

# **Forensic Science Laboratories in India**

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#### Abstract

Forensic science is an integral part of investigating and solving criminal cases, providing scientific analysis and expert testimony to aid the legal system. In this chapter, we will explore the essential functions and services of forensic science laboratories in the criminal justice system. Our focus will be on the current state of forensic science laboratories in India, including their organisational structure, challenges, and significant contributions to the pursuit of justice. We will also examine the establishment and evolution of forensic laboratories in India. It is noteworthy that these laboratories exist to ensure that the legal system has access to reliable scientific evidence that can help in the administration of justice. The role of forensic science laboratories in India is vital, and their contributions are invaluable to the pursuit of justice. The advancements made in technology, infrastructure, and expertise should be celebrated and utilised to ensure that the legal system has access to the most credible scientific evidence possible.

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#### 3.1 Introduction

Forensic science laboratories play a crucial role in India's criminal justice system, providing vital assistance in investigating and resolving criminal cases. These labs are responsible for analysing various types of evidence, ranging from biological samples to digital media and trace evidence. Forensic scientists use a range of specialised techniques, including DNA analysis, fingerprint identification, ballistics, document examination, and toxicology, to name a few.

In recent years, India has placed a significant focus on technological advancements in forensic science. DNA profiling has emerged as a powerful tool in identifying suspects, connecting crime scenes, and establishing relationships between individuals. Forensic laboratories in India have made notable progress in DNA analysis, contributing to the resolution of numerous challenging cases and exonerating the innocent.

With the proliferation of digital technology, forensic science laboratories are facing new challenges and opportunities. Cybercrime investigations, digital forensics, and the analysis of electronic evidence have become increasingly essential in combatting cyber offenses and fraud. Forensic scientists use specialised techniques and tools to extract, preserve, and analyse digital evidence, which helps identify perpetrators and present robust evidence in court.

Recognising the importance of forensic science in the criminal justice system, the Indian government has taken steps to address various challenges being faced. Funding has been increased, infrastructure has been upgraded, and the quality and efficiency of forensic analysis have been improved. Specialised forensic laboratories have been established, and advanced forensic techniques have been introduced to enhance the capabilities of forensic science in India. Ongoing efforts aim to strengthen these laboratories and improve their capacity to meet the growing demands of the justice system.

#### 3.2 Brief Historical Overview

Forensic science is the application of scientific techniques for the administration of justice. During the nineteenth century, as the number of deaths due poisoning increased, the need arose for fully equipped laboratories capable of isolating, detecting, and estimating various poisons from human body organs. In response to this, the first Chemical Examiner's laboratory was established in Madras Presidency in 1849, under the control of the Department of Health. Initially, it operated under the authority of a civil surgeon or a professor of some medical college, which meant it would relocate with the surgeon's transfer. However, the government and the court recognised the limitations of managing this laboratory on a part-time basis, leading to the appointment of a full-time permanent chemical examiner and the establishment of a permanent laboratory. Subsequently, additional Chemical Examiner's laboratories were set up in Calcutta in 1853, Agra in 1864 and Bombay in 1870.

viscera and biological analyses of stains from human body fluid such as semen, blood, saliva, etc. Furthermore, these facilities extended their services to neighbouring states and Union Territories.

While the identification of poisons was being addressed, the identification of individuals, particularly criminals, was done using conventional methods. Police officials would rely on memory to recognise individuals based on their facial and physical features if they committed another crime. With the introduction of photography, CID started recording photographs of criminals with a complete elucidation of their appearance. However, one flaw in this system was that criminals could easily evade capture by just changing their appearance. Globally and in India, Bertillon's Anthropometric system gained widespread acceptance as a method for identifying individuals based on body measurements. Consequently, an Anthropometric Bureau was established at Calcutta in 1892. The bureau assisted police officials in identifying criminals based on anthropometric measurements until the use of fingerprint identification emerged as an alternative for individualisation.

After recognising the limitations of the Anthropometric system, a more superior personal identification system was needed. British civil servant William Herschel had started studying papillary ridges on the fingertips. He established that fingerprints never change during one's lifetime. He designed a technique for registration of thumb impressions of native contractors to shelter the government's interests so that contractors could not reject it. Then he extended his recording system to register the thumbprints of criminals. However, Herschel failed to implement this idea effectively. In 1891, Sir Edward Richard Henry was appointed as Inspector General of Police in Bengal. Henry, in 1897 included thumb impressions and anthropometric measurements as well in record slips to circumvent false identification of criminals. He also introduced a duplicate criminal record containing finger impressions of ten fingers, which later substituted the whole identification system with fingerprints. Henry appointed a couple of Indian police officials, Azizul Haque and Hem Chandra Bose, to work on this system. It was these two police officials who devised a mathematical formula in addition to Henry's sorting slips into 1024 pigeon holes. This mathematical formula met the practicality of his idea of an identification system based on fingerprints. Later, they also designed the extended sub-classification system, termed a single-digit classification system. Henry then approached the government about his idea to replace anthropometric data with fingerprint slips to identify habitual criminals. The government consented to it, and hence the first fingerprint bureau was set up at Calcutta in July 1897. Following India, many other countries started using fingerprints as the primary means of identifying habitual criminals.

When the explosion cases started to increase, the need to detect the cause of the explosion also increased. This led to the First Chief Inspector of Explosives appointment at the Department of Explosives in 1898, with Nagpur as his headquarters. After this, five regional offices were established at Calcutta, Bombay, Agra, Madras and Gwalior and three sub-offices at Shivakshi, Gomia and Asansol.

Meanwhile, the British Government of Bengal needed the expertise to analyse handwriting present on secret documents related to the Indian Independence Movement. This led to the foundation of another post of Government Handwriting Expert of Bengal. Mr. CR Hardless, the then Superintended in accountant's General's office in Bengal, was designated for this post in 1904. This set-up was soon shifted to Shimla and was then put under the control of Director CID. Soon, Mr. F Brewster, a police officer of West Bengal CID, was then nominated for this post, and soon he became the Government Examiner of Questioned Documents (GEQD). Initially, the work of this laboratory was limited to the examination of writings of secret documents. Following this, utilisation of this branch was then extended to criminal and civil court cases. When this laboratory's duties and tasks increased, Mr. R Stott was appointed as Assistant Government Examiner of Questioned Documents in 1920. In 1925, Mr. R Stott took over the charge as Government Examiner of Ouestioned Documents (GEOD) after the retirement of Mr. Brewster. Mr. VOJ Hodgson soon replaced Mr. R Stott in 1944 and Mr. SN Sen, the first Indian to be appointed for this post. This branch then took the charges of secret censorship, detecting secret writing, and providing training to military personnel about the subject. After recognising the need for more such laboratories, two other organisations were established in Kolkata in 1964 and Hyderabad in 1968.

Forensic Serology Institute entitled 'Serology Department' was started in 1910 at Calcutta. Imperial Serologist to the Government of India headed this institute. Dr. Hankin had a significant role in the establishment of this laboratory. This institute provided its services in analysing various biological evidence from the crime scene. After independence, this was soon re-labelled as the 'Office of the Serologist and Chemical Examiner to the Government of India'.

In 1905, India's first Central Finger Print Bureau (CFPB) was established at Shimla but was soon abolished in 1922. At the conference of DIGs of Police, CID proposed the establishment of CFPB, and thus a committee was formed to submit a scheme. The Government of India approved the scheme, and soon a CFPB started functioning in Delhi in 1955. It was headed by the Superintendent of Police and was under the administrative control of the Intelligence Bureau (I.B.). It was the central authority to coordinate the activities of all State FPBs. In August 1956, CFPB was shifted to Calcutta. Recognising the need to standardise fingerprint experts' level in India, an All-India Board of Examination for Fingerprint Experts was formed by the Ministry of Home Affairs, Government of India, in 1958 at CFPB. This board conducted an annual examination for accrediting fingerprint experts from India. Then in the year 1973, the administrative control of the CFPB was shifted to the Central Bureau of Investigation CBI, and in the year 1986, it was again moved to the National Crime Records Bureau (NCRB) and was then again shifted to New Delhi.

Meanwhile, in 1915, a footprint section was established under CID, Government of Bengal. It assisted investigative authorities in identifying criminals based on the examination of footprints found on the crime scene. Later in 1917, a Note Forgery Section was established under CID, Government of Bengal, to analyse forged currency notes. In 1930, an Arms Expert was appointed, and thus a small ballistics laboratory was established under Calcutta Police to examine firearms.

A unique Institute to conduct training in the scientific investigation of crime against women, road accidents, explosion cases, drug abuse cases, etc., was formed

and named Central Detective Training School (CDTS) in 1956 at Calcutta. Soon, four more CDTS was established at Hyderabad in 1964, Ghaziabad in 1970, Chandigarh in 1973 and Jaipur in 2012 (Table 3.1).

Sr	Name of the laboratory/institute/		Year of
No.	school	Controlling agency/post	establishment
1.	Chemical Examiner's Laboratory (Madras Presidency)	Department of Health in 1849. Initially, it was under the control of a civil surgeon or a professor of some medical college. Later, full- time chemical examiners were appointed and these laboratories were established under their authority	1849
2.	Chemical Examiner's Laboratory, Calcutta	Same as above	1853
3.	Chemical Examiner's Laboratory, Agra	Same as above	1864
4.	Chemical Examiner's Laboratory, Bombay	Same as above	1870
5.	Anthropometric Bureau, Calcutta	-	1892
6.	Fingerprint Bureau, Calcutta	-	1897
7.	Department of Explosives, Nagpur	Chief Inspector of Explosives	1898
8.	Government Examiner of Questioned Document (GEQD), Shimla (This was initially set up in Bengal in 1904)	Director, CID	1906
9.	Government Examiner of Questioned Document (GEQD), Kolkata	Director, CID	1964
10.	Government Examiner of Questioned Document (GEQD), Hyderabad	Director, CID	1968
11.	Serology Department, Kolkata	Imperial Serologist the Government of India	1910
12.	Footprint Section of Criminal Investigation Department	CID, Government of Bengal	1915
13.	Note Forgery Section in Criminal Investigation Department	CID, Government of Bengal	1917
14.	Ballistics Laboratory	Calcutta Police	1930
15.	Scientific Sections in the Criminal Investigation Department	CID, Government of Bengal	1936
16.	Central Fingerprint Bureau (CFPB), Shimla	_	1905 was soon abolished in 1922

Table 3.1 Summary

(continued)

Sr No.	Name of the laboratory/institute/ school	Controlling agency/post	Year of establishment
17.	Central Fingerprint Bureau (CFPB), Delhi	Headed by Superintendent of Police (SP) under the control of Intelligence Bureau (IB). In the year of 1986, the administrative control of the CFPB was transferred to National Crime Records Bureau (NCRB)	1955
18.	Central Detective Training School, Calcutta	This was initially ideated by Shri B.N. Mallick, the then Director, Intelligence Bureau. Later, it was brought under the control of BPRD	1956
19.	Central Detective Training School, Hyderabad	Now under the supervision of BPRD	1964
20.	Central Detective Training School, Ghaziabad	Now under the supervision of BPRD	1970
21.	Central Detective Training School, Chandigarh	Now under the supervision of BPRD	1973
22.	Indian Academy of Forensic Science	-	1960

#### Table 3.1 (continued)

## 3.3 Forensic Science Laboratories in India

Post-independence, in 1952, the first Forensic Science Laboratory in India at Kolkata was established, the *State Forensic Science Laboratory*, West Bengal. The Chemical Examiner's Laboratory in Kolkata was converted into State Forensic Science Laboratory, West Bengal, becoming the first FSL in India. When forensic science began to develop in India, the forensic scientists across India felt a need for an academy of their own which would be a platform for all forensic researchers to come together and carry out research in the field. Thus, the Indian Academy of Forensic Sciences was established in 1960.

#### 3.3.1 Central Forensic Science Laboratries

Cognisance of the capability of forensic science in solving criminal and civil cases inspired the government of India to plan to set up five CFSLs, one of which was intended to be established at a central place and the remaining at four corners of the country. In 1957, the first Central Forensic Science Laboratory was established in Kolkata.

Second, CFSL was established in Hyderabad in 1967. Then in 1968, another CFSL was established in Delhi under the control of the Central Bureau of Investigation (CBI). CFSL Chandigarh was initially started as CID Scientific Section in 1933, under the Police Department of United Punjab in Lahore before independence. In 1961, it was named Forensic Science Laboratory Punjab, Chandigarh. In 1966, it was taken over by the Union Territory of Chandigarh. In 1970, the Bureau of Police Research and Development (BPR & D) was formed. It was created to modernise the Indian Police, assist the systematic study of police problems, and initiate the usage of science and technology in crime investigation methods in the country. Subsequently, in 1978, the Bureau of Police Research and Development (BPR & D) took over the control of FSL Chandigarh and then was named CFSL Chandigarh. In the year 2011, three new CFSLs were set up at Bhopal, Guwahati, and Pune.

Earlier, all CFSLs, excluding CFSL Delhi, were under the control of BPR & D. In the year 2002, the Directorate of Forensic Science Services (DFSS) was carved out from BPR & D, New Delhi to propagate and carry out the most acceptable forensic science practices in the country to assist the Criminal Justice System. The organisational setup of DFSS is shown in Fig. 3.1. Thus, All CFSLs were then put under the control of DFSS from the year 2002; however, CFSL Delhi is hitherto under the control of CBI. The list of CFSLs in India along with their controlling agencies, year of establishment, scientific Forensic divisions and their jurisdiction are shown in Table 3.2. The organisational setup of different CFSLs is shown in Figs. 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, and 3.8. The jurisdiction of various CFSLs is shown in Fig. 3.9.



Fig. 3.1 Organisational structure of DFSS

Sr. no. 1.	Central forensic science laboratories Central Forensic Science Laboratory, Kolkata http://cfslkol. in/	Controlling agency (current) Directorate of Forensic Science Services (DFSS), Ministry of Home Affairs, Government of India	Year of establishment 1957	Scientific forensic divisions – Ballistics – Biology – Chemistry – DNA – Documents – Forensic Electronic Unit – Explosives – Narcotics – Physics – Toxicology	Jurisdiction (a) Orissa (b) Bihar (c) Jharkhand (d) West Bengal (e) Andaman & Nicobar Islands
2.	Central Forensic Science Laboratory, Hyderabad http://cfslhyd. gov.in/	Directorate of Forensic Science Services (DFSS), Ministry of Home Affairs, Government of India	1967	<ul> <li>Ballistics</li> <li>Biology</li> <li>Chemistry</li> <li>DNA</li> <li>Documents</li> <li>Explosives</li> <li>Narcotics</li> <li>Digital</li> <li>Forensics</li> <li>Toxicology</li> <li>Physics</li> <li>Psychology</li> </ul>	<ul> <li>(a) Andhra</li> <li>Pradesh</li> <li>(b) Tamil Nadu</li> <li>(c) Kerala</li> <li>(d) Lakshadweep</li> <li>(e) Karnataka</li> <li>(f) Puducherry</li> </ul>
3.	Central Forensic Science Laboratory, New Delhi https://cbi.gov. in/cfsl	Central Bureau of Investigation (CBI), Government of India	1968	<ul> <li>Ballistics and Explosive</li> <li>Biology</li> <li>Division and</li> <li>DNA Profiling</li> <li>Unit</li> <li>Chemistry</li> <li>Computer</li> <li>Forensics</li> <li>Document</li> <li>Fingerprint</li> <li>Forensic</li> <li>Psychology</li> <li>Physics</li> <li>Photo and</li> <li>Scientific Aid</li> <li>Serology</li> <li>A Scientific</li> <li>Aid Unit of CFSL at Chennai and</li> <li>Mumbai</li> </ul>	СВІ
4.	Central Forensic Science Laboratory, Chandigarh	Directorate of Forensic Science Services (DFSS),	1978	<ul> <li>Ballistics</li> <li>Biology</li> <li>Chemistry</li> <li>Questioned</li> <li>Documents</li> </ul>	<ul><li>(a) Jammu &amp;</li><li>Kashmir</li><li>(b) Punjab</li><li>(c) Himachal</li><li>Pradesh</li></ul>

 Table 3.2
 Central forensic science laboratories (CFSLs) in India

(continued)

Sr. no.	Central forensic science laboratories http://www. cfslchandigarh. gov.in/	Controlling agency (current) Ministry of Home Affairs, Government of India	Year of establishment	Scientific forensic divisions – Explosives – Physics – Toxicology – CFSL Unit Shimla- Questioned Documents	Jurisdiction (d) Chandigarh (UT) (e) Uttarakhand (f) Delhi (g) NCR & Haryana
5.	Central Forensic Science Laboratory, Bhopal https://www. cfslbpl.gov.in/	Directorate of Forensic Science Services (DFSS), Ministry of Home Affairs, Government of India	2011	<ul> <li>Biology/ Serology</li> <li>Questioned</li> <li>Document and</li> <li>Photography</li> <li>Chemistry/</li> <li>Narcotics</li> <li>Ballistics</li> <li>Computer</li> <li>Forensic</li> <li>Speaker</li> <li>Identification and</li> <li>Audio-video Tape</li> <li>Authentication</li> </ul>	<ul> <li>(a) Madhya</li> <li>Pradesh</li> <li>(b) Uttar Pradesh</li> <li>(c) Rajasthan</li> <li>(d) Chhattisgarh</li> </ul>
6.	Central Forensic Science Laboratory, Kamrup, Guwahati https://cfslghy. gov.in/	Directorate of Forensic Science Services (DFSS), Ministry of Home Affairs, Government of India	2011	<ul> <li>Ballistics</li> <li>Biology</li> <li>Chemistry</li> <li>DNA</li> <li>Digital</li> <li>Documents</li> <li>Explosive</li> <li>Narcotics</li> <li>Physics</li> <li>Toxicology</li> </ul>	<ul> <li>(a) Assam</li> <li>(b) Manipur</li> <li>(c) Mizoram</li> <li>(d) Meghalaya</li> <li>(e) Sikkim</li> <li>(f) Nagaland</li> <li>(g) Arunachal</li> <li>Pradesh</li> <li>(h) Tripura</li> </ul>
7.	Central Forensic Science Laboratory, Pune http://cfslpune. gov.in/	Directorate of Forensic Science Services (DFSS), Ministry of Home Affairs, Government of India	2011	<ul> <li>Ballistics</li> <li>Biology</li> <li>Chemistry</li> <li>Documents</li> <li>DNA</li> <li>Fingerprinting</li> <li>Digital</li> <li>Forensics</li> <li>Explosives</li> <li>Narcotics</li> <li>Physics</li> </ul>	<ul> <li>(a) Maharashtra</li> <li>(b) Gujarat</li> <li>(c) Goa</li> <li>(d) Daman &amp; Diu</li> <li>(e) Dadar &amp;</li> <li>Nagar Haveli</li> </ul>

#### Table 3.2 (continued)



Fig. 3.2 Organisational setup of CFSL Kolkata



Fig. 3.3 Organisational setup of CFSL Hyderabad



Fig. 3.4 Organisational setup of CFSL New Delhi



Fig. 3.5 Organisational setup of CFSL Chandigarh

#### 3.3.2 State Forensic Science Laboratories

After the SFSL West Bengal (Kolkata) was established, many such SFSLs began to be set up in different states of India. In 1958, SFSL Maharashtra (Mumbai) was started up, then SFSL Rajasthan (Jaipur) and FSL Tamil Nadu (Chennai) in 1959, SFSL Bihar (Patna) in 1960, SFSL Kerala (Thiruvananthapuram) in 1961, SFSL Orissa (Bhubaneshwar) in 1962 (first setup in Cuttack and in 1971 shifted to Bhubaneshwar), SFSL MP (Sagar) in 1964, FSL Jammu and Kashmir in 1964, and SFSL Karnataka (Bengaluru) in 1967. The Directorate of Forensic Science, Assam (Guwahati), was set up in 1967. It was first established as Forensic Science Laboratory Assam in Shillong (capital of undivided Assam) in 1967. Later after two years, it was shifted to Guwahati under the control of the Director-General of Police Assam, and then a separate Directorate of Forensic Science was created in 2005. In 1969, Scientific section of CID, U.P. was converted into Forensic Science Laboratory. A Government order was issued in the year 1979 for the merger of the Chemical Examiner's Laboratory, Agra and the Forensic Science Laboratory, Lucknow and to develop these two laboratories as full-fledged Forensic Science Laboratories. Initially SFSL Haryana was established at Rohtak in 1973 and then was shifted to Madhuban (Karnal) in 1976. In 1974, SFSL Andhra Pradesh was set



Fig. 3.6 Organisational setup of CFSL Bhopal

up at Hyderabad, which became SFSL Telangana after Telangana separated from Andhra Pradesh, and the new SFSL Andhra Pradesh is recently established at Mangalagiri. Forensic Science Laboratory at Ahmedabad, Gujarat was established in 1974 but has now shifted to Gandhinagar as Directorate of Forensic Science. FSL Punjab (Chandigarh) was set up in 1980, SFSL Meghalaya (Shillong) in 1987, SFSL Manipur (Pangel, Imphal) in 1987–88. In 1988, SFSL Himachal Pradesh was established in Shimla but was shifted to Junga in 1996. FSL Delhi (Rohini) was setup in 1995. Thereafter, in 2000, FSL Mizoram was set up at Aizawl. In 2002, SFSL Chhattisgarh (Raipur) was set up. It was initially a Regional Forensic Science Laboratory in Raipur in Madhya Pradesh. Later, when Chhattisgarh was established as a different state, this RFSL was converted into SFSL Chhattisgarh. In the same



Fig. 3.7 Organisational setup of CFSL Guwahati

year, SFSL Tripura was established at Agartala. In 2003, FSL Andaman and the Nicobar Islands was set up at Port Blair. The foundation stone of SFSL Arunachal Pradesh building was laid in 2004 and the construction of building was completed by 2006 in the premises of Police Training Centre, Banderdewa. In 2005, SFSL Jharkhand was established at Ranchi; in the past, it was started as RFSL Ranchi before the separation of Jharkhand. Later it was converted into SFSL after the formation of Jharkhand state.

There are seven Central FSLs (Table 3.2) and 32 State FSLs (Table 3.3) in India.

Apart from CFSLs and SFSLs, different states in India have Regional FSLs, District FSLs, Mini FSLs and Mobile FSLs. As per the official record available on the official website of DFSS, there are total 80 Regional FSLs (plus 10 more are approved and under process of being established) and 529 Mobile Forensic Units (MFUs)/District Mobile Forensic Units (DMFUs). A representative image is shown



Fig. 3.8 Organisational setup of CFSL Pune

in Map 3.1. These are under the control of the State Forensic Science Directorate under the State Home departments.

### 3.4 Role and Functions of FSLs

The role and functions of forensic science laboratories in India are significant in the criminal justice system and encompass a wide range of activities. These laboratories serve as specialised centres for scientific analysis and examination of evidence, playing a pivotal role in assisting law enforcement agencies, prosecutors, and the judiciary. Overall, FSLs in India have multifaceted roles and functions, ranging from evidence analysis and crime scene support to expert testimony and research. Their work is crucial in ensuring the fair administration of justice. Below are some of the key roles and functions performed by forensic science laboratories in India:

CFSL Pune	Maharashtra Gujarat Goa Daman & Diu Haveli
CFSL Guwahati	Assam Manipur Mizoram Meghalaya Sikkim Nagaland Arunachal Pradesh Tripura
CFSL Bhopal	Maditya Pradesh Uttar Pradesh Rajasthan Chhattisgarh
CFSL Chandigarh	Jammu & Kashmir Punjab Himachal Pradesh (UT) Uttarakhand Delhi NCR & Haryana
CFSL New Delhi	CBI, India
CFSL Hyderabad	Andhra Pradesh Tamil Nadu Kerala Lakshadweep Karnataka Puducherry
CFSL Kolkata	Orissa Bihar Jharkhand West Bengal Nicobar Islands



N.	State FSL	Controlling agency/ authority (present)	Establishment	Forensic divisions (and/or units)	Website
	State Forensic Science Laboratory, West Bengal (Kolkata)	Department of Home and Hill Affairs, Police Establishment Branch, Govt. of West Bengal	1952	<ul> <li>Ballistics</li> <li>Biology</li> <li>Chemistry</li> <li>Physics</li> <li>Questioned Document</li> <li>Toxicology</li> </ul>	http://www.wbfsl.gov.in/
~i	State Forensic Science Laboratory, Maharashtra (Kalina, Mumbai) (Now Directorate of Forensic Science Laboratories, Mumbai)	Home Department, Government of Maharashtra	1958	<ul> <li>Toxicology</li> <li>Biology &amp; Serology</li> <li>DNA</li> <li>General Analytical and Instrumentation</li> <li>Prohibition and Excise</li> <li>Ballistics</li> <li>Physics</li> <li>Cyber Forensic</li> <li>Tape Authentication and Speaker Identification</li> </ul>	https://dfsl.maharashtra.gov.in/en
м.	State Forensic Science Laboratory, Rajasthan (Jaipur)	Directorate of State Forensic Science Laboratory Rajasthan, Govt. of Rajasthan	1959	<ul> <li>Arson and Explosive</li> <li>Ballistics</li> <li>Biology</li> <li>Cyber Forensic</li> <li>Chemistry</li> <li>Chemistry</li> <li>DNA</li> <li>DNA</li> <li>DNA</li> <li>PNA</li> <li>Polygraph</li> <li>Photo</li> <li>Photo</li> <li>Narcotics</li> </ul>	https://home.rajasthan.gov.in/content/ homeportal/en/ stateforensicsciencelaboratorydepartment/ forensiclaboratories/ stateforensicsciencelaboratoryjaipur.html

Table 3.3 State forensic science laboratories in India

	https://www.tn.gov.in/tamilforensic/ history.htm	https://police.bihar.gov.in/CID.aspx
<ul> <li>Serology</li> <li>Toxicology</li> </ul>	<ul> <li>Anthropology</li> <li>Ballistics</li> <li>Biology</li> <li>Chemistry</li> <li>Chemistry</li> <li>Computer Forensics</li> <li>DNA</li> <li>Document</li> <li>Excise</li> <li>Excise</li> <li>Brounents</li> <li>Instruments</li> <li>Instruments</li> <li>Photography</li> <li>Physics</li> <li>Prohibition</li> <li>Serology</li> <li>R&amp;D</li> </ul>	<ul> <li>Physics</li> <li>Ballistics</li> <li>Narcotics</li> <li>General Chemistry</li> <li>Explosives</li> <li>Toxicology</li> <li>DNA</li> <li>Serology</li> <li>Biology</li> <li>Cyber</li> </ul>
	1959	1960
	Home Department, Govt. of Tamil Nadu .	CID, Government of Bihar
	Forensic Sciences Department, Tamil Nadu (Chennai) (The foundation of Forensic Science Department can be traced back to a small laboratory known as the 'Chemical Examiner's Laboratory' in the year 1849. The first integrated 'Forensic Science Laboratory' was established in 1959 by combining three Laboratory', 'Police Laboratory', and 'Prohibition and Excise Laboratory'.)	State Forensic Science Laboratory, Bihar (Patna)
	4	5.

(continued)

Table	<b>3.3</b> (continued)				
Sr. no.	State FSL	Controlling agency/ authority (present)	Establishment year	Forensic divisions (and/or units)	Website
.9	State Forensic Science Laboratory, Kerala (Thiruvananthapuram)	Kerala State Police	1961	<ul> <li>Ballistics</li> <li>Biology</li> <li>Chemistry</li> <li>Cyber</li> <li>Cyber</li> <li>DNA</li> <li>DNA</li> <li>Documents</li> <li>Document-Civil</li> <li>Explosives</li> <li>Physics</li> <li>Polygraph</li> <li>Serology</li> </ul>	https://keralapolice.gov.in/page/forensic- science-lab
7.	State Forensic Science Laboratory, Orissa (Bhubaneshwar) (It was first set up in Cuttack in 1962 and was later shifted to Bhubaneshwar in the year 1971)	Odisha Police	1962	<ul> <li>Ballistics</li> <li>Biology</li> <li>Chemistry</li> <li>Cyber Forensic</li> <li>DNA</li> <li>DNA</li> <li>Lie Detection</li> <li>Physics</li> <li>Serology</li> <li>Toxicology</li> </ul>	https://www.odishapolice.gov.in/?q= Forensic
∞.	State Forensic Science Laboratory, Madhya Pradesh (Sagar)	CID, Madhya Pradesh Police Department	1964	<ul> <li>Biology</li> <li>Serology</li> <li>Ballistics</li> <li>Physics</li> <li>Physics</li> <li>Chemistry</li> <li>Toxicology</li> <li>Explosives</li> <li>DNA Fingerprinting</li> <li>Toxicology</li> <li>Voice Analysis</li> </ul>	https://www.mppolice.gov.in/sites/ default/files/FSL_FInal/FSLHomePage. html

86

https://www.jkfsl.gov.in/	https://dfsl.kamataka.gov.in/en	https://forensic.assam.gov.in/	(continued)
<ul> <li>Narcotic and Chemical</li> <li>Biology/Serology</li> <li>DNA</li> <li>Documents</li> <li>Fingerprint</li> <li>Cyber</li> </ul>	<ul> <li>Audio-Video Forensic</li> <li>Biology</li> <li>Chemistry</li> <li>Chemistry</li> <li>Computer Forensics</li> <li>DNA</li> <li>DNA</li> <li>Narcotic</li> <li>Mobile Forensic</li> <li>Firearms</li> <li>Physics</li> <li>Physics</li> <li>Photography</li> <li>Psychology</li> <li>Questioned Document</li> </ul>	<ul> <li>Ballistics</li> <li>Biology</li> <li>Chemistry</li> <li>Chemistry</li> <li>Drugs and Narcotics</li> <li>Explosives</li> <li>Instrumentation</li> <li>Photography</li> <li>Physics</li> <li>Questioned Document</li> <li>Serology</li> <li>Toxicology</li> </ul>	-
1964	1967	1967	
Home Department, Govt. of Jammu and Kashmir	Karnataka State Police (Directorate of Forensic Science Laboratories Karnataka)	Home Department, Govt. of Assam	-
Forensic Science Laboratory, Jammu and Kashmir (The FSL has two complexes—Jammu and Srinagar)	State Forensic Science Laboratory, Karnataka (Madiwala, Bengaluru)	Directorate of Forensic Science, Assam (Guwahati) (It was first established as Forensic Science Laboratory Assam in Shillong (capital of undivided Assam) in 1967. Later after 2 years it was shifted to Guwahati under the control of Director General of Police Assam and then a separate Directorate of Forensic	
	10.	 	

Sr.		Controlling agency/	Establishment	Forensic divisions (and/or	
no.	State FSL	authority (present)	year	units)	Website
	Science was created in 2005)				
12.	Forensic Science	Uttar Pradesh Police	1969	- Ballistics	https://uppolice.gov.in/pages/en/
	Laboratory, Uttar Pradesh			<ul> <li>Biology</li> </ul>	topmenu/police-units/technical-services-
	(Lucknow)			- Chemistry	(ts)/about-us/en-forensic-laboratory
	(In 1969, Scientific			- Documents	
	section of CID, U.P. was			- Physics	
	converted into Forensic			<ul> <li>Serology</li> </ul>	
	Science Laboratory. A			<ul> <li>Toxicology</li> </ul>	
	Govt. order was issued in			<ul> <li>Lie Detection</li> </ul>	
	the year 1979 for the			<ul> <li>Medicolegal</li> </ul>	
	merger of the Chemical			Instrumental Analysis	
	Examiner's Laboratory,				
	Agra, and the Forensic				
	Science Laboratory,				
	Lucknow, and to develop				
	these two laboratories as				
	full-fledged Forensic				
	Science Laboratories)				
13.	State Forensic Science	Haryana Police	1973	<ul> <li>Ballistics</li> </ul>	https://haryanapolice.gov.in/
	Laboratory, Haryana	Department		<ul> <li>Biology</li> </ul>	AboutUs#Forensic%20Science%20Lab
	(Madhuban, Karnal)			<ul> <li>Chemistry</li> </ul>	
	(Initially it was			<ul> <li>Document</li> </ul>	
	established at Rohtak in			<ul> <li>Instrumentation</li> </ul>	
	1973 and then was shifted			<ul> <li>Lie Detection</li> </ul>	
	to Madhuban in 1976)			<ul> <li>Physics</li> </ul>	
				<ul> <li>Serology</li> </ul>	
				<ul> <li>General Section</li> </ul>	
				<ul> <li>Photo Section</li> </ul>	

Table 3.3 (continued)

https://www.tspolice.gov.in/jsp/ userunits?method=viewUnits	https://dfs.gujarat.gov.in/dfs//CMS.aspx? content_id=147	(continued)
<ul> <li>Ballistics</li> <li>Biology</li> <li>Biomedical</li> <li>Chemistry</li> <li>Computer Forensics</li> <li>DNA</li> <li>DNA</li> <li>Document</li> <li>Forensic Engineering</li> <li>Narcotics</li> <li>Polygraph</li> <li>Physics</li> <li>Serology</li> <li>Toxicology</li> </ul>	<ul> <li>Forensic Toxicology</li> <li>Forensic Physical</li> <li>Forensic Ballistics</li> <li>Forensic Photography</li> <li>Question document</li> <li>Forensic Chemicals/</li> <li>Explosives/</li> <li>Narcotics</li> <li>Blood Alcohol</li> <li>Blood Alcohol</li> <li>Bloogy</li> <li>Serology</li> <li>DNA</li> <li>Psychology</li> <li>Fingerprint</li> <li>Department of</li> <li>Computer Forensics</li> <li>Prohile Forensic</li> </ul>	
1974	1974	
Telangana State Police Department	Home Department, Government of Gujarat	
State Forensic Science Laboratory, Telangana (Hyderabad) (Prior to division of Andhra Pradesh into two states, i.e. Andhra Pradesh and Telangana, this laboratory used to be the SFSL of Andhra Pradesh)	Directorate of Forensic Science, Gujarat (Gandhinagar) (Initially it started as Forensic Science Laboratory, Ahmedabad)	
14.	15.	

Table	<b>3.3</b> (continued)				
Sr. no.	State FSL	Controlling agency/ authority (present)	Establishment year	Forensic divisions (and/or units)	Website
16.	Forensic Science Laboratory, Punjab (Chandigarh)	Punjab Police	1980	<ul> <li>Ballistics</li> <li>Biology</li> <li>Chemistry</li> <li>Chemistry</li> <li>Document</li> <li>Photography</li> <li>Serology</li> <li>Toxicology</li> </ul>	http://punjabpolice.gov.in/(S(lul4 cdvxutsbyaq0exlgkr45))/tech_wings.aspx
17.	State Forensic Science Laboratory, Manipur (Pangei, Imphal) (Now re-designated as Directorate of Forensic Science)	Home Department, Government of Manipur	1987–1988		http://www.manipurpolice.gov.in/?page_ id=4
18.	State Forensic Science Laboratory, Meghalaya (Shillong)	Meghalaya police, Government of Meghalaya	1987	<ul> <li>Biology</li> <li>Chemical division</li> <li>Physical division</li> <li>Questioned Documents</li> </ul>	https://megpolice.gov.in/forensic-science- laboratory-meghalaya
19.	State Forensic Science Laboratory, Himachal Pradesh (At first SFSL Himachal Pradesh was set up in Shimla in 1988. In the year 1996 it was shifted to Junga)	Home and Vigilance Department, Govt. of Himachal Pradesh	1988	<ul> <li>Biology and Serology</li> <li>Chemistry and</li> <li>Toxicology</li> <li>Document and</li> <li>Photography</li> <li>Physics and Ballistics</li> <li>DNA</li> <li>NDPS</li> </ul>	https://himachal.nic.in/index.php? lang=1&dpt_id=174
20.	Forensic Science Laboratory, Rohini, Delhi		1995	<ul><li>Ballistics</li><li>Biology/DNA</li></ul>	https://fsl.delhi.gov.in/fsl/forensic- science-laboratory

90

	https://forensic.mizoram.gov.in/	http://fsl.cg.nic.in/	(continued)
Fingerprinting - Chemistry (Including Toxicology, Narcotics, General Chemistry & Explosives) - Documents (including Computer Forensic Unit & Fingerprint Unit) - Forensic Psychology - Physics - Photo - Crime Scene Management - Quality Management	<ul> <li>Ballistics and Toolmarks</li> <li>DNA/Serology</li> <li>Chemistry</li> <li>Fingerprint</li> <li>Photography</li> <li>Toxicology</li> <li>Questioned Documents</li> <li>Cyber Forensics</li> </ul>	<ul> <li>Biology</li> <li>Chemistry</li> <li>Physics</li> <li>DNA</li> <li>Toxicology</li> <li>Ballistics</li> </ul>	
	2000	2002	
Home Department, Government of NCT of Delhi	Department of Forensic Science Laboratory Mizoram, Govt. of Mizoram	Chhattisgarh Government	
(Initially it was under the administrative control of Delhi Police but later in 1995, the control was transferred to Home Dept., Government of NCT of Delhi)	Forensic Science Laboratory, Mizoram (Aizwal) (Mizoram Forensic Science Laboratory was first created as a branch under CID (Crime) in the year 1998. Later, in 2000 it was shifted under the administrative control of Police Hqrs)	State Forensic Science Laboratory, Chhattisgarh (Raipur) (It was initially a Regional Forensic Science Laboratory, Raipur, in	
	21.	22.	

Table	<b>3.3</b> (continued)				
Sr. no.	State FSL	Controlling agency/ authority (present)	Establishment year	Forensic divisions (and/or units)	Website
	Madhya Pradesh. Later when Chhattisgarh was established as a different state, this RFSL was converted into SFSL Chhattisgarh)			<ul> <li>Serology</li> <li>Narcotics</li> <li>Diatom</li> <li>Excise</li> </ul>	
23.	State Forensic Science Laboratory, Tripura (Agartala)	Home Department, Govt. of Tripura	2002	<ul> <li>Biology/Serology</li> <li>Chemistry</li> <li>Cyber Forensics</li> <li>DNA Typing</li> <li>Document</li> <li>Physics/Ballistics</li> <li>Polygraph</li> <li>Toxicology</li> </ul>	https://sfsl.tripura.gov.in/
24.	Forensic Science Laboratory, Andaman and Nicobar Islands (Port Blair)	Crime Investigation Department	2003	<ul> <li>Chemical Science (Provision type cases, Arson, NDPS, Toxicological analysis)</li> </ul>	https://police.andaman.gov.in/index.php/ en/support-units/criminal-investigation- department.html
25.	State Forensic Science Laboratory, Arunachal Pradesh (Banderdewa) (The foundation stone of FSL building was laid on 14th May 2004 and the construction of building was completed by Feb' 2006 in the premises of Police Training Centre, Banderdewa)	Arunachal Pradesh Police	2004	<ul> <li>Narcotics</li> <li>Questioned Documents</li> <li>Photography</li> <li>Ballistics</li> <li>Biology/Serology</li> <li>Cyber Forensic</li> </ul>	https://ptcbanderdewa.in/fsl.html

26.	State Forensic Science Laboratory, Jharkhand (Ranchi) (In past it was started as RFSL Ranchi, before the separation of Jharkhand. Later it was converted into SFSL after the formation of state)	Jharkhand Police Department	2005	<ul> <li>Ballistics</li> <li>Biology</li> <li>Serology</li> <li>Explosives</li> <li>Physics</li> <li>Toxicology</li> <li>General Chemistry</li> <li>(including NDPS)</li> <li>DNA Profiling Unit</li> </ul>	https://jhpolice.gov.in/sfs//history
27.	State Forensic Science Laboratory, Uttarakhand (Dehradun)	Uttarakhand Police	2006	<ul> <li>Chemistry</li> <li>Biology &amp; DNA</li> <li>Toxicology</li> <li>Questioned Documents</li> <li>Ballistics</li> </ul>	https://uttarakhandpolice.uk.gov.in/ dpages/forensic-science-laboratory- dehradun
28.	Forensic Science Laboratory, Nagaland (Dimapur)	Nagaland Police		<ul> <li>Fingerprints</li> <li>Narcotics</li> <li>Photography</li> <li>Questioned Documents</li> </ul>	https://police.nagaland.gov.in/forensic- science-lab/
29.	Forensic Science Laboratory, Goa (Verna)	Goa Police		<ul> <li>Biology and Serology</li> <li>Chemistry and</li> <li>Toxicology</li> </ul>	https://citizen.goapolice.gov.in/web/ guest/forensic-science-lab
30.	Forensic Science Laboratory, Puducherry	Home Department, Government of Puducherry		<ul><li>Biology and Serology</li><li>Crime Scene unit</li></ul>	https://police.py.gov.in/Contact%20us/ Forensic%20Science%20Laboratory%20 Puducherry.pdf
31.	Forensic Science Laboratory, Andhra Pradesh (Mangalagiri) (After the division of Andhra Pradesh into 2 states Telangana and Andhra Pradesh, SFSL Hyderabad became the	Andhra Pradesh Police			

93

 Table 3.3 (continued)

Website		
Forensic divisions (and/or units)		
Establishment year		
Controlling agency/ authority (present)		
State FSL	State FSL for Telangana and a new SFSL was set up at Mangalagiri)	Regional Forensic Science Laboratory, Sikkim (Ranipool, Gangtok)
Sr. no.		32.

- Evidence Examination and Analysis: Forensic laboratories in India are responsible for the examination, analysis, and interpretation of various types of evidence collected from crime scenes. This includes biological evidence such as DNA samples, fingerprints, ballistics, trace evidence, questioned documents, digital evidence, and more. The laboratories employ sophisticated techniques and scientific methods to extract information, identify patterns, and draw conclusions from the evidence.
- Crime Scene Investigation Support: Forensic science laboratories provide vital support to crime scene investigators. They offer expertise and guidance in the proper collection, preservation, and documentation of evidence to ensure its integrity and admissibility in court. This includes providing training and assistance in evidence handling, evidence packaging, and maintaining chain of custody.
- Scientific Analysis and Examination: Forensic scientists in these laboratories perform scientific analysis and examination of evidence using specialised techniques and equipment. They employ a wide range of forensic disciplines such as DNA profiling, fingerprint analysis, ballistics, toolmark examination, drug analysis, toxicology, questioned document examination, forensic anthropology, digital forensics, and more. These examinations help establish connections, identify suspects, determine causes of death, and provide scientific evidence in criminal cases.
- Expert Testimony and Court Proceedings: Forensic science laboratories in India provide expert testimony in court proceedings. Forensic experts, based on their analysis and findings, present their conclusions and opinions to assist the judge and jury in understanding complex scientific evidence. Their testimony can play a vital role in supporting or refuting allegations and helping the court arrive at a just and informed decision.
- Research and Development: Forensic laboratories also engage in research and development activities to advance forensic science techniques and methodologies. They explore emerging technologies, and contribute to the scientific knowledge base in the field. This helps in improving the accuracy, reliability, and efficiency of forensic analysis, leading to better outcomes in criminal investigations.

## 3.5 Conclusion

Forensic science laboratories in India play a vital role in the criminal justice system by providing scientific analysis and evidence that aid investigations, court proceedings, and the pursuit of justice. They are responsible for the examination and analysis of various types of evidence, ranging from DNA profiling to fingerprint identification, ballistics, toxicology, and digital forensics. The services offered and divisions available also vary. Despite their significance, forensic science laboratories in India face challenges such as limited resources, outdated equipment, and a shortage of skilled forensic professionals. However, the Government of India and



TOTAL NUMBER OF STATE FORENSIC SCIENCE LABORATORIES (SFSLS), REGIONAL FORENSIC SCIENCE LABORATORIES (RFSLS) AND MOBILE FORENSIC UNITS/DISTRIC MOBILE FORENSIC UNITS PRESENT IN INDIA

**Map. 3.1** Representative map of India showing the number of State FSLs (SFSLs), Regional FSLs (RFSLs), Mobile Forensic Units (MFUs)/ District Mobile Forensic Units (DMFUs) (Till 2022)

other state governments have taken several steps to address these challenges, including increased funding, infrastructure development, and capacity building initiatives. Efforts have been made to improve the quality and efficiency of forensic analysis and enhance collaboration with law enforcement agencies and other stakeholders.

Over the last few decades, there has been constant up gradation in the infrastructure, facilities, and instrumentation available in the FSLs. Many FSLs now offer state-of-the-art facilities for analysing a wide range of evidence. The time taken for analysis has also reduced significantly. This, in turn, has resulted in quick turnaround time and hence reduced time taken by the honourable courts to deliver verdicts. Realising the need and increased scope of forensic science over the last few years, many universities, institutes and colleges have started offering several traditional and modern courses in the subject. The subject, Forensic Science, is predicted to grow manifolds in the next few years.

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