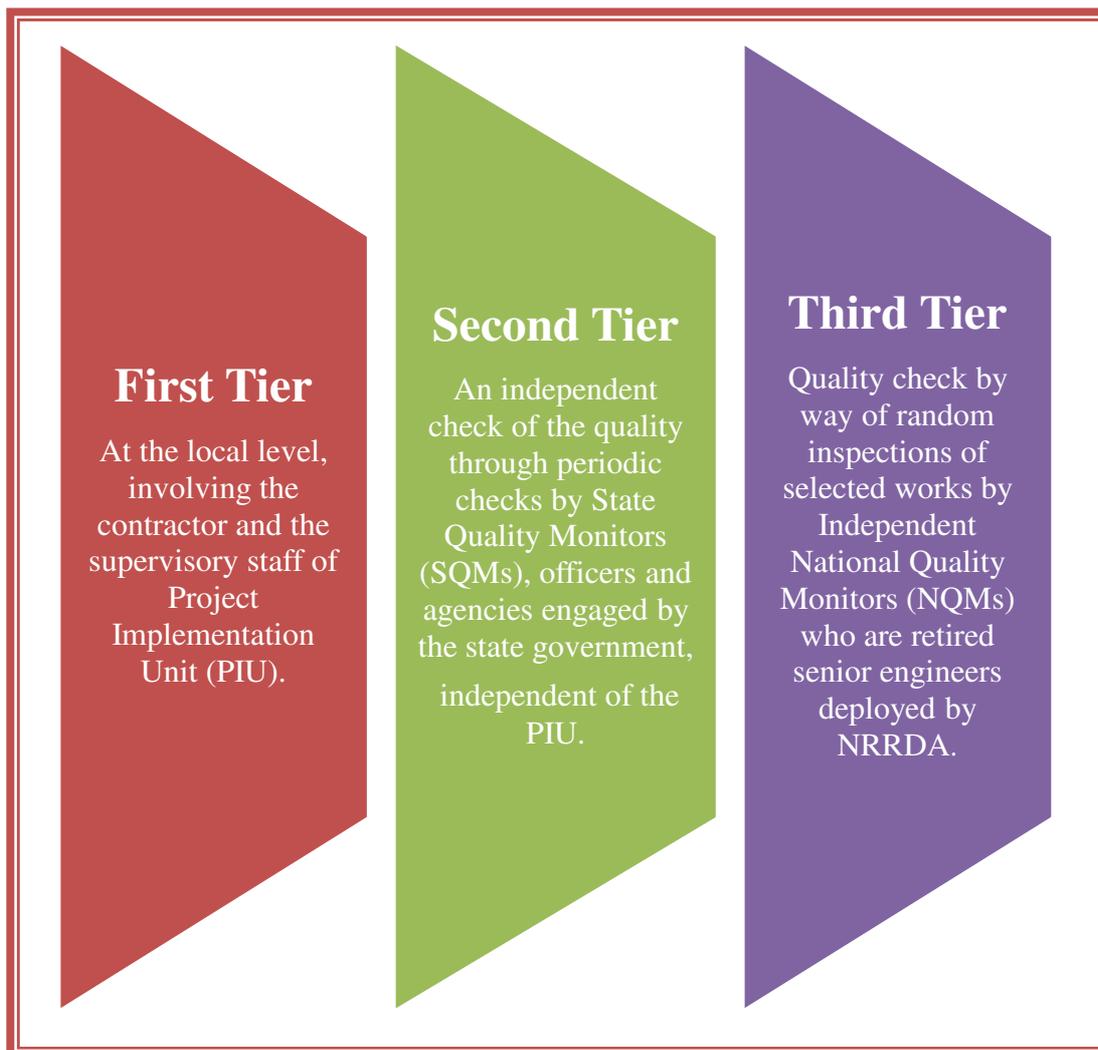


Chapter-6: Quality Control, Monitoring and Evaluation

6. Quality Control

A three-tier quality control mechanism has been institutionalized under the PMGSY for maintaining high standard of roads:



6.1 First tier quality control mechanism

6.1.1 Deficiencies in first tier quality control mechanism

Para 15.1 of the programme guidelines envisage that a site Quality Control Laboratory will be set up by the contractor for each package. Para 9.4(a) of the OM provides that as per Clause 9 of General Conditions of Contract, the contractor is required to employ the technical personnel and records in support of tests shall be maintained.

In 12 states (**Assam, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Mizoram** (four PIUs), **Rajasthan, Tamil Nadu, Telangana, Tripura, Uttarakhand** and **West Bengal**), irregularities like non-establishment of field laboratories, non-availability of equipments, non-deployment of trained manpower and non-conducting of required tests were observed (**Annex-6.1**).

6.1.2 Non/Improper maintenance of quality control registers

Para 11.4.3 of the OM envisages that for quality control on material and work management at site, the PIU is to ensure that quality control registers (QCRs) were maintained for each of the road works for recording all tests conducted. The register is to be maintained in two parts, viz., Part-I for records of the tests conducted was to be kept at site of the work and Part-II containing the abstract of the tests. Non-conformance reports are to be maintained by the Assistant Engineers (AEs).

In nine states (**Chhattisgarh, Himachal Pradesh** (two districts), **Jharkhand** (except CPSUs), **Manipur, Mizoram, Telangana, Tripura, Uttar Pradesh** and **West Bengal**), irregularities were observed in the QCRs maintained for recording all the tests conducted. (**Annex-6.2**)

In **Uttar Pradesh**, for ensuring the supply of quality bitumen and its actual consumption by the contractor in bituminous works, the state government ordered (May 2009) the Public Works, Urban Planning and Town Development Department to obtain original Consignee Receipt Challans (CRCs) from the contractors and to cross verify the genuineness of these CRCs from the oil companies before payments. Contrary to these orders, the department did not obtain CRCs from the contractor for 6,521.08 MT bitumen (cost ₹ 22.82 crore) out of 9,978.87 MT procured (2010-15). Thus, verification of CRCs from the oil companies for the remaining supply of 3,457.79 MT of bitumen was not carried out and the contractors were paid for the works. Thus, in the absence of the CRCs and non-verification with the oil companies, quality and quantity of the material consumed was not ensured.

The PIUs accepted (March-June 2015) the fact and stated that all the quality tests, to the extent possible were carried out. The reply of the PIUs was not acceptable as verification of the procurement of entire stock of bitumen as required under the instructions of the state government was not carried out.

6.1.3 Non-procurement of equipment

Grant of ₹ 2.97 crore released to **Haryana** (₹ 1.15 crore) and **Jharkhand** (₹ 1.82 crore) in September 2014 and September 2013 respectively for procurement of modern survey and investigation equipment and quality assurance equipment was not utilised (June 2015). The Executive Engineer, state nodal agency, Haryana accepted the facts and stated that the equipment of ₹ 0.60 crore purchased and they were supplied and installed. Further, the Ministry of Rural Development has been requested to accord (February 2016) approval for purchase of more equipment from the balance funds.

Thus, non-procurement of modern survey and investigation equipments defeated the purpose for which funds were provided besides leading to blockage of funds.

6.2 Second tier quality control mechanism

6.2.1 Shortfall in inspections by SQMs

Para 11.5.7 of the OM envisages that State Quality Coordinator (SQC) draw up inspections in such a way that every work is inspected at least three times. The first two inspections of every work should be carried out during the execution of work spaced at least three months apart and the last inspection should be carried out on the completion of every work, within one month of its completion. The schedule should be monthly, specifying Block and preferably the road, so as to ensure systematic coverage.

Analysis of the OMMAS data showed that SQMs carried out inspections for 51,521 road works during 2010-15 in 29 states. Out of these, 1,671 road works (3.24 *per cent*) were not inspected even once. 26,691 road works (51.81 *per cent*) were inspected only once. Audit also observed that some of the road works were inspected more than 10 times as detailed below:

- In **Andhra Pradesh**, 48 road works were not inspected whereas seven road works were inspected 10 to 18 times.
- In **Assam**, 124 road works were not inspected whereas four road works were inspected 10 to 13 times.
- In **Gujarat**, 47 road works were not inspected whereas 21 road works were inspected 10 to 26 times.
- In **Madhya Pradesh**, nine road works inspected 10 to 16 times, whereas 193 road works were never inspected.
- In **Maharashtra**, 77 road works were not inspected whereas five road works were inspected 10 to 11 times.

It is therefore, evident that SQMs did not carry out the prescribed inspections uniformly.

NRRDA accepted the facts and stated that one of the reasons for the shortfall in SQM inspections relate to shortage of trained manpower with inadequate domain knowledge. As regards to the exceptionally large number of SQM inspections for a particular work, this needed verification from the states. One of the reasons could be the multiple entries of the same roads by novice SQMs while trying to upload the quality grading in OMMAS through Mobile Application.

Information obtained from the states also showed that the prescribed three inspections were not carried out in 24 states (**Annex-6.3**).

6.2.2 Deficiencies noticed by SQMs

According to para 11.5.7 of the OM, the SQMs shall submit inspection reports covering, design of pavement and cross drainage works, management of the contract, etc. After inspections, SQMs may adopt a two level classification for quality grading of road works based on the quality checks as “Unsatisfactory” and “Satisfactory Requiring Improvement” (SRI). Further, para 11.6.3 of the OM provides that Action Taken Reports (ATRs) shall be submitted by PIUs within 30 days from the date of inspections.

Out of 82,176 inspections carried out by SQMs, 16,441 works were found ‘SRI’ and 4,967 works ‘Unsatisfactory’. Works rated ‘Unsatisfactory’ also included 39 (2010-11), 79 (2011-12), 119 (2012-13), 199 (2013-14) and 106 (2014-15) completed road works.

The Ministry stated (October 2015) that ensuring laid down provisions was the responsibility of the state governments. Thus, the state governments failed to adhere to quality standards.

In 14 states {**Arunachal Pradesh (4), Chhattisgarh (2), Gujarat (9), Haryana (1), Jammu & Kashmir (17), Jharkhand (149), Madhya Pradesh (37), Maharashtra (3), Odisha (619), Sikkim (194), Telangana (2), Tripura (136), Uttar Pradesh (111) and Uttarakhand (127)**}, 1,411 ATR out of 6,288 were pending for action.

In **Meghalaya**, data of ATRs on inspections conducted by SQMs were not available. In the absence of data/records at the state level, monitoring of second tier quality control was ineffective.

Pending action on the inspection reports of SQMs reflects the ineffective monitoring of the findings of second tier quality mechanism.

6.2.3 Evaluation of performance of SQMs

The NRRDA issued (January 2013) guidelines and instructions for performance evaluation of SQMs which *inter alia* stipulates that process of performance evaluation may be started from January 2013 and meeting of the Performance Evaluation Committee (PEC) is required to be held every six months.

It was observed that no PEC was constituted in five states (**Gujarat, Jammu & Kashmir, Mizoram, Rajasthan and Tripura**).

6.2.4 Non-conduct of joint inspection

Para 15.10 of the programme guidelines provides that joint inspection of the PMGSY works shall be fixed by engineering staff as per the convenience of elected public representatives, once in six months with Member of Parliament and *Zilla Pramukh*, once in three months with Member of Legislative Assembly and Chairperson of *Mandals* concerned and once in two months with *Sarpanch* of *Gram Panchayat* concerned.

In 17 states (**Andhra Pradesh, Arunachal Pradesh, Bihar, Gujarat, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Meghalaya, Mizoram, Odisha, Punjab, Sikkim, Telangana, Uttar Pradesh and Uttarakhand**), joint inspections of the PMGSY road works with the public representatives were not carried out.

The Ministry stated that as a follow-up of provision of Joint inspection, a Circular No. 10/2011 dated 28 July 2011 requesting the state government to ensure joint inspections of field functionaries with public representatives was issued. This has also been insisted at various fora including Regional Review Meetings (April 2016). It is evident however, that the instructions of the Ministry were not followed.

6.3 Third tier quality control mechanism

NRRDA arranges for external Quality Assurance by deploying NQMs, whose responsibility is to verify that the State's Quality Management is adequate. As, third tier of the Quality Management Structure, the NRRDA engages independent NQMs, mostly retired Senior Engineers from state/Central organisations.

6.3.1 Deficiencies noticed by NQMs

Para 11.5 of the OM envisages that second tier of independent quality management was to improve the quality and effectiveness of the enforcement process. This includes checks to ensure that first tier was properly functional, independent quality tests to verify that the quality control system was achieving its intended objective, detection of systemic flaws in the quality control process and action to improve the process, Independent supervision of deterrent and punitive measures in respect of first tier and the contractor.

NQMs carried out 2,660 inspections in seven states {**Andhra Pradesh** (37), **Arunachal Pradesh** (130), **Himachal Pradesh** (4), **Meghalaya** (67), **Odisha** (221), **Tripura** (10) and **West Bengal** (424)} and graded 893 works as unsatisfactory/SRI.

This indicated that the quality control mechanism at first and second tier was not functioning effectively.

6.3.2 Delay in submission of ATRs

As per para 11.6.3 of the OM, on completion of inspection by NQM, PIU shall furnish Action Taken Report (ATR) to SQC after a period of one month of inspection by NQM. The compilation of ATRs will be carried out by SQC for submission to NRRDA within one month of receipt of grading of the work.

In **Andhra Pradesh**, ATRs for two works inspected by NQM in January 2010 and August 2011 were submitted with delays ranging from 8 to 15 months. In **Karnataka**, under PIU, Kalburgi, NQM inspected one road work in January 2015, ATR was submitted only after 10 months and the same is yet to be accepted by NRRDA.

In **Manipur**, in four sampled districts, there was delay ranging from one to 24 months in submitting 11 ATRs by SQC to NRRDA.

In **Sikkim**, ATRs in 21 unsatisfactory works reported by NQMs during April 2011 to January 2015 were submitted with a delay of 42 to 721 days.

In **Tripura**, there was delay of 3 to 42 months in submitting ATRs. ATRs for seven road works were yet to be submitted.

6.3.3 Pendency of action taken reports

Para 11.6.1 of the OM envisages that PIU will not wait for the grading of work to be communicated by NRRDA or SQC but start taking action based on inspection reports furnished by the NQM immediately, unless it disagrees with the recommendation.

NQMs carried out 16,856 inspections during 2010-11 to 2014-15, of which, 6,452 works were graded 'Unsatisfactory' or 'SRI' (38.28 *per cent*). 1,938 ATRs were pending with states (June 2015). Out of these, 570 unsatisfactory/SRI works were outstanding for more than two years. The pendency of the ATRs ranged between 6.22 and 58.68 *per cent*. NRRDA did not furnish pending ATRs to audit in respect of works inspected by NQMs during 2000-09 on the plea that records were not readily available. In the absence of records, it could not be ensured whether any ATR prior to 2009-10 was pending.

NRRDA stated (October 2015) that time taken in furnishing the ATRs depends upon the nature of defects pointed out by the NQMs in their inspection reports. Often, the defects remained unaddressed for quite some time due to the contractual failure, litigation and forest clearance issues which were beyond the control of the PIU, etc., resulting in non-addressal of NQM observations. Ministry needs to analyse pending ATRs as some of these were pending for more than five years. Further, in the absence of records of pending ATR prior to the 2009, the completeness of the action taken could not be verified in audit.

Information collected from the states showed that 755 ATRs in 20 states {{**Andhra Pradesh** (8), **Arunachal Pradesh** (9), **Assam** (10), **Bihar** (143), **Chhattisgarh** (1), **Gujarat** (13), **Haryana** (1), **Himachal Pradesh** (44), **Jammu & Kashmir** (7), **Jharkhand** (172), **Karnataka** (2), **Maharashtra** (7), **Manipur** (3), **Meghalaya** (45), **Odisha** (88), **Rajasthan** (49), **Sikkim** (3), **Tripura** (86), **Uttar Pradesh** (30) and **Uttarakhand** (34)}, were pending as of March 2015.

In **Nagaland**, NQMs carried out inspection of 40 projects during April 2010 to March 2015. One project was graded satisfactory, 16 average and 23 unsatisfactory. However, no record was available in respect of action taken by the work executing agency to rectify the work. Quality and workmanship in district Peren remained un-assessed as NQM did not visit any work site there. The state government accepted the facts (September 2015).

Case study: Andhra Pradesh

NQM inspected road work 'BT road connectivity to Yeguvaganjabadr' of district Vizianagaram work from 0/0 km to 3/0 km and graded the entire length (15.30 km) as 'Satisfactory' (May 2012). On receipt of complaint, NRRDA deputed (January 2013) another NQM who after inspection, graded the work 'Unsatisfactory' and recommended to rectify the defects and submit ATR within a month. However, ATR had not been submitted (July 2015).

Vigilance & Enforcement Department, Government of **Andhra Pradesh**, based on the petition received, investigated (November 2013) the work and found that sanctioned length of 15.30 km was executed up to 10.80 km. Material and workmanship was not as per the required specifications and ₹ 6.16 crore was paid to the contractor without measurement of the work. The contractor left the project without completion (January 2013). SQMs failed to conduct time-to-time layer wise inspection. Report of the enquiry committee further stated that NQM graded the work 'Satisfactory' without observing the actual physical status and NQM prepared the report as per the requests of the executing people by hiding the actual conditions of the road and shown the work completed. Hence, the allegation that the NQM was managed was established.

The report submitted (November 2014) to state government recommended to (i) take action against the contractor (ii) take up issue of wrong reporting by NQM with Ministry and review on NQM and SQM reports and (iii) ensure and effect the recoveries amounting to ₹ 0.85 crore from the erring officials against the deficiencies. The PIU stated (July 2015) that action was being taken to blacklist the defaulting contractor. No specific reply on action taken against the erring officials was given.

The Ministry stated (April 2016) that the matter was put up for consideration before the PEC during its meeting held in May 2014 and rated the performance of NQM as Unsatisfactory. Subsequent assignments were stopped and based on the recommendations of the Selection Committee; the NQM was de-empanelled w.e.f June 2014.

The reply was not satisfactory as despite receipt of contradictory report from another NQM in January 2013, NRRDA continued to depute the erring NQM who carried out inspections for 40 roads works during June 2013 to March 2014.

6.3.4 Deficiencies in action taken reports

As per para 11.5.4 of the OM, the SQCs are to prepare monthly abstracts of SQM visits as well as Annual Quality Report and submit the same to SRRDA and State Level Standing Committee (SLSC) and also to ensure compilation by PIUs of action taken on the reports of the NQMs.

In 21 states (**Andhra Pradesh, Arunachal Pradesh, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala,**

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Manipur, Meghalaya, Mizoram, Odisha, Rajasthan, Sikkim, Telangana, Tripura, Uttar Pradesh, Uttarakhand and West Bengal), NQMs inspected 3,692 road works. 752 roads were found unsatisfactory. PIUs submitted rectification report in 660 road works, of which, 420 works were re-inspected by SQMs/NQMs and 65 works were again found unsatisfactory after re-inspection (**Annex-6.4**).

This indicated that monitoring of rectifications of reported deficiencies was not effective. Officials/contractors may be held responsible for remedial action and punitive action may also be initiated against the responsible officials/contractors, if deficiencies persist even after re-inspection.

6.3.5 Non-holding of Performance Evaluation Committee Meetings

The initial system of Performance Evaluation of the NQMs was framed in 2006 and was firmed up in 2007 by NRRDA which required that the Performance Evaluation Committee (PEC) would be held at every six months.

Audit observed that only four meetings¹ were held to evaluate the performance of NQMs during 2010-11 to 2014-15. Thus, the evaluation of performance of NQMs as per the prescribed periodicity was not carried out.

NRRDA accepted the audit observation and agreed that periodicity of PEC meetings was not maintained.

6.4 State Level Standing Committee

According to para 2.4 of the OM, a State Level Standing Committee (SLSC) shall be setup preferably under the chairmanship of the Chief Secretary for quarterly review of progress of works, quality control, capacity enhancement, land availability, budgeting of maintenance fund, etc.

In 10 states (**Arunachal Pradesh, Gujarat, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Meghalaya, Tripura, Uttar Pradesh and Uttarakhand**), SLSC meetings were not held regularly thereby defeated the effective monitoring of the programme.

6.5 District Level Vigilance and Monitoring Committee

As per para 16.5 of the programme guidelines, District Level Vigilance and Monitoring Committee (DLVMC) set up by state governments will monitor the progress and exercise vigilance. Meetings of DLVMC at each level was to be held at least once in every quarter after giving sufficient notice to the MPs/MLAs and all other members.

¹ (31 January-5 February 2011; 18-22 September 2012; 1-7 August 2012; 14-16 May, 2014)

In 12 states (**Andhra Pradesh, Haryana, Jammu & Kashmir, Jharkhand, Karnataka, Manipur, Mizoram, Odisha, Sikkim, Uttar Pradesh, Uttarakhand and West Bengal**), irregularities such as non-holding the requisite number of meetings, non-monitoring the progress and exercise vigilance, non-constituting DLVMC, etc., were observed. Details are given in **(Annex-6.5)**.

6.6 Grievance Redressal Mechanism

Para 15.8 of the PMGSY guidelines provide for enquiry of complaints and sending of complaints received through the Ministry/NRRDA to the State Quality Coordinator for enquiry and necessary action. It is also stipulated that in case an adequate response is not received within the time schedule, NRRDA may depute an NQM and further processing will be done on the basis of NQM report.

Audit observed that out of 267 complaints received at NRRDA, NQMs were deputed for enquiry into 218 complaints during 2010-15. 125 complaints (57.34 *per cent*) were found true i.e., road works found 'Unsatisfactory'. Subsequently, observations/reports were sent to states for taking corrective action. Further, NRRDA sent 49 complaints to states for enquiry and action. However, no follow up action on these complaints was available with NRRDA.

A feedback module of OMMAS is designed with a view to achieve systematic approach towards monitoring of grievances and addressing feedback. 396 complaints were received through feedback module of OMMAS during 2010-11 to 2014-15. Of this, 314 were disposed of and 82 pertaining to 2013-14 and 2014-15 were pending with the states. Ministry stated that all the states had been requested (May 2015) for timely disposal of the complaints.

In 10 states (**Arunachal Pradesh, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Meghalaya (Prior to April 2012), Tripura, Uttarakhand and West Bengal**), grievance redressal mechanism was not in place.

6.7 Social audit

The PAC in their 72nd Report on the PMGSY (2007-08) to the Fourteenth Lok Sabha recommended that the Ministry should replicate the modalities of social audit incorporated in the guidelines of the MGNREGS. The Ministry in its Action Taken Note (PAC 82nd Report 2008-09, presented to Fourteenth Lok Sabha) stated that a pilot project had been taken up in **Karnataka and Odisha** with the involvement of local NGOs for sample audit exercise and citizens monitoring of the PMGSY projects. Based on the findings of this project, decision would be taken to formulate appropriate methodology for social

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audit of the PMGSY projects involving of *Panchayati Raj* and Civil Society Organisations.

The Ministry, in response to the audit observation on progress made so far, stated (April 2016) that the social audit of PMGSY roads, through Citizen Monitoring had now been extended to **Jharkhand, Meghalaya, Rajasthan, Assam** and **Uttarakhand**. In these seven states, 603 Citizen Volunteers were trained for monitoring of quality construction and maintenance of PMGSY roads. With the toolkit and training, the volunteers surveyed PMGSY roads in these states for producing data on various qualitative and quantitative aspects of the roads on the condition of roads in both the ongoing and completed works from citizen perspective. The interim report was received and circulated to all the concerned states for taking corrective action.

This indicated that the concept of social audit was still at pilot stage. Replicating the modalities of social audit of the Mahatma Gandhi National Rural Employment Guarantee Scheme in this programme was yet to be finalised and incorporated in the programme guidelines.

Conclusion

Quality and monitoring control mechanisms were deficient in all the tiers of PMGSY. Field laboratories were either not set up or inadequately equipped at work execution sites. Inspections of roads at prescribed stages were not conducted. Action Taken Reports on the rectification of defects pointed out by the State Quality Monitors and National Quality Monitors were pending. Joint inspections with elected public representatives were not conducted. Performance Evaluation Committee meetings to evaluate the performance of the National Quality Monitors were not held at prescribed intervals. State Level Standing Committee meetings to monitor progress of ongoing works, quality control, budgeting of maintenance fund, etc., were not held regularly. The concept of social audit was not incorporated in the programme guidelines.

Recommendations

- i. Ministry may review the systemic flaws in the quality control system to address deficiencies. A mechanism may be devised to fix responsibility and accountability on the erring agencies and individuals and corrective action taken.
- ii. The concept of social audit may be incorporated in the programme guidelines.