

CHAPTER – VI

Quality Assurance, Monitoring, Utilisation & Maintenance of Assets

6.1 QUALITY ASSURANCE MEASURES BY EXECUTING AGENCIES

To ensure quality of work, various measures have been laid down in CPWD Works Manual like (i) testing of material, (ii) monitoring of brand and quantity, (iii) periodical inspections by higher authorities and quality assurance wing, and (iv) third party inspection. PWOs were required to follow the above quality assurance measures. Audit examination revealed lapses in quality assurance measures as detailed below.

6.1.1 No inspection by Quality Assurance Wing

Audit found that there was no practice of inspection by quality assurance wing of the CPWD as none of the works executed by CPWD had been inspected by the quality assurance teams. Further, audit noticed that PWOs viz. NBCC, EPIL etc. also did not have any quality assurance wings. In the absence of this, the assurance given by PWO about the building was questionable. Jettisoning of this important ingredient towards quality assurance was questionable.

6.1.2 Lapses in Quality Testing

The quality testing lapses viz. non-testing of material and water, testing of brand other than that was actually used, utilization of unapproved brand etc. were noticed in audit during examination of 18 works executed by CPWD/PWOs as detailed below:

Table-6.1: Lapses in quality testing

(₹ in crore)

Name of work	Executing agency	Tendered cost	Audit observation
Construction of Residential quarters at 38 Bn. Tawang, Arunachal Pradesh of SSB	CPWD	3.53	Steel used in these works was not tested. Moreover, the brand of cement used (Vinay Cement) was not the approved brand of cement for the works.
Construction of Residential quarters at 34 Bn. at Dirang, Arunachal Pradesh for SSB and C/o GO's mess and suits at Itanagar, Arunachal Pradesh for ITBP	CPWD	2.49	Brand of cement tested (Vinay Cement) was different from the brands (Star Cement and Birla Gold) used in the works.

Name of work	Executing agency	Tendered cost	Audit observation
Construction of GO's mess and single officer accommodation at, Teju, Arunachal Pradesh for ITBP	CPWD	1.51	Portland Pozzolana Cement which was not prescribed for the work was utilised. Out of four brands of such cement used in this work, testing of only one brand was carried out.
Construction of type-V quarters, allied services and development works and c/o 1 block of 4 SM barrack, 1 JCO Mess and one 20 bedded Hospital of AR at Haflong, Assam	NPCCL	6.46	Cement and sand used in the works were not tested.
Construction of 8 SM Barracks of AR at Khonsa, Arunachal Pradesh	EPIL	6.92	Unapproved brands of steel like 'Graystone Ispat and Tiger brands' were used. However, the sample that was actually checked by the EPIL was found to be a brand (Biscon) different from that was used in the work.
Augmentation of water supply scheme of AR at Jairampur, Arunachal Pradesh	UPJN	3.52	Local brand of steel and cement was used, that too without any testing
C/o Regimental School with allied services and development works at Lokra, Assam	NPCCL	0.82	Materials were tested much after the commencement of the work.

Some instances of poor quality works executed by the executing agencies are depicted below:

Inspection of Family Accommodation for ITBP at Dehradun conducted by joint inspection team comprising the members of audit team and CPWD personnel revealed that the plaster was broken at several places and there were cracks in walls on ground floor in Type-I quarters as evident from the photographs.



Audit observed that the aforesaid work was completed in April 2009, and these defects were brought to the notice of CPWD in May 2010. However, no action has taken by CPWD to rectify these defects.

During site visit audit noticed cracks in the road constructed by CPWD in February 2010 during execution of work of approach road to parade ground at CRPF, GC, Kadarapur, Gurgaon, which indicates deficient quality of the work.



Leakages seen at residential quarters at GC, CRPF, Hyderabad. CPWD replied that notices were issued to the contractor for attending the leakage on walls. However, fact remains that the CPWD had not monitored the quality of the work properly.



Audit noticed poor quality of work executed by NBCC in the work of barracks for CISF jawans at SSG, Greater Noida as shown here.



6.1.3 Use of water without testing in construction works

As per the CVC Guidelines of August 2008, water should be tested at regular intervals to ensure proper quality of concrete work. Audit noted that in none of the 40 works of AR involving tendered amount of ₹ 202.38 crore (**Annex-6.1**) water used for the work was tested.

6.1.4 Non-maintenance of Quality Assurance records

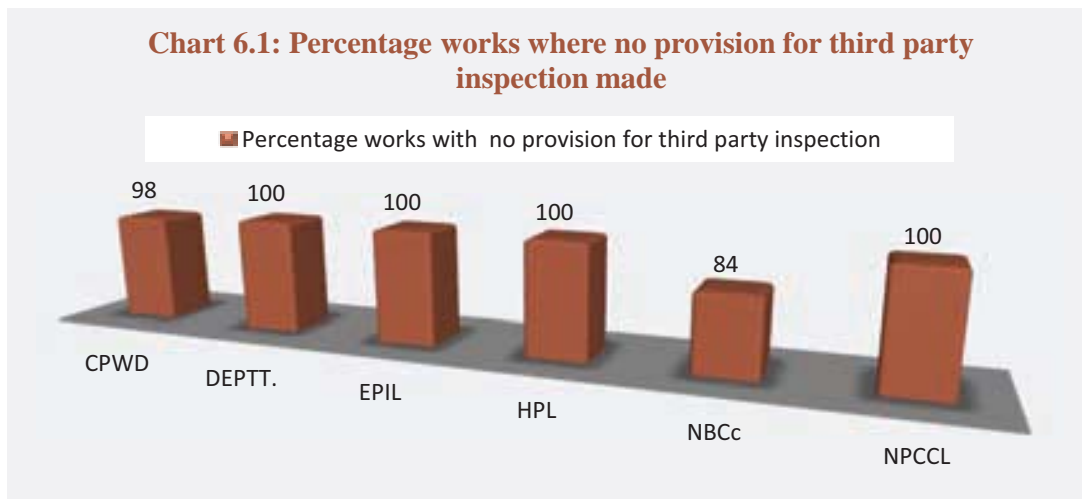
As per the CVC Guidelines of August 2008, lot wise manufacturer's test certificates of steel and cement were required to be obtained and kept in record to ensure quality assurance. It was found that in respect of 59 works of AR, CRPF and ITBP involving sanctioned cost/tendered amount of ₹ 373.90 crore (**Annex-6.1**) manufacturer's test certificates were not obtained.

Moreover, audit also noticed that in 44 works of AR involving ₹ 222.66 crore (**Annex-6.1**), no theoretical statement of consumption was worked out and compared with the quantity of steel, cement and paint actually used in those works.

AR admitted the observation by stating that they had directed all PWOs to set up quality assurance wing of their own apart from making a list of quality control test to be done in works and independent agency/institution near work site to carry out testing of samples.

6.1.5 Third party inspection

In 98 per cent works of CPWD and 100 per cent works of PWOs (except NBCC with 84 per cent works) and departmental works of CAPFs as depicted below in **Chart 6.1**, there was no provision of third party inspection and quality assurance in the MoU/Agreement between CPWD/PWOs and the client CAPFs was found. It was evident that mechanism of third party monitoring was altogether absent in most of the works of CAPFs.



However, audit noticed that 44 PEs prepared by PWOs for AR works contained a provision of one per cent of the cost of the work towards third party inspection. But audit found that no such inspection was carried out during execution which indicates that 44 PEs were inflated by ₹ 99.95 lakh.

Even CAPFs themselves had not made provisions of third party inspection in the agreements of their departmental works. In absence of independent third party inspection, the quality of works executed by all the executing agencies could not be verified.

CAPFs in their reply (June 2015) accepted the observation by stating that the third party inspection may be adopted in future. MHA in its reply (July 2015) admitted that this recommendation of audit is being examined for implementation.

RECOMMENDATION:

CAPFs should ensure that works are inspected by Quality Assurance Wing of the PWOs. Third party inspection clause should be incorporated in MoU to boost quality assurance levels.

**6.2 MONITORING**

Audit examination revealed lapses in monitoring by the executing agencies. A structure for multi layered monitoring is already in existence for construction activities. According to provisions of Chapter 10 of CPWD Works Manual, a preliminary survey of the site needs to be conducted before the preparation of the estimate for any work. Moreover, regular monitoring was to be done by executing agencies at the location/site of the construction works. CAPFs are required to detail a Board of officers to inspect the building and certify that the same has been constructed as per the approved drawings, detailed estimate and essential electrical and bulk services like road, sewers and water connection are completed and quarters are in a ready to move in condition.

Para 5.2 of Manual on Policies procedure for procurement of works issued by Ministry of Finance provides for putting in place project monitoring system before start of any work. At the highest level, MHA monitors the progress of construction works of CAPFs by taking quarterly meetings of the officers of CAPFs and executing agencies. This forms the multilayered monitoring at three levels, as shown here.

**6.2.1 Deficiencies in Monitoring**

Audit examination revealed lapses in monitoring by CAPFs as detailed below:

6.2.1.1 Instances of non-monitoring

CAPFs did not have a well-defined inspection policy for inspection/monitoring of construction activities. Audit found that the work of construction of 12 Type-II quarters at Jorhat, Assam of AR awarded by NPCCL to the contractor at a cost of ₹ 1.09 crore in October 2010, was poor since inception. The contractor used poor class shuttering

material, 'C' class bricks and low thickness slabs in construction. No action was taken by NPCCL. Though the contractor did not execute roof treatment work, internal and external water supply work, polishing of kota stone, NPCCL treated (April 2014) the work as complete. It shows poor monitoring of work by NPCCL and AR. Thus, even after 48 months since award, the 12 quarters could not be taken over and put to use although ₹1.09 crore was expended.

Similarly, in Lokra, Assam, 18 Type- II quarters¹ were constructed (April 2012) by a contractor at a cost of ₹ 2.65 crore. Inspection by AR revealed several serious deficiencies in work such as use of poor quality mortar mix, poor workmanship and use of pea gravels (river bed stones) instead of crushed stone due to which strength of the building reduced drastically. This indicated lackadaisical approach in monitoring on the part of AR during execution of the work, which compromised quality seriously.

6.2.1.2 Lack of coordination between CAPFs and executing agencies

It was noticed that regular meetings were not organized to sort out the issues between the Force and state governments and/or CPWD. Copy of the agreement entered upon with the contractor by the executing agency was neither provided by the executing agency to the client CAPFs nor asked for by the CAPFs. No periodical returns/reports in respect of the construction activities from the concerned executing agency were received on regular basis by CAPFs.

6.2.1.3 Non-inspection by higher authorities

Audit noticed that in 17 works carried out by CPWD and PWOs, no inspection was carried out by the higher authorities (IG & above) of CAPFs. It was found that where inspection was stated to have been carried out by the officers of CAPFs, in no case an inspection note was issued. In the absence of inspection notes, audit could not ensure the veracity or effectiveness of inspections carried out by officers of CAPFs. Audit also noticed that CAPF officials had not visited the offices of the executing agencies to ensure that the tender notice/award letters/agreement were as per the requirement of CAPFs.

CAPFs admitted the observation by stating that they had directed that remarks and feedbacks of higher authority (DIGs and above) during inspection of work site would be noted in Inspection Register.

6.2.1.4 Non-constitution of Board of Officers for checking complete works

CAPFs are required to detail a Board of officers to inspect the building and certify that the same has been constructed as per the approved drawings, detailed estimate and essential electrical and bulk services like road, sewers and water connection are completed and quarters are in a ready to move in condition.

¹ One of the package of construction of 12 type-III and 54 type-II, executed by EPIL

Audit noticed that in six works, Board of Officers (BOO) for checking of works did not comply with the provisions and handing over/taking over reports were not on record due to which audit could not verify that such works had been handed over/completed as per specification of PE/DE.

CISF in its reply accepted the observation by stating that board of officers requirement was not done as the works were taken over immediately after completion due to urgent requirement of the said infrastructures. The reply of the department was not in conformity with the above provision.

6.2.1.5 Absence of project monitoring system

MoU between NPCCL and AR provided for compliance with Manual on Policies procedure for procurement of works issued by Ministry of Finance, GOI. Para 5.2 of this manual provides for putting in place a system of project monitoring system before start of any work. Para 5.2.2 also provided for availability of vital information such as construction schedule, progress chart, financial statement, statement of extra/substituted/deviated items, progress photographs results of quality testing, disputes, bottlenecks etc.

Audit, however, noted that such a system had not been put in place which could have facilitated better appraisal and effective monitoring of construction activities by AR. No record was available to ascertain whether AR took up the matter with the NPCCL for formulation of project monitoring system.

6.2.1.6 Absence of Web based project monitoring system

CPWD has the facility of web-based monitoring, but CAPFs did not use the access to instant updates on construction activities. Web based project monitoring data was neither being provided by executing agency to the client department nor the client department asked for providing the said data resulting in weak monitoring system at the client level. Other PWOs did not have any facility for Web based project monitoring system. As such, CAPFs did not have access to instant updates about construction activities.

CAPFs admitted the observation for future compliance and the same shall be implemented after guidelines on the same are received from MHA. In reply, SSB stated that they would refer the audit observation to their Hqrs. for framing a policy on the matter.

RECOMMENDATION:

CAPFs should make practical use of the monitoring mechanism already in existence to bring meaningful results.



6.3 UTILISATION OF RESOURCES

6.3.1 Non utilisation of resources

Audit noticed that various residential and office buildings could not be handed over and put to use due to certain deficiencies like no provision of power supply, delay in energisation, incomplete development works viz. sewage, water connection, roads etc. Some instances where assets created were ready for utilization but could not be put in to use are depicted below:

- **Non-utilisation of completed infrastructure due to non-energisation of substation**

33/11 KV substation, 33 KV line and metering room at Disaster Management Training Centre (DMTC) at Latur for CRPF was installed (August 2011) at a cost of ₹ 2.50 crore. This was not energised due to failure of CRPF authorities in getting finalisation of route and Maharashtra Industrial Development Corporation (MIDC) approval and also due to non-deposit of requisite fees of ₹ 5.60 lakh to MIDC. Consequently, the completed infrastructure like Sewerage Treatment Plant, 33/11 KV station(Transformer), Compact substations, Street lights, Hospital, Administrative Buildings etc. were not put to use/functional even after incurring expenditure of ₹ 72.58 crores on the project.

NBCC confirmed the facts (August 2014). CRPF in its reply (June 2015) accepted the observation by stating that MIDC approval could not be received due to non finalization of lease deed due to difference in wordings of same between the format of MIDC and CRPF.

- **Non-operationalization of Indoor Shooting Range at NSG, Manesar**

Audit noticed that the construction of work Indoor Shooting Range at NSG, Manesar was completed in August 2008. However the handing/taking over was done in September 2012 i.e. after more than four years and the procurement of equipment could not be finalised even till December 2014. During inspection it was found that the electrical installations like ACs, lights etc were lying idle due non-operationalization of the building till December 2014 and termites spreading in the building.

NSG in its reply accepted the audit observation (June 2015) by stating that the composite Indoor Shooting Range was approved under Modernisation Plan-I and authorization of the



same did not exist and the case was being submitted in MHA. The delay was on account of procedural formalities and change of technology in respect of equipments and delay was not attributed to any specific unit.

6.3.2 Utilization of resources for other purpose

Audit examination revealed that buildings constructed for some specific purpose were utilised for a different purpose. Some instances in this regard are depicted below:

- Work of underground firing range for SSB at Kullu, Himachal Pradesh was under taken by CPWD for ₹ 2.18 crore. NOC was issued by the local authorities for construction of underground firing range in October 2009. CPWD constructed indoor shooting range instead of underground firing range. The indoor shooting range had not been put to intended use. SSB was planning to use the same for other purpose like auditorium, indoor classes etc.

SSB in its reply (June 2015) stated that for close Combat Arms Shooting Range, it proposed for Indoor shooting range having specification meeting the requirement of underground effect which had been taken care of while designing the Indoor close combat arms range by CPWD. The reply was not acceptable as for obtaining NOC SSB applied for underground firing range by stating that as it will be highly safe and secure & NOC was issued for underground firing range by the District Magistrate after inspection of the site.

- The work construction of Magazine Building (for storing of ammunition) with allied services and development works at Kakching, Manipur of AR was awarded by NPCCL in November 2009 and work was completed in September 2012 at a cost of ₹ 1.08 crore. Audit found that the magazine building was being used as Rehabilitation Centre. No sanction existed for utilisation of the building for other purposes.

Assam Rifles admitted (April 2015) the observation by stating that they would ensure that the required building will be put to use for intended purpose.

- The work of 120 men barrack including Kitchen, Dining Hall, Recreation hall for GC CRPF, Pune was completed after incurring an expenditure of ₹ 5.89 crore and handed over to the CRPF in October, 2009. However, during site visit, audit noticed that one barrack was being used for Kendriya Vidyalaya (KV), another for Institute of IED Management and the third barrack is emptied for renovation purpose.

CRPF in its reply (December 2014) stated that in order to continue smooth running of KV and IED Institute, his office accommodated them in the Barracks in pursuant to the instructions received from the competent authority. Reply was not acceptable as it indicated that CRPF approved the works without any real need and constructed Men Barracks without examining the necessity which had resulted in utilization of barracks other than intended purpose.

- NPCCL handed over construction of 04 SM Barrack at Jwalamukhi and Maram, Manipur in June 2013 to AR with total cost of ₹ 6.27 crore. Audit found that SM Barracks constructed became unusable immediately after taking over and were used as Godown. AR did not take any action in this regard.
- AR got the construction of 3 SM Barracks for 6 NCOs and 60 Qrs (G+II) and 1 Admn Block at Kakching, Manipur through NPCCL with a cost of ₹ 1.32 crore. But audit found that 3 SM Barracks were used as School.
- 15 blocks of 90 type-II quarters at Radhanagar, Tripura were completed by NPCCL at a cost of ₹ 7.34 crore and handed over to AR up to March 2011. Audit, however, found that AR had been using one block of type-II quarters as hospital since April 2011 as the construction of the hospital building had not been completed. Utilization of quarters for other purposes for the past three years indicated that the quarters were not of any immediate use for intended purpose.

Assam Rifles admitted (April 2015) the above observations by stating that they would ensure that the required buildings will be put to use for intended purposes.

- ₹ 98.38 lakh was incurred towards providing/erecting/laying of VCB Panels/Breaker, UGHT Cables and 3 numbers of 250 KVA transformers for providing electricity connection to 208 quarters in Bengaluru. Since the underground cables laid were damaged, power supply could not be provided to the quarters from the BESCOM Sub-station and the equipment/installations are lying idle since April 2012 i.e. from the date of their installation. Further, it was also noticed that ₹ 21.20 lakh incurred towards purchase of 208 electronic energy meters, and service charges for BESCOM power supply, were also idling since March 2012 since the electricity connection is not provided till date.

CRPF in its reply accepted the observation and stated that CPWD was primarily responsible for providing electric connections in mutual consultation with BESCOM. During joint inspection, it was observed that the meter rooms were being used as store rooms for storing broken materials and other obsolete items.

An interesting case in this regard has been depicted below as case study:



Case Study 6.1

NPCCL awarded the work C/o 20 bedded Hospital including allied services and Development works for AR at Haflong, Assam at a cost of ₹ 2.18 crore in May 2009. Besides other structures, a separate female ward for lady patients, labour ward and delivery room were also constructed.

After completion of construction of Hospital building it started functioning since April 2013. Audit, however, noticed that none of the female wards were put to use even till October 2014 although ₹ 29.34 lakh had been expended on construction of these services. In fact, the female ward and labour ward was being used as store room for medicines and lodging purposes respectively.



All the above cases clearly show that the expenditure incurred for construction was not utilized for the intended purpose. Assam Rifles admitted (April 2015) the observation by stating that they would ensure that the required building is put to use for intended purpose.

RECOMMENDATION:

CAPFs should initiate construction activities only after their priority assessment so that the buildings are put to immediate use for intended purpose.



6.4 MAINTENANCE OF RESOURCES

Construction activities in CAPFs had resulted in creation of large number of capital assets viz. office and residential buildings, BOPs and barracks. After handing/taking over of buildings, maintenance of the same is essential for its proper up-keep and extended life span. Inadequate maintenance in the building leads to deterioration of building prematurely and can even threaten safety. Regular maintenance enables timely identification and rectification of deteriorated building elements, and is therefore, a must.

Earlier, all the construction works of CAPFs were executed by the CPWD. Maintenance of all office/residential building was the responsibility of the CPWD. The works executed by PWOs viz. NBCC, EPIL, NPCCL, HPL etc. for CAPFs were not being

maintained by PWOs as no provisions for maintenance of building were incorporated in their MoUs. CPWD was not ready to maintain these buildings on the plea that these buildings were not constructed by them. If it were to be maintained by the same PWO who constructed it, it was found that they were demanding exorbitant charges for maintenance i.e. up to 20 per cent of estimated cost of construction as agency charges for maintenance. CAPFs were not ready to award maintenance contract to these PWOs due to paucity of funds. This has resulted in non-maintenance/poor maintenance of the assets of CAPFs created by these PWOs. Audit noticed instances during joint inspection such as seepages on the wall, rusting of iron, broken water pipes, damaged railings, clogging of drainage channels etc.

MHA in their reply (July 2015) accepted the observation by stating that as suggested by the audit, this Ministry would consider the possibility of making an amendment in the MoU to be signed by CAPFs and PWOs for execution of work prescribed by MHA for maintenance of the building constructed by the concerned PWOs. Amount for maintenance of buildings is being provided to CAPFs under Sub-head Minor works.

RECOMMENDATION:

CAPF may incorporate provision for maintenance of buildings in the MoU itself to take care of their maintenance. CAPFs with Engineering wings may undertake this process internally



6.5 CONCLUSION

Audit examination revealed lapses in quality assurance as there was no system of inspection by quality assurance wing of CPWD and PWOs do not even have quality assurance wing. There was no provision of third party inspection. Audit noticed poor maintenance of buildings, barracks and residential accommodations of jawans. CAPFs did not have a well-defined inspection policy for inspection/monitoring of construction activities. No inspection was carried out by the higher authorities and where inspection was carried out by the officers of CAPFs, no inspection note was issued in any of the cases. No web based project monitoring system exists in PWOs.

One of the key to efficiency and effectiveness is the coordination among the agencies involved in construction. It appeared that the activities undertaken by agencies and coordination between them was not calibrated properly. This was reflected in the questionable quality of assets created and their maintenance. Proper up-keep of these multi-crore assets was also not found satisfactory in many cases.