State needed to be fixed while planning the programme, after taking into account resource availability with the States. Audit examination revealed that the procedures and systems were revised repeatedly indicating that the initial formulation of the guideline was inadequate. Though the Ministry gradually refined and standardized the procedures after the first three years, implementation and planning went on simultaneously leading to lack of clarity and inadequate controls. The Ministry did not assess the absorbing capacity of the States to handle the work load of such a magnitude within a definite time frame and did not fix annual targets for each State for new connectivity in the absence of which, it was difficult to ensure the successful implementation of the programme.

4.1.2.1 Audit examination revealed the following deficiencies in the capacities of the States to successfully execute the programme:

- In **Andhra Pradesh**, the state government did not have adequate staff to cope with the increased work load and no separate staff were provided exclusively to handle PMGSY works which adversely affected the progress of implementation.

- In **Chhattisgarh** and **West Bengal**, there was large scale shortage of technical staff at the district level/ PIU which resulted in shortfall in the prescribed supervision of quality and led to delay in completion of the roads.
- In **Uttaranchal**, a consultant firm was appointed for technical and managerial assistance in the execution of works in phase I and II due to shortage of engineers in the Public Works Department. The consultant had covered only 42 works against 99 works awarded for which he was paid Rs. 186.28 lakh, of which Rs. 64.83 lakh was met from PMGSY funds and Rs. 121.45 lakh from the State funds.

4.1.2.2 There were no appreciable efforts from the Ministry or the state governments till 2003-04 for training the staff in the DPIUs, so as to ensure that the implementation of the programme did not suffer from lack of capacity. Audit noticed that special training programmes were organized only from 2003-04 by NRRDA for project implementation staff in the DPIUs and the contractors/engineers in various aspects of design, construction and quality control in the execution of road works under the technical assistance loan from the World Bank for PMGSY at a total cost of Rs. 42 crore approx. (USD 8.5 million).

4.1.2.3 The Ministry in reply (November 2005) stated that consideration of constraints such as the absorption capacity of the States at the initial stages would have delayed the launch of the programme by three to four years. Treating an essential requirement as an avoidable constraint in this manner ultimately contributed to the deferment of the mid term completion target from 2003 to 2009 besides leading to unplanned and ineffective execution of the programme as discussed in the subsequent paragraphs.

4.2 Financial Planning

4.2.1 Funding of the programme

While launching PMGSY, the Ministry had estimated (December 2000) that Rs. 58,200 crore would be required for providing new connectivity to 1.41 lakh habitations and upgrading existing rural roads. The funding requirement of Rs. 34,200 crore for new connectivity was worked out based on the average lead distance per habitation of 1.5 km and the average cost of construction per km of Rs. 14.25 lakh. During examination of the records, Audit did not come across any basis for estimating the cost of upgradation at Rs. 24,000 crore.

4.2.1.1 The only source of funding identified was 50 per cent of the cess collected on High Speed Diesel (HSD) which was earmarked for the programme that was estimated to yield Rs. 2500 crore annually aggregating Rs. 17,500 crore over the seven year period upto March 2007 for the completion of the programme. The gap in funding was proposed to be mobilized through external lending agencies like the World Bank and the Asian Development Bank. However, firm proposals or commitments for Rs. 4000 crore only were available for such funding till March

2005. There was, therefore, a large gap in the funding requirement for the programme to fulfill its targets and meet its objectives.

4.2.1.2 Mobilisation of resources

The Ministry, in co-ordination with the Ministry of Finance signed agreements for generation of additional resources to the extent of USD 400 million (Rs. 2000 crore) each with the World Bank and the Asian Development Bank in October and November 2004 for funding the projects in six States (**Chhattisgarh, Himachal Pradesh, Jharkhand, Madhya Pradesh, Rajasthan and Uttar Pradesh**). The demand for grants of the Ministry for 2004-05 reflected Rs. 220 crore and Rs. 100 crore as the resources mobilized from World Bank and the Asian Development Bank respectively. Details of the total fund availability from different sources and the allocations made during the first five years (2000-05) are available in Table 4.

(Rs. in crore)

Year	CESS	World Bank	Asian Development Bank	Allocation
2000-2001	2500	NIL	NIL	2500
2001-2002	2500	NIL	NIL	2500
2002-2003	2500	NIL	NIL	2500
2003-2004	2325	NIL	NIL	2325
2004-2005	2148	220 ¹	100	2468
TOTAL	11973	220	100	12293

4.2.1.3 As the number of habitations eligible for connectivity had gone upto 1.73 lakh in March 2005 the revised requirement of funds was estimated as given in Table 5.

(Rs. in crore)

For new connectivity	69,450
For upgradation	56,400
For capacity development	6,300
TOTAL	1,32,150

4.2.1.4 The fund requirement was estimated (December 2000) at Rs. 58,200 crore for a period of seven years ending March 2007 while launching the programme. The number of habitations targeted to be covered was 1.41 lakh. However, unreliability of data and subsequent reports from States made the Ministry revise (March 2005) the funding requirement to Rs. 1,32,150 crore (representing an increase of 127 per cent) to cover the revised number of 1.73 lakh habitations (22.7 per cent increase). The funds mobilised between 2000 and 2005 were only Rs. 12,293 crore, which was only 30 per cent of the proportionate estimated requirement of Rs. 41,571 crore up to March 2005, going by the initial estimate of Rs. 58,200 crore for seven years. The

¹ This amount includes Rs. 20 crore towards technical assistance from World Bank for institutional development and capacity building programme.

amount actually released was only Rs.11,871.32 crore (29 per cent). Thus the Ministry commenced the programme on the basis of unreliable data. The resources that could to be generated were grossly inadequate to meet the estimated funding requirement. The programme therefore suffered from serious shortage of funds not only from the beginning but also after five years of commencement especially with frequent upward revision of both the number of habitations to be connected and the funds required for the programme. Reply of the Ministry was awaited as of February 2006.

Recommendations

- *Before taking up a programme like PMGSY with All India coverage requiring huge funding and full participation by the States, the targets to be achieved need to be firmed up and the funding requirements assessed realistically in order to give the programme a realistic chance of succeeding and delivering the expected outcome.*
- *The Ministry may now firm up the targets to be achieved on the basis of funds that can actually be provided and utilized for the remaining years besides striving to mobilise the required funds through all possible means.*

4.3 Programme Performance

4.3.1 Physical Performance

According to the initial target, 50,782 habitations of population above 1000 were to be connected by 2003 and 1.41 lakh habitations, in all, by 2007. The details of connectivity achieved upto March 2003 and March 2005 are given in Table 6.

Habitation Type	Unconnected at the time of launch	Unconnected habitations as reassessed in March 2005	Connected upto March 2003	Connected upto March 2005	Percentage of connectivity with reference to targets assessed at the time of launch (col. 5 to col. 2)	Percentage of connectivity with reference to targets reassessed in March 2005 (col. 5 to col. 3)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Above 1000	50,782	59,855	11,509	20,245	39.87	33.82
500-999	75,646	81,466	4,774	10,345	13.68	12.70
250-499	14,711	31,451	1,563	3,285	22.33	10.44
Total	1,41,085	1,72,772	17,846	33,875	24.01	19.61

The State wise details of connectivity position are available at **Annexure-2**.

Audit noticed that only 11,509 habitations (22.66 per cent) of population above 1000 were connected upto March 2003 and the progress in establishing connectivity under all the categories upto March 2005 was only 33,875 habitations which was 24 per cent of the unconnected habitations eligible for coverage at the time of launching the

programme and 19.61 per cent of the reassessed number of eligible habitations of 1.73 lakh (March 2005). The performance after a lapse of five years of the targeted programme period of seven years was far from encouraging.

4.3.2 Financial Performance

Table 7 indicates the position of proposals sanctioned, amount released, expenditure incurred and the number of works approved and completed up to March 2005.

(Rs. in crore)

Table 7 : Funds released and actual expenditure						
Year	Phase	Value of proposals approved	Amount released	Expenditure	No. of works approved	No. of works completed
2000-01	I	2,502.09	2,452.25	2,311.27	13,217	12,599
2001-03	II	5,104.55	4,934.43	4,244.56	11,131	9,060
2003-04	III	5,110.81	4,031.68	2,335.18	8,371	2,634
2004-05	IV	4,676.19	452.96	530.38	6,049	341
Total		17,393.64	11,871.32	9,421.39	38,768	24,634

The State wise breakup of above position is given in **Annexure-3**.

The inadequacy of funds released for the programme with reference to estimated requirements from 2000-01 to 2004-05 has been commented upon in the para 4.2.1.4. Audit examination revealed that though out of the total amount of assistance of Rs. 11,871.32 crore released upto 2004-05 under the programme, the expenditure reported during this period was Rs. 9,421.39 crore (79.36 per cent), the reported figures would not reflect the actual expenditure on the programme. A test check of the expenditure of Rs. 1,594.98 crore in audit revealed that funds amounting to Rs. 312.34 crore (19.58 per cent) were diverted, parked in unauthorised accounts or not utilized for the intended purpose as detailed in the succeeding paragraphs.

4.3.2.1 Programme funds were diverted or parked in unauthorized accounts

The guidelines provided that agency charges and expenditure of administrative nature such as purchase of vehicles and office equipment were not admissible and not debitible to the programme account. Further, the funds released were to be kept in a single savings account maintained by the State Level Agency. Test check in audit disclosed diversion of **Rs. 19.39 crore** during 2000-01 to 2004-05 to activities not connected with the programme as detailed in **Annexure-4**. Significant instances of diversion of funds noticed in audit were as under:

- In **Arunachal Pradesh, Himachal Pradesh, Kerala** and **Nagaland** an amount of Rs. 7.20 crore was spent on the construction of office building,

maintenance of buildings, annual repairs and maintenance work, maintenance of the rural roads constructed under the state plan schemes, water supply lines and so on.

- In **Arunachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Orissa, Tamil Nadu** and **West Bengal** an amount of Rs. 5.85 crore was spent on administrative charges, purchase of printer, fax, office automation, shifting charges of electricity poles, installation of computer, contingency expenses, disbursement of temporary loan, repayment of earnest money deposit, etc. which were not permitted under the programme.
- In **Arunachal Pradesh, Haryana, Himachal Pradesh, Karnataka** and **Nagaland** an amount of Rs. 1.34 crore was diverted to the construction of roads not included in the project proposal, execution of other schemes like watershed and social forestry and construction of roads under the state plan scheme which were not admissible under the programme.
- In **Uttaranchal**, Rs. 5 crore was diverted to fund land compensation, which was not admissible under the programme.

4.3.2.2 Test check of the records in the States revealed that an amount of **Rs. 208.73 crore** was parked in civil deposits, fixed deposits and term deposits and not kept in a separate savings bank account as required under the programme guidelines. Details are given in Table 8.

Sr. No.	Type of unauthorised accounts	Period	DPIU (State)	Amount (Rs. in crore)
1.	Post Office Savings Accounts	30 March 2002 to 10 April 2002 30 March 2002 to 17 April 2002	Madurai (Tamil Nadu) Virudhunagar (Tamil Nadu)	2.00 1.00
2.	Term Deposits	5 September 2003 to 30 April 2004	State Level Agency (Andhra Pradesh)	113.71
3.	Zila Parishad Account	March 2004 to March 2005	ZPED Haveri (Karnataka)	0.18
4.	(i) Civil Deposit	15 March 2002 to February 2003	Panchayat and Rural Development Department. (Assam)	80.47 (loss of interest Rs. 1.73)
	(ii) Current Account	February 2002 to October 2002	Project Director (DRDA) N.C. Hills (Assam)	2.50 (loss of interest Rs. 5.26 lakh)
	(iii) Outside Government Account	9 February 2002 to 21 February 2002	DRDA Bongaigaon (Assam)	0.69
5.	Lying unspent with state government	27 March 2001 to February 2005	Manipur	8.18
Grand total				208.73

4.3.2.3 Retention of unutilized funds

The District Rural Development Agencies (DRDAs) were required to transfer the unutilized funds to the bank account maintained by the State Level Agency (SLA). A test check of the records in the States revealed the following shortcomings:

- In **Assam**, Rs. 9.99 crore received against phase I works was lying unutilized with DRDAs/DPIUs.
- In **Goa**, Rs. 5 crore released during 2001-02 was lying with DRDA as of March 2005.
- In **Himachal Pradesh**, an amount of Rs. 0.28 crore representing the interest earned on funds released between 2000-01 and 2002-03 was retained by 4 DPIUs (Chamba, Kangra, Kinnaur and Shimla).
- In **Rajasthan** an amount of Rs. 0.11 crore of the funds released during phase I (March 2001) was lying with DRDA, Alwar as of March 2005.
- In **Tamil Nadu**, savings of Rs. 3.60 crore from the funds released for phase I work remained unutilized with the state government/DRDA.
- In **Uttaranchal**, the Executive Engineer, Temporary Division, PWD, Sahiya (Kalsi) Dehradun, kept Rs. 4.32 crore received from DRDA, Dehradun in a non interest bearing account which led to a loss of Rs. 5.33 lakh towards interest.
- In **Uttar Pradesh**, an amount of Rs. 7.94 crore was retained by 3 DPIUs (Saharanpur, Allahabad and Chandauli) for 30 months, 33 months and 22 months, respectively.
- In **West Bengal**, Rs. 4.08 crore was required to be transferred to the bank account of WBSRDA by March 2004 but was lying in the State accounts in four districts (Uttar Dinajpur, Bankura, Bardhaman and Malda), as of March 2005.

4.3.2.4 Incorrect financial reporting

Audit examination revealed following instances of incorrect financial reporting.

- In **Arunachal Pradesh**, the expenditure incurred on the works taken up during the phases I and II, was reported short by Rs. 0.82 crore, while in **Meghalaya**, Rs. 34.95 crore released in 2000-01 for 208 works under BMS was shown as utilized in the utilization certificate submitted to the Ministry but the works were yet to be completed (March 2005).
- In three districts of **Jammu and Kashmir**, there was variation of Rs. 12.67 lakh between the figures of expenditure reported from the districts to the state government and the Ministry.

- In two districts (Saiha and Serchhip) of **Mizoram**, Rs. 2.34 crore released for incomplete BMS work during 2000-01 was booked as expenditure in the accounts for 2001-02 but the work was yet to be executed (March 2005).

4.3.2.5 Short release of funds by the state government/DRDA to implementing agencies

The guidelines stipulated that the state government/DRDA to whom the funds were transferred by the Ministry during 2000-01 were required to place the amount at the disposal of the DRDA within 15 days of receipt. Audit noticed that in **Arunachal Pradesh** (Rs. 1.59 crore), **Jharkhand** (Rs. 1.42 crore), **Meghalaya** (Rs. 34.95 crore), **Rajasthan** (Rs. 0.01 crore) and **Tripura** (Rs. 0.17 crore), funds of phases I and II of the programme were released short to the extent of the amounts indicated in brackets by the state government/DRDA to the implementing agencies adversely affecting the execution of works.

4.3.2.6 Delayed release of fund to the executing agencies

The funds released during 2000-01 and 2001-03 by the Ministry aggregating **Rs. 1457.76 crore** covering the States of **Andhra Pradesh** (Rs. 638.94 crore), **Assam** (Rs. 70.35 crore), **Bihar** (Rs. 149.90 crore), **Jammu and Kashmir** (Rs. 55 crore), **Jharkhand** (Rs. 110 crore), **Maharashtra** (Rs. 2.56 crore), **Manipur** (Rs. 71.80 crore), **Orissa** (Rs. 179.70 crore), **Rajasthan** (Rs. 135.52 crore) and **Tripura** (Rs. 43.99 crore), were released by the state governments/DRDAs to the implementing/executing agencies with delays ranging between one and 48 months as detailed in **Annexure-5**.

Accumulation of substantial unspent balances with the DRDAs / DPIUs, incorrect financial reporting and short release or non-release of funds reflected the unrealistic assessment of fund requirement and the weaknesses in monitoring.

Ministry did not furnish specific reply as of February 2006.

Recommendations

- *The Ministry may in coordination with the state governments ensure that all instances of diversion, idling of funds, short or delayed releases are reviewed critically and the programme monitored closely so that these did not recur.*
- *The Ministry may ensure improvement in the accounting and monitoring arrangements for the programme by accelerating the proper use of the OMMS including activating its accounting module as commented in para 4.11 of this report.*

4.4 Implementation

4.4.1 Preparation of DRRP and CNW

The States were required to prepare a master plan for the rural roads, first at the block level in accordance with the Manual for the preparation of DRRP, circulated to the States by the Ministry in June 2001. The plans of all the blocks in a district were to be integrated into a district level master plan called the District Rural Road Plan (DRRP) after approval of the intermediate and district panchayats. The plan indicated the position of connectivity of habitations with the existing roads and the proposed road network in the district which should, inter alia, contain a comprehensive inventory of all rural roads, link route, through route, other district roads, major district roads, state and national highways. Based on the position of connectivity of habitations in the DRRP, the core network (CNW) indicating the shortest single connectivity was required to be prepared.

The copy of the CNW approved by the district panchayat was required to be sent to the State Level Agency and NRRDA for verification. The State Level Standing Committee was also required to vet the CNW. No procedure was prescribed for its vetting and approval at the central level. However, NRRDA requested all the States (October 2004) to prepare the CNW on the basis of the census of 2001 as provided in the revised guidelines (January 2003). The state agencies were instructed (October 2004) to verify and attest the CNW for correctness during the scrutiny of DPRs. The guidelines, however, did not prescribe that the CNW should be periodically reviewed and updated due to factors such as change or shift in the location of the market centre or socio economic services and after taking into account the road works already covered under PMGSY or other state plan programmes.

4.4.2 Delay and deficiencies in preparation of DRRP and CNW resulted in overlapping/duplication of works, and works not covered under CNW and inadmissible works getting executed

The records of NRRDA showed that all the States had prepared or submitted (October 2004) the CNW except **Bihar**. Audit examination of the records in the selected districts in the States indicated instances where DRRPs were delayed or prepared without proper survey which led to incorrect data of the existing road network and unconnected habitations in the CNW, as discussed below:

- In **Arunachal Pradesh**, the CNW was prepared and sent to NRRDA in January 2005. As per the government instructions (September 2002), the proposals for phase III should include only the road works based on the CNW. The delayed preparation of the CNW resulted in delay in submission of proposals for phase III as well as delay in providing connectivity to 104 villages. In **Jammu and Kashmir**, the CNW was not prepared in three districts (Jammu, Kathua and Rajouri)
- In **Karnataka**, the DRRP was prepared and approved between January and July 2003. In four out of the seven test checked districts, the data relating to the unconnected habitations available with the districts and the state headquarters differed inter se.

- In **Kerala**, as per the state level consolidated DRRP prepared between November 2000 and August 2001, there were 441 identified unconnected habitations, whereas the district road plan prepared by the National Transportation Planning and Research Centre (NTPRC), an autonomous body under the state government, had identified 5677 unconnected habitations during 2000-01. The Ministry adopted the lower figure in the programme.
- In **Nagaland**, as per the DRRP prepared in June-August 2001, out of 95 unconnected habitations, 84 habitations were eligible for coverage under the programme. But the CNW prepared in December 2002 indicated that there were 215 unconnected habitations, of which 189 fell under the eligibility criteria of the programme.
- In **Sikkim**, 92 habitations each with population less than 250 persons were included in the CNW.
- In **West Bengal**, the data on the number of habitations in the DRRP and the CNW differed significantly between the reports submitted to the Ministry in October 2004 and March 2005. No engineering survey was conducted at the time of preparation of the CNW for demarcating the alignment of roads. As a result, the length of 11 roads in 2 districts (Darjeeling and Bankura) increased by 4.44 km. and length of 19 roads in 3 districts (Uttar Dinajpur, Bardhaman and Malda) was reduced by 21.28 km during execution.

4.4.2.1 Overlapping/duplication in the works executed

Scrutiny of records in the States disclosed overlap or duplication in the roads constructed as discussed below.

- In two districts (West Siang and Upper Siang) of **Arunachal Pradesh**, 3 packages (AR1204 PWD, AR 1203 PWD and AR 1301 PWD) together estimated to cost Rs. 2.92 crore were sanctioned under PMGSY during 2001-02 on which expenditure of Rs. 1.14 crore was already incurred by the executing divisions from the state plan budget and the amount was subsequently debited to PMGSY.
- In West Siang district of **Arunachal Pradesh**, the length of the road from Ringi to Paimori as per the CNW was 7.60 km. The formation cutting for a length of 5 km was already covered under the state plan in two phases leaving out 2.60 km. The work was again taken up under PMGSY (AR1204 RWD) during phase II which included formation cutting for length of 5 km at an estimated cost of Rs. 62.92 lakh. This indicated that the work for 2.40 km (5 km minus 2.60 km) which was already completed under the state plan, was again taken up under PMGSY involving an expenditure of Rs.30.20 lakh, the need for which was itself questionable.

- In Bilaspur district of **Chhattisgarh**, a six km long road already sanctioned under the state plan was got approved under PMGSY during 2001-02 and expenditure of Rs. 0.62 crore was incurred.
- In Churachandpur district of **Manipur**, Rs. 0.72 crore released during 2000-01 was spent to clear the liabilities of 15 completed works, which were shown as incomplete works in project proposals.
- In Phek district of **Nagaland**, the link road between Phugui-Metsale-Ketsapo-Ruzozho of 51 km length was already constructed under BMS while Rs. 35 lakh was spent from PMGSY funds during 2000-01 (phase I) released as additional central assistance for the incomplete works under BMS. The road work connecting Ketsapo-Metsale of 15 km. length was taken up again as new connectivity under PMGSY with a sanctioned amount of Rs. 2.04 crore during 2003-04 (phase III) against which payment of Rs. 0.79 crore was made to the contractor as of March 2005.
- In 3 districts (Khurda, Rayagada and Koraput) of **Orissa**, 9 all weather roads already existing were shown as executed under the programme at a cost of Rs. 4.27 crore.

4.4.2.2 Execution of works not covered under CNW

The guidelines provided that each road work taken up under the programme should form part of the CNW. Test check of records in the States revealed that several works were taken up which were either not included in the CNW or the roads constructed covered additional length beyond the scope of the CNW on which an expenditure of **Rs. 11.90 crore** was incurred.

- In three districts of **Assam** (Barpeta, Kamrup and Karbi Anglong) 10 road works costing **Rs. 4.19 crore** were executed during 2000-01 to 2003-04 , but were not included in CNW and the Comprehensive New Connectivity Priority List (CNCPL).
- In **Andhra Pradesh**, 17 road works in five districts (Kurnool, Medak, Nellore, Prakasam and Nizamabad) were executed at a cost of **Rs. 4.98 crore** which were not included in CNW.
- In Hazaribagh district of **Jharkhand**, the road (length of 2 km) for connecting the habitation Belhara to Reo was included in the CNW. But the road connecting Reo to Belhara via Bundu of length 6.95 km. was selected for construction which involved extra length of 4.95 km. and extra cost of **Rs. 0.96 crore**. Similarly in Palamu district, the road connecting Marwa village to Nawadih via Jalalkhap with 2 km. in length was to be constructed but the road selected for construction was from Nawadih to Marwa via Mohipatta with a length of 4 km which involved extra cost of **Rs. 0.34 crore**.

- In **Punjab**, 8 road works (length 10.84 km) were constructed at a cost of **Rs. 1.43 crore** during 2000-01 and 2001-03 though they were not included in the CNW prepared in December 2000.

4.4.2.3 Execution of inadmissible works

The guidelines defined an unconnected habitation as one which was located at a distance of atleast 500 metres or more in the plains (1.5 km of path distance in the case of hills) from an all weather road or a connected habitation with population size of 500 persons and above (250 and above in case of hills). In **17 States Rs. 47.36 crore** was spent on providing connectivity to ineligible habitations as detailed in **Annexure-6**. The guidelines also provided for only single road connectivity. If a habitation was already connected to another connected habitation by way of an all weather road, then no further work was to be taken up under the programme in that habitation. In **6 States, Rs. 28.92 crore** were spent on providing multi connectivity as detailed in **Annexure-7A**.

Repairs to black topped or cement roads and construction of district roads were not permitted under the programme. In **9 States** an expenditure of **Rs. 34.32 crore** was incurred on repair works and construction of district roads. Details are in **Annexure-7B**.

The above irregularities indicated deficient planning and ineffective control at the approval stage which led to improper utilization of scarce resources and denial of timely connectivity to the eligible habitations.

4.4.2.4 In reply, the Ministry admitted (November 2005) that the CNW data was initially not available for phase I and II but sincere efforts had been made from phase III onwards in the selection of roads as per CNW. It was, however, noted that overlap with other schemes/programmes could have been avoided if the Ministry had considered integration of other similar ongoing schemes at the planning stage itself. While considering the programme for approval, the Expenditure Finance Committee (EFC) had in August 2000, sought the details of schemes with overlapping objectives, either executed by other central ministries or states and the possibility of their integration with PMGSY. The Ministry without ascertaining the status and completion of such schemes being implemented under the state plans or through externally funded agencies, asserted that there were no other overlapping schemes. The Ministry's reply to Audit did not explain whether the CNW of phase III could be considered comprehensive and included the rural roads being constructed under state road plans as well as the other schemes of NABARD so as to minimize, if not eliminate, overlap in the selection of roads.

4.4.3 Non-prioritisation of new connectivity resulted in execution of more upgradation works

Details of the habitations, which were connected with seasonal roads and were to be included under the programme by upgradation to all weather roads were neither available nor considered for determining the extent of upgradation required. Absence of this data led to the inclusion of upgradation work without providing any weightage for new connectivity in the programme guidelines. As a result, more upgradation works were taken up by all the States during the first three years of implementation representing the first two phases. Test check of records in the States revealed that Rs. 365.44 crore was spent on upgradation works in 12 States as indicated in Table 9.

Table 9: Upgradation works executed		
Name of the State	No. of works	Amount (Rs. in crores)
Bihar	114	58.05
Chhattisgarh	112	1.07
Goa	70	5.00
Gujarat	NA	6.76
Himachal Pradesh	76	36.61
Kerala	18	8.66
Madhya Pradesh	427	191.24
Maharashtra	87	16.95
Manipur	1	1.99
Nagaland	16	18.96
Rajasthan	16	2.07
West Bengal	16	18.08
Total	953	365.44

4.4.3.1 An examination of the records of the Ministry revealed that Rs. 1220.13 crore and Rs. 875.77 crore were spent on upgradation works while Rs. 597.35 crore and Rs. 4151.10 crore were spent on new connectivity during the phase I and II (2000-01 and 2001-03) of the programme respectively. Prioritization of new connectivity would have helped in achieving the envisaged mid-term objective of providing connectivity to all habitations with population above 1000 by 2003 by more focused use of resources. The norms for prioritization of new connectivity and the limit on upgradation works were specified only in the revised guidelines issued in January 2003.

The Ministry stated (November 2005) that they had made provision for restricting the upgradation works in January 2003. However, the delay in incorporating the said provision had hampered the programme objective in the initial years and had led to diversion of financial resources to upgradation which deprived unconnected habitations from being connected.

4.4.4 Priority norms for coverage were not followed by the States

The guidelines (January 2003) specified that priority was to be accorded to providing new connectivity to all unconnected habitations in the following order:

- Providing new connectivity to unconnected habitations with a population of 1000 or more (500 or more in the case of hilly areas)
- Providing new connectivity to unconnected habitations with a population between 500 – 999 (250 to 499 in the case of hilly areas)
- Upgradation of through routes in the CNW, and
- Upgradation of link routes

4.4.4.1 Audit examination revealed that **seven States** had incurred an expenditure of Rs. **51.48 crore** on works for providing connectivity to habitations with lower population though habitations with higher population were yet to be provided connectivity. While **Bihar** had spent Rs. 0.35 crore on such works, **Jharkhand** had spent Rs. 17.27 crore, **Maharashtra** Rs. 23.09 crore, **Mizoram** Rs. 3.97 crore, **Orissa** Rs. 1.08 crore, **Punjab** Rs. 2.05 crore and **West Bengal** Rs. 3.67 crore.

4.4.4.2 Though the above works were not altogether precluded from being taken up under the programme, construction of these roads in the initial phase itself had diluted the primary focus of the programme in achieving the desired mid-term objective of covering as many of habitations with higher population as possible.

Instances of irregularities and deficiencies in implementation pointed out above were indicative of inadequate appreciation of the monitoring requirements while initially preparing the guidelines, slackness in monitoring in the States and absence of effective supervision or review mechanism in the Ministry.

4.5 Tendering process

4.5.1 The guidelines of December 2000 stipulated that a well established procedure for tendering through competitive bidding would be followed but no standard procedure was laid down either in the guidelines or separately. The revised guideline of January 2003 envisaged that all the States would follow the standard bidding procedure prescribed/introduced by the Ministry or NRRDA which was done only in 2003-04.

4.5.2 Audit examination disclosed that in the absence of a uniform procedure, each State adopted the procedure followed in the respective State during the phase I and II of the programme. Further scrutiny of records in the States disclosed that even after the introduction of the standard bidding procedure from 2003-04, the requirements of the procedure were not complied with while finalizing the tenders in various States as discussed below.

- In Prakasam district of **Andhra Pradesh**, the work of construction of additional road length of 3.6 km costing Rs. 51.50 lakh was awarded to the same contractor without calling for fresh tenders while in one case of Nizamabad district, an offer, higher by Rs 14.08 lakh, was accepted in preference to the lower offer.
- In **Arunachal Pradesh**, all works in respect of the packages approved during phase-II were executed departmentally without inviting tenders and there was time overrun as the executing agencies did not maintain the time schedule for completion of works.
- In **Gujarat**, two works were awarded (2003-04) to a single bidder without competition, at 14.4 and 22 per cent respectively, above the estimated cost.
- In 14 districts of **Madhya Pradesh**, the lowest offer was rejected in finalizing the tender for award of works during 2003-04 and 2004-05 on which extra expenditure of Rs. 2.09 crore was incurred.
- In **Manipur**, out of 33 work orders under Phase II valuing Rs. 80.67 crore issued by the state government between January 2003 and December 2003 , test check of two districts (Churachandpur and Bishnupur) revealed that work orders valuing Rs. 17.30 crore were given to contractors who were selected in an irregular manner without competitive bidding. In Churachandpur district, the state government awarded six packages of work valuing Rs. 8.33 crore to six contractors who were recommended by the District Level Tender Committee (DLTC) out of 58 pre qualified contractors. This was done in pursuance of directions from the state government but these directions were in contravention of the provision of the financial rules, the CPWD manuals and the PMGSY guidelines issued by the Government of India. This meant award of work without competitive bidding. Similarly in Bishnupur district, DLTC recommended four contractors for four packages valuing Rs. 8.97 crore out of 25 pre qualified contractors for the district. The DLTC did not record any reason or criteria for selecting the four contractors and rejecting others except that the specific contractors were recommended in the wake of directions from state government.
- In **Orissa**, the works for three packages were awarded in March and April 2002 to a contractor who had defaulted in construction of a high level bridge work which was abandoned due to execution of substandard work. The works so awarded remained incomplete as of March 2005.
- In **Rajasthan**, the Chief Engineer PWD, Churu, awarded the work sanctioned in 10 packages during 2003-04 to the Rajasthan State Road Development Construction Corporation without following the process of competitive bidding and allowed agency charges @ 7.5 per cent amounting to Rs. 56.98 lakh in contravention of the guidelines.

- In **Tamil Nadu**, wide publicity was not given which resulted in poor participation of contractors in the tenders.
- In **Uttar Pradesh** 12 DPIUs awarded contracts worth Rs. 51.44 crore without giving sufficient publicity with the result that only a single bidder participated.
- In **West Bengal**, competition could not be ensured as only two contractors participated in the bidding procedure for seven packages proposed in Bardhaman, Malda and Darjeeling districts in 2003-04.

4.5.3 Delay in tender finalisation

The stipulated time limit for completion of formalities such as issue of tender notice, finalisation of tender and award of works was 120 days from the date of clearance of the project proposals by the Ministry failing which the works in question were to be deemed cancelled. Scrutiny of records in the States revealed that **1623 tenders** were finalized with delay extending upto **25 months** in respect of works costing **Rs. 1607.08 crore**. Details are in **Annexure-8**. The reasons advanced for the delay were non response to tender calls, rejection of tenders due to higher rates, Parliamentary election and so on. This only underscored the need for greater care and adequate publicity required to be given by the implementing agencies to secure optimum rates and value for money.

4.5.4 Execution of works deviating from prescribed design and specifications

The rural roads constructed under the programme were required to meet the technical specification and geometric design standards given in the Rural Roads Manual of the Indian Roads Congress (IRC). Test check of records in the States revealed that road works were executed with higher specifications such as providing higher carriageway width of 3.75 metres even when the traffic density was less than 100 vehicles per day, use of costlier and richer specification and excess use of bitumen in **3941 works** in **18 States** which involved an additional expenditure of **Rs. 167.66 crore**. Details are in **Annexure-9**.

4.5.5 Works executed without providing full connectivity

Test check of records in the States revealed that **152 works** executed in **5 States** did not provide full connectivity to eligible habitations as the roads were constructed with reduced length as additional items of work were executed or estimates prepared were not realistic or the required road length was not assessed or estimates were prepared for reduced road length on account of inadequate funds rendering the expenditure unfruitful as detailed in Table 10.

Table 10: Incomplete connectivity
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State	District	Year	No. of works	Amount (Rs. in lakh)	Remarks
Andhra Pradesh	Guntur, Nellore, Kurnool	2000-01, 2001-03	31	845.17	Expenditure was incurred on road works which did not connect the habitations. As against the actual length of 116.79 km proposed in the estimate, only 73.20 km was constructed.
Arunachal Pradesh	Papumpare	2001-02	1	122.00	Road length constructed was reduced to 4.90 km from 6.89 km originally mentioned in the approved proposals due to addition of cross drainage (CD) works without obtaining the concurrence of District Panchayat, STA, SLSC.
Karnataka	Belgaum, Chamarajanagar, Gadag, Koppal, Raichur, Mysore	2000-01, 2001-03	45	1152.00	Estimates were prepared without providing for required cross drainage works or actual length of roads due to fund constraints. As against the actual length of 263.92 km required for providing connectivity, estimates prepared and sanctioned were for 149.84 km.
Orissa	(i) Khurda, Puri	-	4	168.28	Roads constructed did not connect habitations to all weather roads .
	(ii) Koraput, Kendrapada, Nayagarh, Rayagada, Jajpur	2000-01, 2001-03	30	1512.00	The actual length required to establish full connectivity was not assessed at the time of preparation of estimates. As against the length requirement of 199 km. for connecting the habitations, only 82 km road was constructed resulting in missing links of 117 km.
Uttar Pradesh	Allahabad, Bulandshahr, Kanpur Dehat, Mirzapur, Rai Bareli, Saharanpur, Deoria		41	NA	Length of 41 roads executed was 152.16 km only as against sanctioned length of 166.68 km.
Total			152	3799.45	

4.5.6 Abandoned/ incomplete works

As per the programme guidelines, a certificate to the effect that land was available was to accompany the proposal for each road work. Audit examination revealed that **68 works** were abandoned midway after incurring an expenditure of **Rs 18.66 crore** in **Himachal Pradesh, Gujarat, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Orissa and Rajasthan**. Apart from the above, **75 works** remained incomplete on which an expenditure of **Rs 25.19 crore** had been incurred in **Andhra Pradesh, Bihar, Himachal Pradesh, Jammu and Kashmir, Orissa, Punjab, Tamil Nadu and Uttaranchal**. The reasons for abandonment or the work remaining incomplete were non-availability of land, pending forest clearance, incomplete major bridges and so on. Similarly, **42 works** costing **Rs 26.18 crore**, though sanctioned, were not taken up in **7 States (Bihar, Gujarat, Himachal Pradesh, Karnataka, Manipur, Rajasthan and Tamil Nadu)** of which Rs. 0.57 crore sanctioned for 3 works in **Karnataka** was utilized in other works. A total of **32 sanctioned works** costing **Rs. 8.93 crore** were not started and were dropped or abandoned in 4 States (**Andhra Pradesh, Maharashtra, Punjab and Tripura**), of which Rs. 0.52 crore sanctioned for two works in **Maharashtra** was utilized in other works. The reasons for abandonment were land dispute or absence of railway permission. In **Uttar Pradesh** 75 works costing Rs. 19.60 crore were not taken up as the roads were either already constructed by other agencies or connectivity was already there. **Annexure-10** has the details.

4.5.7 Delayed completion of works

The guidelines envisaged that the projects sanctioned had to be executed by DPIUs and completed within a period of nine months from the date of approval which was revised (January 2003) to nine months from the date of issue of the work order. Audit examination revealed delays in completion of projects ranging between one and **39 months** in **1653 works**, as detailed in **Annexure-11**. The reasons for the delay in completion of works were non availability of site, material, late commencement of work and so on.

4.5.7.1 Liquidated Damages not recovered

The guidelines envisaged that suitable penalty clause be incorporated in the agreement and the same imposed on the contractor for time over-run. Test check in audit disclosed that the recovery of liquidated damages aggregating **Rs. 35.28 crore** was not effected in **Bihar** (Rs. 4.77 crore), **Gujarat** (Rs. 1.56 crore), **Himachal Pradesh** (Rs. 1.23 crore), **Madhya Pradesh** (Rs. 2.58 crore), **Maharashtra** (Rs. 5.24 crore), **Orissa** (Rs. 19.42 crore) and **Rajasthan** (Rs. 0.48 crore) as detailed in **Annexure-11**.

4.5.8 Execution of unapproved items of works

The guidelines stipulated that all the works included in the DPR should be approved and cleared by the Ministry. Sample check of the records in the States disclosed that various items of works such as extra road length and earthwork, not included in the

approved project proposals were either executed or substituted without the approval of the Ministry in **207 works** taken up between 2000-01 and 2003-04. The expenditure incurred on such unapproved works was **Rs. 48.80 crore** in **Andhra Pradesh** (23 works costing Rs. 1.72 crore), **Arunachal Pradesh** (5 works costing Rs. 0.97 crore), **Himachal Pradesh** (24 works costing Rs. 2.33 crore), **Jammu and Kashmir** (5 works costing Rs. 0.21 crore), **Jharkhand** (47 works costing Rs. 3.45 crore), **Karnataka** (3 works costing Rs. 1.02 crore), **Madhya Pradesh** (Rs. 23.74 crore), **Maharashtra** (Rs. 0.33 crore), **Manipur** (19 works costing Rs. 0.89 crore), **Meghalaya** (2 works costing Rs. 0.38 crore), **Nagaland** (3 works costing Rs. 0.65 crore), **Punjab** (Rs. 0.44 crore), **Rajasthan** (6 works costing Rs. 0.64 crore), **Tripura** (9 works costing Rs. 0.37 crore), **Uttaranchal** (Rs. 0.08 crore), **Uttar Pradesh** (16 works costing Rs. 3.55 crore) and **West Bengal** (35 works costing Rs. 8.03 crore).

4.5.8 Irregular charge of tender premium to programme funds

The guidelines contemplated that where the value of tender was found to be more than the cost of the approved estimate, such excess cost should not be charged to the programme funds but borne by the state government. However, the guidelines did not provide any modalities for segregation of such costs. In the absence of any such procedure, expenditure of **Rs. 44.91 crore** towards excess tender value was met by **Andhra Pradesh** (Rs. 4.58 crore), **Chhattisgarh** (Rs. 21.14 crore), **Gujarat** (Rs. 0.46 crore), **Madhya Pradesh** (Rs. 6.77 crore), **Maharashtra** (Rs. 4.96 crore), **Manipur** (Rs. 0.08 crore), **Rajasthan** (Rs. 0.78 crore), **Sikkim** (Rs. 0.16 crore), **Tripura** (Rs. 3.30 crore) and **West Bengal** (Rs. 2.68 crore) from PMGSY funds.

4.5.9 Inadmissible lead charges for transportation of soil

Lead charges for transportation of soil were not payable under the programme except in the case of black cotton soil. An expenditure of **Rs. 13.76 crore** was incurred towards lead charges by the States of **Andhra Pradesh** (Rs. 0.40 crore), **Gujarat** (Rs. 0.52 crore), **Haryana** (Rs. 0.13 crore), **Kerala** (Rs. 0.33 crore), **Madhya Pradesh** (Rs. 1.22 crore), **Orissa** (Rs. 4.73 crore), **Punjab** (Rs. 1.60 crore), **Rajasthan** (Rs. 4.34 crore) and **Sikkim** (Rs. 0.49 crore), which were charged to the programme in contravention of the guidelines.

4.5.10 Undue benefit to contractors

Audit examination revealed cases where undue benefits were extended to the contractors involving payment without recording measurement, without execution of work, payment at higher rates, overpayment, non recovery of the cost of material supplied, non deduction of the cost of stones available at site, non recovery of extra cost on cancellation of contract and so on, in violation of the financial rules and the programme guidelines. In **10 States** namely, **Arunachal Pradesh** (Rs. 0.03 crore), **Assam** (Rs. 0.42 crore), **Himachal Pradesh** (Rs. 0.12 crore), **Jharkhand** (Rs. 0.20 crore), **Madhya Pradesh** (Rs. 4.46 crore), **Manipur** (Rs. 0.35 crore), **Nagaland** (Rs. 1.26 crore), **Orissa** (Rs. 26.02 crore), **Sikkim** (Rs. 0.95 crore) and **West Bengal**

(Rs. 0.18 crore), undue benefits aggregating **Rs. 33.99 crore** were allowed to the contractors on various counts. **Annexure -12** has the details.

The above illustrative irregularities highlighted inefficient utilization of funds, weak contract management and ineffective monitoring of the works.

Reply of the Ministry was awaited as of February 2006.

Recommendations

- *The States should be advised to support the project proposals with the correct and relevant documents in support of the availability of land and clearance from the forest and the railway authorities instead of merely furnishing certificates which were only general in nature.*
- *The States should be advised to take prompt action against the contractors where the work was behind schedule, in cases of inadmissible payment of lead charges and tender premiums so as to improve the pace of implementation of the works in progress and efficient fund utilization.*

4.6 Quality Assurance

A special emphasis was laid on ensuring good quality of roads for which a detailed procedure was prescribed in the guidelines. Starting from specification for road works, subjecting the process of preparation of DPR and estimates to robust technical scrutiny, setting up a technical agency – NRRDA at the central level and insisting on a similar agency at the state level, the Ministry intended to provide high quality technical inputs for ensuring good quality all-weather roads. A three tier quality control monitoring mechanism was established as indicated in Table 11.

DPIU level	State Level	National level
Quality Control Registers (QCR) (Prescribed by the NRRDA) Quality Control Laboratories (QCL) (to be set-up by contractor) Methodology: Contractually stipulated tests to be carried out mandatorily and recorded in QCR.	Independent Quality Control Unit (To conduct second stage quality monitoring) Methodology: Random tests of material and workmanship.	National Quality Monitors (NQM) Methodology: Compliance reporting to NRRDA on the first and second tier quality check mechanism and reporting on quality on visual basis

4.6.1 Functioning of first tier Quality Control Mechanism

The DPIU should ensure that various tests prescribed in the specification were carried out at the specified time. Audit examination revealed the following:

- Quality Control Laboratories were not established / set up at DPIU level inspite of the lapse of 5 years from the launch of the programme in **Jharkhand, Karnataka, Kerala, Nagaland, Orissa, Tamil Nadu, and West Bengal**. In **Karnataka, Kerala and West Bengal**, even the contractors had not established quality control laboratories at the sites.
- NRRDA released Rs. 1.50 crore to Chief Engineer (Panchayati Raj), **Andhra Pradesh** in Mach 2004 for setting up the laboratory and purchase of survey equipment out of the technical assistance loan received by it from World Bank under the institutional development and capacity building programme. The amount was kept in fixed deposit by the Chief Engineer (PR) without its utilisation as of April 2005 even though the quality control equipment was an essential need. However, NRRDA treated the same as utilized while seeking further funds from the Ministry.
- Similarly, Rs.1.20 lakh remitted to two DPIUs by the **Jammu and Kashmir** government remained unutilized as on 31 March 2005 without establishing any laboratory for testing the material.

It was thus not clear as to how the state governments as well as the Ministry were ensuring conformity of the material consumed in road construction, with the specification prescribed, as required in the first tier of the quality assurance mechanism.

4.6.2 Functioning of the second Tier Quality Control Mechanism through SQMs

State Quality Monitors (SQM) were required to be appointed by the state government to undertake independent tests for the quality of roads However, they remained non-operational in **Arunachal Pradesh, Chhattisgarh, Jammu and Kashmir and Jharkhand** as there were no laboratory facilities. In **Kerala**, SQMs were not appointed by the state government. Where SQMs were appointed, the institution remained mostly non functional as evident from the reports of NQM. Besides, the Ministry also admitted the fact during its review of the progress of programme as of March 2005.

4.6.3 Functioning of the third tier Quality Control Mechanism through NQMs

The NRRDA was created to extend technical support to the programme, which, inter alia, involved reinforcement of quality assurance of the works at the central level. Accordingly, the NRRDA introduced the system of monitoring the quality of roads through National Quality Monitors (NQMs), comprising retired Executive Engineers/Superintending Engineers since 2002-03 for carrying out inspection of roads constructed under PMGSY. The mechanism involved compliance reporting on the functioning of the first and second tier of the quality control mechanism apart from reporting on the quality of roads based on perception through visual inspection and hand feel method.

4.6.3.1 Audit examination revealed the following deficiencies in the system:

- The system lacked accountability for incorrect reporting as the terms of appointment of NQMs did not prescribe their accountability where findings were subsequently found incorrect and the certified work was found not conforming to the specifications.
- Although the IRC² specifications (February 2002) adopted by the Ministry, prescribed that frequent tests needed to be carried out for seeking additional assurance on the quality of road material and adequacy of the construction methods and procedures, the NRRDA prescribed and followed a system of quality assurance through visual inspection of roads. This methodology followed by NQM for judging the quality of roads needed to be viewed in the light of the fact that the roads were designed considering long term traffic growth of 15-20 years and thus were not susceptible to immediate distress after construction, and
- NQM relied on the quality tests undertaken by the DPIUs, who were responsible for the supervision of the contractor's work and payment to the contractors and could not therefore provide an independent and rigorous assurance

During a review of the progress of the works under the programme upto 2004-05, the Ministry itself observed that the first and second tier quality control structures were not operationalised or were not effective and the quality of works executed during the first two phases (upto 2002-03) in the States was a matter of serious concern. Despite the absence of adequate quality control at these two tiers, the Ministry did not specifically provide for laboratory testing by NQM for quality assessment.

4.6.3.2 NQMs had carried out 21,550 inspections between March 2002 and June 2004. In 3086 inspections (14 per cent) roads were classified as average/ poor requiring rectification and in 18,464 inspections (86 per cent) roads were classified as good/very good. Thereafter, the standard classification of roads in terms of quality was changed (July 2004) to satisfactory and unsatisfactory. Against 6064 inspections carried out between July 2004 and March 2005, 3134 inspections (52 per cent) roads were graded as unsatisfactory.

4.6.3.3 Audit examination revealed that the specific technical parameters for grading the roads as good, very good, average, poor, and satisfactory were not defined to enable the NQMs to judge the quality objectively in technical terms and make them accountable for any discrepancies. The NRRDA entrusted (July 2004) the work of quality grading to National Quality Graders (NQG), who were nominated from amongst the NQMs, for grading the roads based on information furnished by NQMs in the prescribed proforma . As NRRDA pursued only the cases of adverse grading by

² Indian Roads Congress

NQG, the adverse remarks of NQM in cases where the road was graded satisfactory by NQG were not pursued by NRRDA.

4.6.3.4 Audit examination of 120 NQM reports in respect of **Andhra Pradesh, Orissa, Rajasthan** and **Uttar Pradesh** for the period 2002-03 to 2004-05 revealed the following :

- In 2 reports, NQM had pointed out deficiency due to extra widening at curves and had recommended rolling with watering but the report was graded by NQG as satisfactory and the matter was not pursued further by the Ministry.
- Similarly in 3 reports, NQM had pointed out that Brick on Edge (BOE) be dismantled to raise the formation level, but the same were graded satisfactory by NQG and no further action was taken.
- In 3 other reports, NQM had pointed out deficiencies like damaged pavement, overlap with a village cement concrete (CC) road upto 350 meters but the road was graded satisfactory by NQG and rectificatory action was not initiated.
- In 4 reports, the work was reported as satisfactory by NQM in all respects, but these were graded as unsatisfactory by the NQG without recording any reasons.

4.6.3.5 The Ministry stated (November 2005) that because of their experience, NQMs would be able to make observations on quality based on hand feel method and visual inspection and that independent quality check could only be exercised by experienced personnel with actual field experience rather than institutions/ educational institutions who might otherwise have excellent testing facilities.

4.6.3.6 The Ministry would need to critically reexamine the usefulness of continuing their reliance on NQMs exercising simple methods of observation of the quality of roads, especially in view of the discrepancies and contradictions between their findings and those of the NQGs and the audit observations.

4.7 Results of Technical Quality Inspection

Audit engaged the services of the Central Road & Research Institute, (CRRI) New Delhi for assessing the quality of roads on technical parameters in accordance with the specifications applicable to the contracts. CRRI was entrusted with checking of 51 roads (including 17 roads under progress) selected randomly in **Andhra Pradesh** (21 roads), **Orissa** (12 roads), **Rajasthan** (10 roads) and **Uttar Pradesh** (8 roads).

4.7.1 The methodology followed for the assessment of the quality of the roads, inter-alia, involved field investigation, retrieving road material from 3 to 4 pits in each

road from pavement layers, evaluation of the retrieved material in CRR I laboratory to assess the extent of conformity with the applicable specifications, compliance with the quality control mechanism by the implementing unit, pavement condition on visual basis and checking the compaction of different layers (sub grade, granular sub base and water bound macadam)

4.7.2 The findings of quality inspection were as under:

- Out of 51 roads checked, records in respect of 6 roads were not maintained by DPIU in support of the tests conducted during execution of the work in **Andhra Pradesh** (3 roads) and **Uttar Pradesh** (3 roads) .
- Only four out of eight roads in **Orissa** and none of the eight roads in **Uttar Pradesh** test checked for quality were inspected by SQM, pointing to deficiency in the functioning of the second tier quality control mechanism.
- Visual verification indicated that the condition of the roads was satisfactory in the four States, except some minor distress.

4.7.3 Technical evaluation of the material and procedures

Results of the technical evaluation through laboratory analysis of retrieved material of the test checked roads on some of the critical parameters of specification are summarized in Table 12.

Table 12: Status of samples not conforming to specification					
Sl.No.	Parameters	Andhra Pradesh	Orissa	Rajasthan	Uttar Pradesh
		No. of Roads	No. of Roads	No. of Roads	No. of Roads
(i)	Pavement Crust Thickness	4(19)	1(10)	0(10)	6(8)
(ii)	Thickness of sand layer	-	1(10)	-	6(8)
(iii)	Thickness of GSB	2(11)	-	0(4)	-
(iv)	Density of Compaction of sub grade	6(9)	2(10)	0(10)	7(8)
(v)	Gradation of sand layer/granular sub base layer	8(11)	2(10)	0(10)	8(8)
(vi)	Gradation of WBM	18(20)	8(10)	6(10)	8(8)
(vii)	Plasticity of filler material in WBM	15(20)	8(10)	0(10)	0(0)

Figures in parentheses indicate total number of road works of the State examined by CRR I

4.7.3.1 While pavement crust thickness did not conform to the specifications in 11 out of 47 sample road works checked, the thickness of sand layer did not conform in 7 out of 18 sample road works; thickness of GSB did not conform in 2 out of 15 sample road works; the density of compaction did not conform in 15 out of 37 sample road works; gradation of sand layer did not conform in 18 out of 39 sample road works; gradation of WBM did not conform in 40 out of 48 sample road works; and plasticity

of material did not conform to specifications in 23 out of 40 sample road works examined technically by CRRI.

4.7.3.2 CRRI reported that the above mentioned deficiencies in the quality of roads carried the following specific risks:

- Inadequate compaction of sub grade was likely to cause plastic deformation leading to premature distress to the pavements in terms of unevenness/deformation.
- The finer sand used in pavement over compacted layers of sub grade for drainage purpose was likely to result in the clogging of sand layers.
- Deviation of gradation of WBM material from specified gradation had the risk of failing to interlock the material and was not likely to generate enough shear strength to provide resistance to heavy load/stress.
- The plasticity of the filler material above specified level used in the WBM had the risk of shear displacement of WBM layer due to swelling and shrinkage of filler material in wet conditions.

4.7.3.3 Thus despite the Ministry's efforts to put in place efficient quality assurance measures, the quality of the roads needed improvement as indicated in the examination of the roads in four States by CRRI.

4.8 Findings from the examination of records of the DPIUs

A scrutiny of the records in audit of the DPIUs in the States revealed the following deficiencies:

4.8.1 Instances of use of low grade material, provision of less number of cross drainages (CD) than sanctioned, variation in thickness in sub-base/base from the prescribed standard and so on were noticed in **775 works** on which an expenditure of **Rs. 35.07 crore** was incurred. Details are in **Annexure-13**. Non-adherence to the prescribed quality standards in the construction of roads was an indication of ineffective and inadequate monitoring of quality.

4.8.2 Detailed project reports (DPRs) were prepared without considering the California Bearing Ratio (CBR) value and provision of side drains in **388 road works** in **4 States** during 2000-01 and 2001-02. Details are in **Annexure-14**.

4.8.3 The NRRDA had insisted only on certification by the executing agency and the state technical agency on the correctness of DPRs. There was no further scrutiny of the DPR by NRRDA. However, on this being pointed out by audit in August 2004, the NRRDA provided for 15 per cent scrutiny of DPR by it in its operational manual published in February 2005.

4.9 Maintenance

4.9.1 The rural roads constructed or upgraded under the programme were to be maintained by the concerned Panchayati Raj Institutions (PRIs). The guidelines provided that each state government, while submitting the project proposal for approval, should identify a suitable PRI (District Panchayat/ Intermediate Panchayat) for undertaking the maintenance of the entire CNW and particularly the roads constructed/upgraded under the programme, besides furnishing an undertaking for necessary budget provision and the release of maintenance costs. The roads constructed under the programme were not required to undergo major repairs for at least five years after their completion. For this purpose, the state government was required to obtain a bank guarantee for 10 per cent of the value of the work from the contractor which was to be valid for 5 years. The rural roads were required to be handed over by the PIUs on completion of the guarantee period of 5 years to the designated PRIs for regular maintenance.

4.9.2 Test check of records in the States revealed that budget allocation was not made for maintenance works in **Arunachal Pradesh** and **Jharkhand**. PRIs were not identified for undertaking the maintenance work in **Assam, Jharkhand, Karnataka** and **Kerala**. Funds were not released or deposited into the maintenance accounts by the governments of **Chhattisgarh** and **West Bengal**. Neither had the fund requirement been assessed for maintenance nor provision of funds made in the budget on lumpsum basis by the government of **West Bengal**.

4.9.3 Audit examination also revealed that in test checked districts of **Jharkhand, Kerala** (Ernakulam and Wayanad), **Mizoram** and **Uttar Pradesh**, the performance bank guarantee was not obtained from the contractors. In **Karnataka**, the undertaking as stipulated in the guidelines was not given in the project proposals of the test checked districts. In **Bihar, Haryana, Punjab** (6 packages) and **Tamil Nadu**, the performance guarantee clause was not included in the notice inviting tender (NIT) issued and agreements executed with the contractors under phase I and II as this clause was not provided in the guidelines issued while launching the programme. Similarly, bank guarantees were not obtained from the contractors of phase I and II in **Bihar** and **Tripura** whereas in **Kerala** (Malapuram and Kannur) and **Punjab** (4 packages) bank guarantee submitted was for an amount less than that prescribed.

4.9.4 In view of non-provision of funds in the state governments' budget and the absence of the clause for bank guarantee for works under phases I and II, no normal maintenance was possible for roads constructed for ensuring their optimum life. The state governments could not also legally force the contractor to undertake repairs of the works executed during the first two phases. This inadequacy in the system of maintenance which was possible to anticipate and non assessment of the provision of funds for maintenance by the state governments carried the risk of wastage of huge capital investment made in the programme defeating the very objective of the programme to create and maintain good quality all-weather roads.

Recommendations

- *The system of independent quality assurance should be reinforced by involving independent research and educational institutes which have adequate testing facilities to act as SQM and NQM instead of entrusting the work to individuals so as to enhance the quality of delivery system and ensure the accountability of the agencies. In the meantime, quality inspection by National Level Monitors could include some percentage of laboratory testing of material.*
- *The Ministry may issue suitable directives/guidelines to state agencies to pay greater attention to the preparation of DPR and ensure compliance with the directives already issued. The Ministry should periodically review the extent of checks exercised by NRRDA on the DPR as per the latest provisions made in the operational manual.*
- *The Ministry should persuade the States to make suitable provision for maintenance budgets for roads completed under phase I and II so that funds invested in the programme did not go waste with deterioration of roads.*

4.10 Monitoring

The Ministry conducted regional review meetings with the state authorities to discuss the progress of works, quality management, capacity development, CNWs and quality control assurance relating to the implementation of the programme. It was observed during a review by the Ministry of the progress under PMGSY upto the end of 2004-05 that the quality control mechanism, progress of work, contract management and the institutional arrangement/trained manpower at the State/PIU level involved in the process of implementation of programme were either inadequate or ineffective and needed to be addressed by the States to ensure effective and successful implementation. Results, if any, of earlier reviews and the specific interventions or solutions formulated by the Ministry in coordination with the state governments, were not ascertainable in audit. The Ministry needs to improve its monitoring especially at the state and district levels through periodic review of the progress of the programme. While the State Level Standing Committee (SLSC) was responsible for close and effective monitoring of the programme at the state level by overseeing the timely and proper execution of road works, the DPIU was responsible for all aspects of operational level monitoring. The Online Management and Monitoring System (OMMS) introduced in November 2002 was the chief mechanism for monitoring the programme. To this end, state and district agencies were required to furnish online all the data and information as prescribed by the Ministry from time to time.

4.10.1 State level monitoring

While State Level Standing Committees (SLSCs) were formed in **Bihar, Goa, Manipur, Orissa** and **West Bengal** their meetings were not held at regular intervals. In **West Bengal**, SLSC met once in six months while the governing body meeting of

the West Bengal State Road Development Agency (WBSRDA) was held only in 2003-04 and thereafter no meeting was held as against the requirement of two meetings in a year. Similarly, the executive Committee of WBSRDA met once in 2003-04 and twice in 2004-05 as against the requirement of once in every three months as per the memorandum of association. In **Jammu and Kashmir**, the state government constituted a monitoring and quality control committee in each district for ensuring effective monitoring but there was no monitoring. In **Orissa**, the SLA did not monitor the project preparation, verification of correctness of survey and other requirements. Audit noticed inflated reporting of physical achievement to the Ministry in five³ States. Audit further noticed that in **Manipur**, incorrect progress reports were prepared by PIUs and physical and financial progress reports for phase I works was not submitted to the Ministry as of March 2005, while in **Arunachal Pradesh** submission of monthly and quarterly progress reports by PIUs was irregular till February 2003. In **Haryana**, the periodical progress reports received from PIUs were neither scrutinised properly nor did the Engineer-in-Chief (EIC) take effective follow-up-action.

4.11 Monitoring through Online Management and Monitoring System (OMMS)

The Online Management and Monitoring System (OMMS) developed for PMGSY was a web-enabled application software for computerized monitoring and management of the programme. The main objectives of OMMS were:

- To create a database of rural roads.
- To track annual proposals from preparation of projects to completion of works.
- To make available a simple and transparent accounting system, and
- To assist in ensuring maintenance management.

The software was designed to generate outputs useful for monitoring and management at the District Programme Implementation Unit (DPIU), the State Rural Roads Development Agency (SRRDA), the National Rural Roads Development Agency (NRRDA) and the Ministry. The information on the progress /status of PMGSY was also to be made accessible to the public through the PMGSY website.

4.11.1 The software comprised several modules encompassing each process of PMGSY as indicated in Table 13.

³ Andhra Pradesh (147 works), Meghalaya (9 works), Punjab (9 works), Rajasthan (65 works), West Bengal (9 works)

Table 13: PMGSY process and corresponding module of OMMS			
PMGSY Process	Corresponding module of OMMS	Data available in the module	Data to be entered at
Preparation of Master Plan	Master Data	Master data related to Districts, Constituents, Blocks, Villages, Habitations, Panchayats, Roads, Contractors, etc.	DPIU and SRRDA
Identification of Network	Rural Road Plan	Data related to District Rural Road Plan (DRRP) road data (categorization of National Highway (NH)/ State Highway (SH)/ Major District Roads (MDR)/ Rural Road/ Link routes/through routes)	DPIU
Annual Proposal from Core Network	Proposal	Proposals based on the selection of road links from the Core Network	DPIU
Tendering of cleared works	Tendering	Tendering data, contractor award details	DPIU
Execution of awarded works	Execution and Monitoring module	Progress of works (Physical/ Financial)	DPIU
Inspection and Quality Monitoring	Quality Monitoring	Data regarding the Quality Control (QC) inspection carried out by National Quality Monitors (NQM)	
Programme/Works Accounting	Receipts and Payment	Accounting data with regard to classified expenditure against each road work	DPIU
Maintenance planning	Maintenance	Physical and financial data regarding 5 years	DPIU

4.11.1.1 The data would reside in the State and Central servers while network connectivity among the District, State and Central Servers was provided. An amount of Rs 20.67 crore out of an outlay of Rs 43.90 crore had been spent till March 2005 on OMMS.

4.11.2 Audit examined the adequacy of internal controls in OMMS using the COBIT⁴ framework to the extent relevant. The data pertaining to OMMS was analysed using SQL⁵ Server and Microsoft Access. The Audit findings are discussed below.

4.11.2.1 There was difference between the figures of total habitations depicted by the database and those reported by NRRDA to the Ministry. The database depicted 8,24,395 habitations while NRRDA reported 8,49,341 habitations to the Ministry. The maximum difference between the number of habitations depicted by the database and the monthly reports sent manually by NRRDA to the Ministry was in **Bihar, Haryana, Himachal Pradesh and Uttar Pradesh.**

⁴ Control Objectives of Information and related Technology published by IT Governance Institute, formed by Information Systems Audit and Control Association, USA

⁵ Structured Query Language Server, a Relational Database Management System, and product of Microsoft.

4.11.2.2 In 6982 cases, the names of the habitations were invalid ('9sjm', '9skm-A', '65', '75', '7H', '3.5 mile', 'a' etc.). Invalid data in master table would cause unreliable MIS being generated by the Application.

4.11.2.3 In terms of para 3.1.6 of Operations Manual for PMGSY, for the purpose of preparation of DRRP all habitations with population of 100 or more persons (as per Census 2001 data) and which were more than 500 metres away from each other was to be identified and listed. The population of all habitations within a radius of 500 metres was to be clubbed together for the purpose of determining the population size of unconnected habitations. However, analysis of the data containing details of habitation revealed that there were 79,758 cases where total population of the habitation was less than 100. Moreover, due to the absence of the provision in the system for incorporating the distance between two adjacent habitations it was not possible to ascertain whether the roads constructed served only the designated habitations.

4.11.2.4 Test check of the records in States revealed that in **Punjab**, computers were not installed in 6 PIUs and wherever installed, these were not put to use due to non availability of trained staff. In **Uttaranchal**, computers were installed in the office of the Chief Development Officer not related to PMGSY and in **Uttar Pradesh**, OMMS was not adopted (October 2005) so far. In **Arunachal Pradesh, Bihar, Jammu and Kashmir, Karnataka, Kerala, Maharashtra, Manipur** and **Meghalaya** though computers were installed, OMMS was not functional as the data/information of PMGSY works and their progress were not updated/uploaded due to lack of network connectivity and non availability of internet facilities. In **West Bengal**, data had not been updated beyond December 2004, while in **Bihar** data available with PIU was not fed into computers as of March 2005. In **Rajasthan**, preparation of reports/information regarding quality control and accounting had not started as the internet system installed in banks having PMGSY accounts was not yet functional. It was only in **Assam** and **Tamil Nadu**, that OMMS was operational and the data updation was carried out at the district level.

4.11.3 District Rural Road Plan (DRRP)

The database of DRRP did not contain information about existing roads of 231 districts in 22 States. Maximum number of missing districts was noticed in **Bihar, Jharkhand, Madhya Pradesh, Maharashtra** and **Uttar Pradesh**. Since DRRP formed the basis for the preparation of core network (CNW), no proposals in respect of these districts could be entered in the application, thus rendering the CNW incomplete to that extent. Data pertaining to the existing roads were left blank or contained invalid data in 6414 cases. Thus the DRRP database was incomplete rendering it ineffective for monitoring and making decisions.

4.11.4 Core Network (CNW)

The CNW database did not contain all the roads as per the DRRP database. Out of 2,32,948 records of DRRP database, only 77941 (33.46 per cent) records were

reflected in the CNW database. The fields for origin, destination, length of the road and the segment of the roads were blank in 7397 cases. The road segment length was not equal to the difference between the beginning and the end of the chainage in 1081 cases of the database. Though the road segment length was available in 1063 cases, the start and end chainages were missing. Further, in 69 cases, the road segment length was zero or less than zero. Thus, the data comprising CNW was incomplete or invalid and the application lacked validations which rendered the data unfit for decision making.

4.11.5 Comprehensive New Connectivity Priority List (CNCPL) and Comprehensive Upgradation Priority List (CUPL)

A test check of CNCPL displayed on the web site of OMMS revealed that:

- the CNCPL on the web site contained records with invalid data like 0, 8,3 and 10 in the field ‘population served’.
- Of the 25 roads featuring in the CNCPL of the block ‘Agali’ (District Anantapur, Andhra Pradesh), 4 roads were not part of the CNW according to the table containing the data on existing roads.
- Further, it was also observed that the Pavement Condition Index (PCI) was not filled in 33,750 cases without which upgradation and maintenance priorities of the concerned road works were not possible to be determined. The PCI is mandatory for the preparation of Comprehensive Upgradation Priority List (CUPL). As the PCI was not filled in 33,750 cases, it is evident that the CUPL displayed on the web site of OMMS was unreliable.

4.11.5 Preparation of Detailed Project Reports (DPRs)

Out of 43,363 records in the data on sanctioned projects, only 456 records were traceable in the database of CNW and only 940 roads were traceable in the DRRP database. Thus a high risk was attached to according project approvals based on OMMS data. Further, out of these 940 roads, 40 roads were not part of the CNW according to the DRRP database. These anomalies indicated the absence of referential integrity of the data in OMMS.

4.11.6 Forwarding of proposals after scrutiny of DPRs

The package ID in the sanctioned projects database was either blank or contained invalid data in 364 cases. Further, the fields for road name, start and end points of road, surface types, which were crucial for deciding the scope of work, and the date of sanction were either blank or contained invalid data. This indicated that the database of sanctioned projects was incomplete and not reliable for decision making.

4.11.7 Tendering and Award of Work

Audit examination revealed that 1481 cases of tendered works in the database were not traceable in the database of sanctioned projects. Similarly, there were 5157 sanctioned projects in the database that were not traceable in the database of tendered works. This indicated a lack of referential integrity between the databases of tenders and sanctioned projects. This could have been avoided if the required relationship was established during the development of the application.

4.11.8 Execution and Monitoring

Under PMGSY, payment was not to be made to a contractor unless quality assurance tests had been conducted as per the prescribed procedure and results were satisfactory. A review of the website information of OMMS revealed that inspections had not been carried out or the fact of such inspection having been carried out was not promptly entered in a large number of road works which had been completed. Also, out of the 28,237 road works, no information regarding inspection was available in the database but payment was shown to have been made in respect of 7810 completed road works. This indicated that validation controls were missing which could have prevented data entry relating to payments in respect of road works where inspections had not been carried out.

4.11.10 A test-check of the statements of physical and financial progress of phase I and III of PMGSY sent by NRRDA to the Ministry (as of May 2005) with reference to the web site data of OMMS revealed discrepancies as detailed in Table 14.

(Rs. in crore)

Sl. No.	Item	Figure reported by NRRDA	Figure reflected in web site	Difference	Figure reported by NRRDA	Figure reflected in web site	Difference
		Phase I	Phase I	Phase I	Phase III	Phase III	Phase III
1	Value of Proposals approved	2464.68	3032.05	(-) 567.37	5313.41	5946.65	(-) 633.24
2	Amount released	2471.32	2365.10	106.22	3591.48	2308.73	1282.75
3	Number of Road works	13151	13021	130	8446	8823	(-) 377
4	Number of Road works completed	12589	10021	2568	3731	2651	1080
5	Expenditure upto May 2005	2272.10	2153.63	118.47	2780.32	2381.46	398.86

The discrepancies in the data above showed that the database was incomplete and unreliable, NRRDA not being in a position to rely on the OMMS database was compiling the physical and financial progress manually for reporting to the Ministry.

4.11.11 Accounting functions

Despite its significance, the online accounting module was developed and implemented only in 2004 after a gap of two years of the implementation of the first version of OMMS. A review of the database revealed that data relating only to Madhya Pradesh and Rajasthan were available in this module. Reasons for not exploiting the module fully were not ascertainable in audit.

4.11.12 Absence of IT Strategy

While the PMGSY started in December 2000, the hardware was provided to the States/DPIUs during 2002 and the website was launched in November 2002. As a result, though OMMS was envisaged as a core component for monitoring PMGSY, by the time it was formally launched in November 2002 an amount of Rs. 2452.25 crore had already been released for 13217 road works as of March 2001. The absence of an IT strategy thus became a handicap and prevented proper exploitation of OMMS.

4.11.13 Lack of detailed supporting policies

The proposal setting out the responsibilities of the participating agencies was deficient as it covered only broad areas to be shared by various agencies involved in the development of OMMS. No documents laying down stage wise targets for implementation of OMMS, procurement plan of hardware/software corresponding to the software development, detailed training plan of OMMS, and concurrent review on the technical aspects of networking were available. Neither the Ministry nor NRRDA formally defined an IT Security policy and the existing rules and regulations were not modified to suit the IT environment.

4.11.13.1 The Ministry provided hardware to the States/ District Programme Implementation Units (DPIU) in 2002 but no report on physical verification of hardware was requisitioned (October 2005). There were 15,654 users authorized for entering data in OMMS but in 15,634 cases the usernames were the same as the passwords and were in most of the cases the names of the respective states, districts, blocks and DPIUs. This exposed the system to possible unauthorized log-ins.

4.11.13.2 The software design document contained two tables for capturing the login details of users. The first table was used till 16 July 2003 and the second table was being used since 17 July 2003, audit examination of which revealed that

- the field for storing the transaction number, which is generated automatically, contained 1,89,662 missing numbers signifying deletion of records.
- in 1049 records, the field for automatically generating code of the State for which data entry was being done, was blank.

- in 1945 cases, the field for automatically generating the name of the module in which data entry was being done, was blank.
- in more than 9000 cases, the IP addresses were invalid⁶.
- there were 13 users who had repeatedly entered data pertaining to several States. Out of these 13 users, 10 belonged to either C-DAC⁷ or the Ministry or NIC⁸. However, out of the remaining three users, two used IDs belonged to state users. These users had entered data for more than one State. The user ID was registered for West Bengal but the user made entries for the States of West Bengal and Uttar Pradesh using the same IP address in some cases. Similarly, the user ID registered for Andhra Pradesh was used to make entries for Andhra Pradesh and Arunachal Pradesh. Moreover, in these cases, the IP addresses were invalid and the field for automatically generating the data last updated by the users was blank in all the 1,28,029 cases in the table for storing the log data. This made the maintenance of an audit trail impossible and exposed the system to risks of unauthorized manipulation.
- Though the browser restricted the login attempts, it did not maintain any log of failed attempts. Further, the application did not give information to the user of the last successful login date and time.

4.11.14 The User Requirement Specification (URS), a tool used in the initial stages of an IT project to document the user requirements was deficient and underwent several revisions upto March 2002. It contained a simple narration of the existing system without any detailed description. It did not specify the functional requirements namely features, capabilities and functions of the system, major system components and interactions, operational environment including manual procedures required, interfaces with other systems, requirements for support of the system such as maintenance organization and help desk. It also did not specify quality attributes such as availability, reliability and usability and other considerations such as security, audit, safety and failure modes in emergency situations. It contained annexures that were neither referenced in the document nor were used in software development as described. It also did not contain the information needs that would be met or specific reports that would be generated.

4.11.15 Software Requirement Specification (SRS) which is also a prerequisite for development of the software was not approved formally as no documentation regarding its formal approval by the Ministry or NIC was available on record and it was revised several times upto September 2002. While describing the attributes of various entities used in the application, SRS did not state validation/logic of a large number of attributes. For example, data entry of essential fields like names of States,

⁶ It contained either 5 octets or the 4th octet was more than 255. In computer technology and networking, an **octet** is a group of 8 bits. It can be expressed as a decimal integer in the range 0–255. The IP Addresses have four octets.

⁷ Center for Development of Advance Computing

⁸ National Informatics Center

districts, blocks, villages, habitations, connectivity, total population, names of MLA/MP, road name, category, chainage were not made mandatory. As a result, the software lacked validations exposing it to the risk of data entry errors. Out of a total of about 350 tables that were available in the database, 58 tables did not contain any data (October 2005) including a few master tables signifying the fact that referential integrity⁹ was not enforced in these cases. Table description and relationship details were not documented. No documentation was available regarding formal stage/module wise testing, testing reports, formal acceptance of each module of OMMS and post implementation review of the Application.

4.11.16 Inadequate monitoring of training

Centre for Development of Advanced Computing (C-DAC) was to impart proper orientation and training to the state level officials of the National Informatics Centre(NIC)/National Informatics Centre Services Incorporated (NICS) in the operation of the software at a centralized location besides arranging the training infrastructure including space and computing environment. NICS was to conduct the training programme for end users, once a year, at the state level on OMMS and was to provide the faculty and training infrastructure. The Ministry incurred an expenditure of Rs. 47 lakh on training to the end users in States/DPIUs (October 2005). However, no documentation was available regarding the formal training schedule of the modules and the number of end users trained. There was also no feedback from the end users furnished to the Ministry on the training imparted (October 2005). The Ministry released payments to NICS and C-DAC without ascertaining whether targets for imparting training were being met or not.

4.11.17 Improper change management

The software for OMMS was amended on several occasions namely, Intermediate Monitoring System (2002), Offline module (2003), Operations Manual (2004), Online Accounting Module (2004) and various other informal changes which were apparent from the help modules which had not been updated and still contained help on items which were not found on the connected forms. Though it was clarified initially that the modifications would be carried out only at the central level, no formal documentation regarding changes made to the Application was available. The user manual contained no information about the offline module which was developed for data entry for DPIUs with poor internet connectivity nor was any other documentation available regarding this module.

4.11.18 The Government while according approval to the PMGSY and the guidelines of this scheme envisaged OMMS as a core component for monitoring the progress of the scheme. Although the PMGSY commenced in December 2000, the OMMS was formally launched in November 2002. The accounting module of OMMS was developed only in 2004 and was under implementation in only two States. Audit scrutiny revealed weaknesses in the design and internal control mechanism of the OMMS. The database of OMMS was incomplete and unreliable. Thus even after five

⁹ Referential integrity in a relational database ensures consistency between coupled tables.

years of launching of PMGSY and incurring an expenditure of Rs. 20.67 crore, the OMMS, a core component for monitoring the scheme, was not found fit for decision making and monitoring.

4.11.19 The Ministry did not furnish specific replies to the deficiencies pointed out in OMMS. However, in its general reply furnished in December 2005, it accepted that they did not have a formal IT strategy and IT group and that they depended on NIC and C-DAC for co-ordinating the functioning of the Application. The Ministry also accepted that changes were made in the database and the SRS after implementing the Application. The Ministry's reply that the software was tested by C-DAC before hosting the website was not tenable as C-DAC was the developer of the software and the main responsibility of ensuring that the Application was developed as per the requirements was that of the Ministry. While accepting the fact that the States had not yet filled the data in important fields even after using the software for more than 3 years, the Ministry stated that the database was designed with proper indices and keys but the States were not prepared to make data entry and therefore nulls were allowed in many fields. The reply of the Ministry was not tenable in view of the fact that adequate preparation was lacking while introducing the OMMS and non-feeding of data in important fields had primarily contributed to the unreliability of the database rendering it unsuitable for informed decision-making.

Recommendation

- *The deficiencies in the software of the Online Monitoring and Management System (OMMS) may be removed on priority by evolving a practicable action plan which should include providing adequate training to the users in the States. The accounting module of OMMS may be urgently implemented so that it would be an additional tool for the Ministry and the States to strengthen the financial management of the programme.*

5 Conclusion

The PMGSY which aimed to provide connectivity to habitations with population of 1000 persons and above by 2003 and 500 persons and above by the end of 2007 failed to achieve the desired level of success owing to various shortcomings in planning, fund mobilization, ineffective monitoring and operational deficiencies. The estimates projected for coverage and fund requirement while launching the programme were unreliable and unrealistic. The requirement of funds was estimated in December 2000 at Rs. 58,200 crore for connecting 1.41 lakh habitations which went up to Rs. 1,32,150 crore for connecting 1.73 lakh habitations by March 2005. The Ministry could mobilise only Rs. 12,293 crore while the state governments could send their proposals for an amount of Rs. 17,394 crore between 2000-01 and 2004-05. The Ministry ignored the vital requirement of a correct assessment of the absorption capacity of the States and obtaining realistic data of the habitations to be connected and started the programme on the basis of insufficient and incorrect data. Consequently, the programme suffered from severe shortfall in funding compared to the estimated requirement. The Ministry did not put in place any useful tool for fixing and monitoring the achievement of the targets. Even the OMMS was introduced

belatedly and was beset with deficiencies and problems of software, inadequate training and incomplete coverage which could have been sorted out with an effective IT strategy. Execution of work was deficient as instances of inefficient contract management leading to substantial time over run, non-recovery of liquidated damages and so on were noticed. Roads constructed under the programme deviated from the standard design and specifications prescribed in the Rural Roads Manual despite the existence of the three tier quality control mechanism under the programme. Monitoring was ineffective despite an elaborate mechanism prescribed at all levels both at the Ministry and NRRDA due to inoperative and ineffective OMMS as the data fed into the system were not reliable. The programme, thus, did not have authenticated data on the magnitude of the workload, an ineffective monitoring mechanism and was still without a clear cut plan of mobilizing the required resources even after the lapse of five out of seven years of its projected life. The state governments compounded the problem with slackness in monitoring the quality of work, non-enforcement of the conditions of the tendering procedure and neglecting the maintenance of the constructed roads. That the guidelines continued to be revised till November 2004 only highlighted the fact that the Ministry went about the programme of utmost importance without adequate ground work and firm targets. The outcomes of the programme were not even susceptible of measurement, in the absence of relevant data.

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