

Chapter 6

Modernisation of Forensic Science Laboratories

Chapter 6

Modernisation of Forensic Science Laboratories

6.1 Introduction

One important component under the MPF scheme was “Modernisation of Forensic Science Laboratories”. To improve the quality of evidence and criminal justice delivery process, GoI prepared a model scheme in 1958 for setting up forensic science laboratories (FSLs) all over the country. Accordingly, State FSLs were set up to help in crime investigation by analysing samples of different nature which would help in the collection of evidences and quick disposal of cases.

Presently, four FSLs (at Lucknow, Agra, Varanasi and Ghaziabad) are functional. The FSLs at Lucknow, Agra and Varanasi have 13, 9 and 5 sections as given in *Appendix 6.1*. In FSL Ghaziabad, toxicology section has been opened (July 2015) and its building is under construction (37 per cent complete) till March 2017. In four⁷ of five districts, Regional Forensic Science Labs⁸ (RFSLs) are still to be established. The above 5 RFSLs were sanctioned. The work of RFSL Moradabad has been completed handed over to department (June 2016) and became functional in July 2016, whereas the work of remaining four RFSLs are in progress (6 to 44 per cent) as on March 2017. The new RFSLs are proposed to reduce the work load on the above four functional FSLs and to enhance the capacity for analysis of samples in the state.

In addition to this, district field units have been established in all 75 districts to collect evidences/samples from crime places and send to concerned forensic labs after preliminary examination.

6.2 Planning

The Director, FSL had evolved a perspective plan on 18.11.2010 for 2011-16 to modernise forensic science laboratories. The plan was to be implemented in three phases during 2011-16. In the first phase, all the district field units were to be equipped with mobile forensic vans (mobile field units) with modern facilities for crime protection management, explosive, DNA, biological, computer crime etc., and in the second phase, these facilities were to be extended in 500 circles in all districts of UP.



Moreover, 5 RFSLs were to be opened in Moradabad, Jhansi, Gorakhpur, Allahabad and Ghaziabad with basic sections like physical, chemical and

⁷ Allahabad, Ghaziabad, Gorakhpur, Jhansi.

⁸ Allahabad, Ghaziabad, Gorakhpur, Jhansi and Moradabad.

biological sciences. In the third phase, engineering, mathematical, medical and behavioural sciences sections were to be opened in old FSLs (already existed FSLs). In Modernisation Plan, funds were to be allotted for these activities.

Scrutiny of records of Directorate FSL revealed that implementation of the Perspective Plan was not ensured as detailed below:

- In 33 district level field units (44 *per cent*), out of 75 districts have been equipped with mobile forensic vans (mobile field units) to investigate crime cases with modern facilities. Procurement of mobile forensic vans for strengthening of the rest 42 field units with modern facilities has not been done for want of funds (March 2017), however, kits have been purchased for above 42 mobile forensic vans and lying idle in Directorate (March 2017).
- In second phase, above facilities were to be extended in 500 circles in all districts but no such facilities were available as of March 2017.
- For functioning of five RFSLS, basic infrastructure facilities of having their own building was to be ensured. Status of the physical and financial progress of construction of buildings of RFSLS is given in **Appendix 6.2**.

There have been inordinate delays in sanction and execution of works for creation of basic infrastructure facilities for Regional FSLs and therefore four out of five RFSL could not be made functional. The physical progress of construction of building of RFSL Jhansi and Gorakhpur were upto plinth and stilt floor level respectively (April 2017). The physical progress of construction of the buildings of RFSL Ghaziabad & Allahabad were 37 and 44 *per cent* respectively (April 2017), even after the lapse of perspective plan period.

As per the third phase of the plan, engineering, mathematical, medical and behavioural sciences sections were to be opened in old FSLs (already existed FSLs) but these sections were also not established in any of the FSLs (April 2017) except a medico legal section in Lucknow FSL.

The Government in its reply (February 2017) stated that in first phase ten and in second phase 25 mobile forensic vans with kits have been sent to district forensic field units and procurement of rest of 40 mobile vans is in process. The proposal of mobile forensic vans for 700 circles will be sent to Government.

Reply is not tenable because department failed to modernise and strengthen forensic labs as envisaged in perspective plan 2011-16. Only 47 *per cent* of the district in State could be equipped with mobile forensic vans and none of the 500 circles have been provided such facility so far. Hence four out of five RFSLS were still not fully functional. New sections were also not opened in the existing FSLs as planned.

6.3 Procurement of equipment:

The position of release and expenditure of FSL for purchase of equipment was as given in the table below:

Table 6.1: Allocation and expenditure of FSL for procurement of equipment

(₹ in crore)

Sl. No.	Year	Released amount	Expenditure	Saving/ Surrender
1	2011-12	00.00	00.00	00.00
2	2012-13	00.00	00.00	00.00
3	2013-14	10.92	1.03	9.89
4	2014-15	17.75	4.07	13.68
5	2015-16	24.88	19.00	5.88
Total		53.55	24.10	29.45⁹

(Source: Directorate, FSL)

It is evident from the above table that although the perspective plan was prepared in 2011-12, but no funds were released during 2011-13 and there was delay in release of funds during 2013-16 because of delayed release of funds by GoUP/PHQ to the Forensic Directorate. Further, ₹ 53.55 crore was released for the procurement of equipment, against which expenditure of only ₹ 24.10 crore (45 per cent) was incurred. Further, during the year 2013-14 and 2014-15, against the released amount ₹ 28.67 crore, expenditure of only ₹ 5.10 (17.78 per cent) crore was incurred. Most of the expenditure was incurred in 2015-16. Rest 55 per cent budget was not spent, out of which ₹6.20 crore was parked in PLA of “UP Police Awas Nigam” as of July 2016.

The department in its reply (February 2017) stated that the most of the equipment are to be imported/ purchased from foreign/abroad. Due to lengthy and delayed process of tendering, sometimes procurement of equipment might be difficult during the period of financial year. Forensic Directorate replied that due to the failure to finalize the tenders in various years, funds were surrendered. Tender had been invited more than two or three times for most of equipment due as suitable technical/financial bids were not received.

It could however not be denied that there was shortage of modern equipment in FSLs. Audit, also, found that Department failed to utilise 55 per cent of the budget allotted for purchase of lab equipment and failed to modernise the FSLs.

6.4 Shortage of equipment:

Scrutiny of records of Director FSL revealed that the required number of equipment were not procured and established in FSLs and district field units as envisaged in plan. Solar power based backup systems and tunable light sources were to be provided in 51 and 20 field units respectively but could not be provided. Eight Vehicle chassis identification machine and infrastructure for above machines were to be provided in eight zones but only one machine

⁹ The figure contains the amount of PLA ₹ 6.20 crore.

was procured. One Central temperature modulator system was also not procured and established in FSLs (**Appendix 6.3**). Besides, 11 major equipment were not procured and commissioned due to the failure to finalise the tenders. Funds were kept in PLA as discussed in paragraph 6.3 (**Appendix 6.4**).

- During physical verification of test checked FSL Agra, it was found that Physics and Toxicology sections were facing shortage of basic instruments like fuming hoods, hanging load system, electric furnace etc. In the absence of fuming hoods, fumes were not ventilated out which resulted in labs environment getting polluted. During *visra* digestion phosphine, hydrogen cyanide, nitrogen dioxide, carbon dioxide, hydrogen disulphide and sulphur dioxide etc. gases were flowing in toxicology lab due to absence of fuming hoods. These gases are dangerous and harmful to health of employees working in labs.
- Scrutiny of records of FSL Lucknow disclosed that only one genetic analyser 3,130 (parental determination machine) was available in lab. This analyzer is used for final parental determination at the end of DNA testing. Since there was only one analyser this resulted in pendency of 4,113 samples (as of March 2016) in DNA and serology lab.

The Government in its reply (February 2017) stated that the specification to purchase vehicle chassis identification system has been sent to Government and preparation of preliminary estimate and technical specification for purchase of solar system is in process. A proposal for DNA unit establishment for Agra, Ghaziabad, and Varanasi FSLs has been sent to Government and a proposal for procurement of equipment in Agra FSL will be sent.

However the fact remains that the lack of important equipment in FSLs and field units indicated that modernisation of forensic science labs in the state was seriously lagging behind and was one of the major constraints in the timely completion of criminal investigations.

6.5 Shortage of technical manpower:

Scientific Assistant (SA), Senior Scientific Assistant (SSA), Scientific Officer (SO), Junior Lab Assistant (JLA), Lab Assistant (LA) are the technical staffs deployed in any Forensic Laboratory. 75 *per cent* of the post of SA was to be filled by direct recruitment and 25 *per cent* by promotion whereas 50 *per cent* posts of SO and LA was to be filled by direct recruitment and 50 *per cent* by promotion.

Scrutiny of records of four FSLs (Lucknow, Agra, Varanasi and Ghaziabad) revealed that overall shortage of technical staff increased from 47 *per cent* in 2012-13 to 67 *per cent* in 2015-16 (**Appendix 6.5**) in above four functional FSLs.

The Government in its reply (February 2017) stated that *adhivachan* has been sent by department to UPPSC & UPSSC for Scientific Officer and Lab Assistant. Forensic Directorate replied that vacancies were to be filled by the

Government and accepted that shortage of manpower adversely affected the disposal of the forensic cases.

Insufficient technical staff posted in district field forensic units:

District field units have been established in all 75 districts to collect evidences/samples from the place of crime and send it to concerned forensic lab after preliminary examination. Audit found that the availability of technical staff was only 31 *per cent* against the sanctioned strength in all the 75 districts and 37 *per cent* in 15 test checked districts.

Scrutiny of records of 15 test check district forensic units further revealed that:

- No technical staff had been posted in Deoria, Kushinagar and Sonebhadra districts. In Sitapur, Mathura and Pratapgarh districts, only junior lab assistants had been posted.
- In Sonebhadra, no samples had been collected by district field units from places of crime due to unavailability of technical staff since October 2015 as the Scientist Assistant posted there had died and no replacement had been provided in this place.

6.6 Huge Pendency due to delay in examination of samples:

As per the norms, examination of samples should be completed within seven days and report should be ready for submission to courts within 14 days. Scrutiny of records revealed huge pendency of cases during 2011-15.

Audit noticed that the number of pending cases at Lucknow, Agra and Varanasi FSLs increased from 6,617 in January 2011 to 15,052 in March 2016 (**Appendix 6.6**).

- In FSL Lucknow, pendency of samples increased from 1,342 in January 2011 to 7,671 in December 2015. Out of the above pending samples, 4,113, 1,336 and 1,307 samples were pending (as on Dec 2015) mainly in DNA/serology, biology and ballistic sections respectively. Further, test-check of data of 50 pending cases received for each section (10 cases each year) audit observed that in DNA and Serology section, even the samples received during the calendar year 2011 and 2012 were still lying undisposed. Despite FSL Lucknow being the only lab in the state having the facility to examine DNA samples, no concrete measures were taken by the Government to minimise pending cases. In biology section, samples received since July 2015 were lying undisposed.
- In FSL Agra, pendency in analysis of samples increased from 4,418 in January 2011 to 6,768 (153 *per cent*) in December 2015. Major pendency was noticed mainly in serology, toxicology and ballistic sections.

Government in its reply stated that even though many more new laboratories and many more sections in various FSLs were opened in recent years but in the absence of new recruitment as well as dependency on old technical staff, pendency of samples has increased. Director FSL accepted the facts and stated

that the reasons for huge pendency were due to shortage of required technical and other staff in FSLs, lack of equipment/kit and chemicals in serology and DNA sections in FSL Lucknow not being available.

Thus the fact remains that forensic science lab facilities remained highly inadequate in the state.

6.7 Improper collection of evidences due to shortages of manpower, labs and kits in district field units

Collection of forensic evidences requires expert manpower with specialised knowledge of forensic science. Expert must be supported with skilled trained staff. They should also be equipped with special kits so that the samples are collected properly and after preliminary investigation, handed over to concerned police station for final examination in nearest FSL.

Scrutiny of records of FSL Directorate and district field units revealed that sufficient experts/ skilled manpower (with special kits) were not available in district field units:

- From crime scene, different types of samples depending upon the nature of crime are collected. Audit found that only one sample of each type was being collected instead of two or three samples of each type (wherever possible) These inventory samples were not examined independently at different labs.
- The scientific officers, scientific assistants, senior scientific assistants are called experts in forensic field. In 75 field units, only 18 *per cent* experts were posted (22 against sanction strength of 120). In 15 test checked district, only 32 *per cent* experts were posted (nine against the sanction strength of 28). In Sitapur, Deoria, Kushinagar and Sonebhadra districts, no expert were posted in district field units. Only necessary kits were available in field units test checked but mobile forensic vans with total number of kits were available in only 33 districts¹⁰.
- In physical inspection, it was found that a laboratory was existing in district forensic field units to investigate primarily the samples before sending it to police station and forensic lab for further detail investigation. In Sonebhadra, no laboratory was available for this preliminary investigation of samples before handing over the report to concerned police station. Only one register was maintained for collection of samples from the scene of the crime but no record of samples being handed over to concerned police station was available. In addition to this no forensic data has been digitised at the level of district field forensic units.

¹⁰ Agra, Allahabad, Bareilly, Gorakhpur, Kanpur, Lucknow, Meerut, Varanasi, Faizabad, Jhansi, Hathras, Basti, Gonda, Azamgarh, Mirzapur, Moradabad, Saharanpur, Banda, Gautam Buddha Nagar, Sonebhadra, Lalitpur, Deoria, Chandauli, Mathura, Etawah, Kannauj, Ghazipur, Rampur, Fatehpur, Bahraich, Badaun, Jaunpur and Special Field Unit Lucknow Laboratory.

The Government in its reply (February 2017) stated that in all districts the posting of scientist, crime place inspection and collection of evidence is being done.

Reply is not tenable because sufficient technical staffs have not been posted in district field units. In new/small districts, no scientist has been posted and junior lab assistant were working as an experts. In many districts no mobile van with all kits has been provided. Thus lack of experts in district field units and inadequate infrastructure (mobile forensic vans, kits, preliminary labs etc.) adversely affected the quality of evidence collected.

6.8 Cybercrime zonal laboratory not fully established:

To examine cases related to cybercrime, a separate section was to be established in FSL Agra. Required equipment and other appliances were provided by the Director General, Technical Services, UP Lucknow (as of June 2015) and the lab was running under the Deputy Director, Physics section with trained/temporary staff (as of April 2017). No posts were sanctioned for the above lab. (*Appendix 6.7*)

The Government in its reply (February 2017) stated that cybercrime lab is now functional in FSL Agra, equipment as well as scientists have been deployed for above work.

Reply is not tenable because no post has been sanctioned for above work so far (April 2017) and the above laboratory was not fully established.

6.9 Investigation Support Units not provided:

Crime investigation is an important task of police, and Staff from the rank of Head Constables to Inspectors are entrusted with the task of crime investigation. They do not possess specialized knowledge of forensic science and hence, the investigation suffers due to lack of expertise. To provide expert help in collection of forensic evidences from crime scenes and investigation, *National Police Mission* recommended (July 2013) for providing a Crime Scene Officer with Crime Investigation Kit¹¹ at each Police Stations.



However, no strategic plans were made at state level to implement the recommendation and improve the quality of evidence collected. No kits/tools were available in test checked districts at the level of Police stations and no training has been provided to police field staff in this regard.

¹¹ Consisting 41 items including crime scene preservation tools, clue handling tools, clue analysis tools, spray marking paint, digital distant measuring device, laser light pen, UV light, magnifier, ratchet screw driver, venire gauge etc. to collect samples and to do spot analysis.

The Government in its reply stated that for qualitative improvement of field police staff they had to be trained properly by forensic scientist for collecting and sending samples to forensic laboratory.

Hence Government accepted the audit observations.

6.10 Records not maintained:

In FSL Agra, during physical verification it was found that no consumables stock register, dead stock register and equipment stock register were maintained in sections; therefore it was difficult to know the actual consumption of chemicals and other consumables utilised by the sections of lab. In FSL Moradabad equipment costing ₹ 83.93 lakh were procured but no equipment stock register was maintained. Hence proper utilization of chemicals and various consumables and their pilferages if any, could not be ascertained in audit.

Recommendations:

- *Mobile forensic vans fully equipped with modern facilities should be provided to remaining 42 district field units and 500 circles on priority.*
- *Construction of buildings and other infrastructure of five functioning RFSs should be expedited.*
- *The huge shortages of technical staff and equipment in FSLs should be immediately addressed to control the increasing pendency of samples in these labs and expedite criminal investigation.*