# Forensic Evidence in Investigation and Criminal Trial: Importance and its Need

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#### **Abstract**

Today when people are becoming more advanced and technologically aware, people are getting new ideas of committing crimes and not getting caught, leading to an increase in the number of crimes. This has resulted in amendment to the existing laws in order to cater to needs of people. The techniques and methods used by criminals for the commission of crime is improving and therefore it becomes the need of the hour to adapt and build modern techniques of investigation. This is main reason why it becomes important that investigating authorities focus on collection of forensic evidences and their role in determining guilt of any person. Any criminal trial has to undergo through various stages starting from filing chargesheet in the court, collection of evidences, recording them and finally pronouncement of judgment. During this process, there are various types of evidences which play a major role and hold great value in any criminal trial. Through this paper, works already conducted in the field of forensic evidence shall be assessed and an attempt shall be made to suggest suitable reforms and changes that can be made in order to enhance the effectiveness of system.

The principle of "Onus Probendi" which is mentioned under the Evidence Act states that "no person shall be assumed to be guilty merely on assumptions unless proved beyond reasonable doubt". While considering the scope of criminal jurisprudence in India, this rule plays an significant role and is one of the main reason why the use of forensic science has been limited in India. As the time has passed and country has progressed, criminal justice system has incorporated number of modern techniques, but even now a lot has to be done and changed by the authorities. With this paper, attempt has been made to explain the viewpoint behind these laws and legal provisions have been explored. This paper shall analyse the theory of forensic evidence with the help of relevant case laws and improve upon the understanding of people on forensic evidence in criminal trial and its importance. The author believes that the paper shall further play an important role in research on similar topics as well.

Keywords: Criminal justice system; Scientific evidence; Investigation; Prosecution; Legal approach and India.

#### Introduction

In our Country there are various set of institutions, organisations and bodies that put forth and describe set of procedures where it is ensured that any criminal trial should be fair and unbiased. While any criminal trial is initiated, it is ensured

that rights of both the parties to any criminal trial is protected and ensured. Prejudice of any kind is avoided. The police, prosecution lawyers, courts, prisons are the main contributors of the criminal justice system and are responsible for ensuring and protecting rights of both the parties. detention, deterrence, prosecution, punishing and reforming

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any criminal is the main responsibility and role of these stakeholders.<sup>2</sup> The main motive and aim behind ensuring an efficient criminal justice system is to ensure and protect rights of an accused. An secure and peaceful society with trial system is what every human being wants in order to coexist with each other.<sup>3</sup>

Advent of modern age and electronic age has made lives of people easier, but from the other point of view, it has various negative aspects linked with it like difficulty in detection of crime and increase of crime with more rapid pace due to use of internet services, computers. The anomaly lies in the point that on one hand the criminal is not lacking behind in use of recent technology for the commission of crime and on the other side investigating authorities and police officials are still relying on old age crimes to catch the criminal.4 While criminals are more efficient when it comes to use of modern day advanced technology for committing the crime in such a way that they are not caught, police till now trusts and rely on use of old age methods. It becomes extremely crucial that atleast now the legislators understand the importance of police authorities being equipped and skilled in the use of modern day technologies to mitigate crime. Techniques like brain mapping have been proven to be hundred percent accurate and efficient in providing aid to the officials when it comes to determining the guilt of an accused by scientific, medical and judicial ways.5 Various judgments and law commission reports also put forth the same view that legality of such tests shall be put forth as these play a important role in criminal trial and therefore the domestic legislations shall be framed accordingly that such tests are encouraged.

# Research Objective

The aim and objective of this paper is to have a better view and understanding of the role of Forensic Evidences in Criminal Trial and its development in India. The author has made an attempt to give explanation as to evolution of this field and how it has now become an inseparable and indispensable part of our judicial system and how the efficiency of domestic framework has been improved.

# Hypothesis

India as a country still lag behind in the field of forensic which can be concluded by having a fair idea about the laws that exist around the world relating to studying and taking forensic evidence into consideration (Especially laws that relate to Polygraph, Brain Mapping, Narco Analysis etc). The scientists and doctors around the world have medically and technically proven that these techniques provide great help to authorities in deciding culpability and the authenticity of results of techniques like brain mapping cannot be questioned.<sup>6</sup> Various cases that are complicated and intricate can also be solved and understood if modern techniques part of forensic science are used.7 To make the system efficient and prevent any form of further loopholes, it is must that proper legislations are passed in order to make this system lawful. When various judgments and reports by Law Commission of India is taken into consideration a hypothesis can be drawn in the favor of such tests. These evidences play a major role in any criminal trial and the domestic legislations shall be amended accordingly. This hypothesis will be carried forward by the further research in this paper.

## Research Methodology

This paper has been written by adopting doctrinal method of research and the author has primarily relied on the material collected through reliable source of law including judgments and orders pronounced by the Hon'ble Supreme Court of India and other High Courts of India, legislations passed by the Indian Parliament and legislative assemblies of the State.

#### Literature Review

'Criminalistics: An Introduction to Forensic Science' book by Richard Saferstein, published in 2011 gave an insight with regards to modern and new techniques adopted by the police officials apart from describing every stage involved in collection of evidence. Other tests involved in collection of evidences against the accused have also been discussed in this book.

'Forensic Science, Crime, and Terrorism' by James E. Girard, New Delhi: LexisNexis, published in 2017, deals with various aspects related to Forensic Evidences. The reliability of such evidences and credibility of witnesses has also been explained in the book.

A. Ranganathan, 'Law of Lie Detectors: Narco Analysis, Polygraphy, Brain mapping, Brain

Fingerprinting' published by Chennai: Premier Publishing Company in 2008 provides reader with an opportunity to understand the concept of Evidence Act. Relation of evidence with experiments like Brain Mapping and Narco Analysis have also been explained.

The researcher while research read various articles and those articles are cited accordingly as and when relied by the researcher.

## Development of Forensic Science

The development of forensic science can be traced back to 6th century when Chinese people used to practice legal medicine.<sup>8</sup> Now, after technology has been introduced in the field of medical science, even courts have started using medical evidences. Evidences have become more reliable as far as criminal trial is considered with the advent of modernization techniques like DNA profiling, data sampling which have medical and scientific usage. This rapid advancement of technology has led to forensic science being the major contributor in solving and understanding of any criminal case, over the past few years.<sup>9</sup> Authorities have also found significant number of opportunities to solve many cases.<sup>10</sup>

Outline of Criminal Justice System in India

'Evidence' has been defined under Section 3s of the Indian Evidence Act as:

- 1. All the statements which these courts permits or requires to be made before it by witnesses in relation to matters of fact under enquiry; such statements are called Oral evidence:
- All the documents including electronic records produced for the inspection of the court; such documents are called documentary evidence.

Different Forms of Evidence:

There are many types of evidences defined in The Indian Evidence Act (IEA), 1872 which are as follows:

*Oral Evidence:* Section 6 of the Indian Evidence Act, 1872 suggests the provision of recording oral evidence.<sup>11</sup>

Documentary Evidence: Section 3 of The IEA says that all those documents which are presented in the court for inspection such document are called documentary evidences.<sup>12</sup>

*Primary Evidence:* Section 62 of IEA says "Primary evidence is classified as the supreme type of evidence. It means the document itself produced for the inspection of the court." (The Indian EvidenceAct, 1872) It is the evidence which provides the crucial indication in a controversial matter and establishes through documentary proof by providing a original document for investigation by the court.<sup>13</sup>

Secondary Evidence: Section 63 of The Indian Evidence Act says Secondary Evidence is the inferior evidence.

Circumstantial evidence or Indirect Evidence: The circumstantial or indirect evidence are the terms used for the evidences, which try to prove the truths of the case and are able to provide the certainty of the matter by the provision of other facts.<sup>14</sup>

What is Forensic Evidence?

If forensic evidence has to be defined as per layman's term then it can be defined as any evidence that is obtained, by proper scientific examination of physical things and items which provide an link and inference to other facts in order to recreate the scene of crime. It plays an major role in helping the authorities to establish the innocence or guilt of the accused or the possible suspect.15 Investigation of civil as well as criminal proceedings and prosecution relies on analysis of forensic evidence. Any crime that is thought to be related to each other, forensic evidence is used to create a link between the two.16 For example, DNA of any person remains the same throughout his life and can also be used to trace the accused persons ancestors. This can link the offender to various crime scenes or crimes and establish his involvement in the crime. Similarly, tyre marks and skid marks of tyres can determine the speed and direction of the car just before the accident took place. The speed and pressure of the pen tip in documents can determine the mental condition of the person while signing the document in cases of forgery. Fingerprints present on the crime scene play a major role in determining the presence of the accused or any other possible person at the crime scene. It is very important for the police officials to narrow down the list of possible suspects in order to reduce the complexity of the case and thus forensic evidence play a major role in determining the modus operandi to identify, establish and prosecute the suspects of any crime.<sup>17</sup>

## Requirement of Forensic Science

The following factors are responsible for the need of application of science in criminal investigations and trial:

## Societal Change

It is very important for the humans to survive that society make changes in order to be a place suitable for all. Since independence, there have been a lot of changes in India as a society. Industrialization, evolution, competition, diffusion, ideology and acculturation are various causes and factors that led to these changes.<sup>18</sup> Now after these changes it has become necessary and investigating authorities have been forced to adopt the best suitable practices so that process and speed of investigation is not affected. Not only this but the role of any police official starting from first being informed about the crime till the decision of the court has also changed extensively.<sup>19</sup> It has now become compulsory for any police official to adhere to the due procedure of lae rule and improve upon their rules and practices.

## High Chances of Absconding

With an exponential increase in the population of the Country, persons having criminal intentions and psychology has increased. It has become easier for the criminals to abscond. They find easy way to commit crimes and it has become very easy for them to fake their actual identity using lack of development of forensic science and technology to their advantage.<sup>20</sup>

# Knowledge of Technology

With the advancement of technology in India and advent of modern era, even the criminals have become clever and smart in terms of exploring every possible means to escape being caught and for this motive adopting to use of scientific means. Various crimes like "white collar crimes" are increasing every day.21 Therefore it becomes more crucial and important that scientific and new innovative measures are used by the authorities to curb the increasing crime rates. There has been an increase in report of cases relating to Cyber Crimes. Technology enabled theft is most prevalent these days in which people are duped to give their card information and thus leading to theft. This can be done even when the person is living in other corner of the world from the place where the cie has been committed. Therefore it becomes of foremost importance that state take actions to prevent such crimes.

## Availability of Wide Range of Options

Today the options available to the criminal in form of type of cime to be committed is wide. He is not confined to only one boundary or territory. His horizon has expanded and increased significantly to include cross border thefts and cross border terrorism as well.<sup>22</sup> Human trafficking, drug trafficking, illegal smuggling of gold, trafficking of animal body parts etc. are common examples to explain wide range of options and field of criminals.

# More reliable source of Evidence

Eye witnesses as an source of evidence for the commission of any crime has always been considered to be better and most reliable evidence since the inception of the criminal justice system in India. In earlier and old times, the validity of truthfulness of such witnesses could only be decided and ascertained by way of cross examination. High reliability was placed by the court in order to decide the culpability of the person accused on physical medical evidences which were collected and produced before the court as evidence on record. This was highly unbiased and accurate. For example, evidence pertaining to fingerprints or marks related to injury cannot be refused or ignored and therefore such evidence pose a better picture and hold great value in the eyes of the courts while adjudicating any matter.<sup>23</sup>

#### Criminalistics

One of the most important facet and aspect of forensic science is criminalistics. It has been defined by the American Board of Criminology as that field which deals with the concept of identification, gathering, collection, separation, individualization and explication of physical evidences. It has been understood as the application and use of the This entire field is known as practical science or applied science.

• Chemistry: This field of forensics has under its ambit the analysis of substances be it organic or inorganic, study of damages caused due to arsons, analysis and inspection of chlorocarbons which include petroleum, diesel, kerosene, alcohol.<sup>24</sup> In depth analysis and study of psychotropic substances, synthetic fibers, explosives, paint and certain materials collected from crime scene is also included in this field. The main task involved in this is analysis of chemical composition of these substances and drawing inference as to the material involved in the commission of the crime.<sup>25</sup>

- Biology: Biological evidences play an important role in determining the guilt and estabilishing the same before the court in cases involving physical contact like murder, rape, assault, accidents. the biological evidences become very important and it helps in investigation. The samples of blood, semen, urine, hair, nail, saliva etc. play a very crucial and important role in helping in investigation. These are tested and they are used as evidence accordingly in trial.<sup>26</sup> Serology department of forensic science conduct this analysis. The main job and task assigned to this division is scruitny, inspection and examination of the biological materials of the person who has been accused of the crime.<sup>27</sup> Cases of murder, encounter rely heavily on such samples and evidences so that they can be used against the
- Forensic ballistics: For the commission of any serious crime like murder, it is psychology of the criminals that the person has to be shot with an object that ensures hundred percent death of the person. Unfortunately this is the sad reality that despite use of guns being licensed in India, people acquire guns through illegal sources and therefore it is the most used weapon for commission of crime.<sup>28</sup> The examination of firearms and the effect of explosion is covered under the scope of forensic ballistics. Still people are experts in reacting chemicals with each other and create more hazardous chemicals. This branch has very less developed till date.
- Odontology: In many cases like rape, murder or dowry death cases, the accused is smart enough to leave the body of the victim in an unrecognizable state. Odontology is that branch of forensic science that deals with the evaluation and analysis of dental evidences. The teeth of the accused can also be helpful in identifying the victim in many cases. It is an difficult process which involves complex procedure of examining the facial injuries of the deceased before death.
- Medicine and Toxicology: As the old saying in India' death can never be expected, its always unexpected' says, there are various cases in which the death of the victim is sudden, unexplained, unnatural, accidental and violent. The same is covered and studied under this branch of forensic evidence. This study gives answers to questions like who is the victim, age of victim, what kind of injuries have been sustained, where did the injury take place, how those injuries are sustained. Autopsy report prepared by the doctors and

- experts serves the purpose of answering these questions.<sup>29</sup>
- Forensic Evidence and Crime Scene: While conducting criminal investigation of crime scene (place where crime has been committed), it becomes very important for the experts to investigate the crime scene properly and differently taking all due measures and precautions to prevent any form of tampering with the evidences. Physical evidences are those evidences which have a direct connection and link with the conduction of crime and plays a very major role in identifying the crime. Crime Scene is the place where crime has occurred.<sup>30</sup> These evidences reflect various indications like, place of offence, modus operandi of the accused, time of commission of offence, nature of injuries and the gravity of injuries sustained.

## Steps Involved in Collection of Evidences

There are various steps involved when it comes to the collection of evidence like packaging, labeling, sealing and forwarding of samples to the Forensic Science Laboratories (FSLs). The procedure of collecting the sample, investigating them, conducting a study in them and concluding the report is done by forensic scientists present in the FSLs. It has to be ensured at any cost that labeling of the sample is done properly and any form of tampering with the evidences is avoided. It is mandatory that the containers in which samples are stored is clean and shall include proper signatures and other important details. Description of the items collected shall be proper and clear. Testing shall be done without use of any ill practice and any sort of negligence shall be avoided.<sup>31</sup> The sealing of the sample shall be done by concerned authorities as this is a very important step and it is very important that this is done in a proper way and best practices shall be adopted for the same.

# Shortcomings of Forensic Science

Even when the world has advanced both scientifically and medically, limitations are still attached to forensic science and its application. The most vulnerable of all being the process of collection, packaging, labeling and sampling of the Forensic Evidences.<sup>32</sup> In an entire criminal process from collection of evidence and starting of the trial, there are various people who are involved in the stages of an entire criminal process. This process

is at high risk to be exposed to contamination and mishandling at various stages like identification, testing, handling, collection and later at the stage of reporting of the evidence.<sup>33</sup>

It is very easy in a country like India to plant, reconstruct or mishandle the evidence at the crime scene. There are high chances of evidences being mislabeled and altered at forensic labs. In the courts when the trail has commenced it becomes tough for the lawyers of either parties to critically evaluate the evidences and appraise the evidences leading to travesty and lack of justice.<sup>34</sup> The court has to heavily rely on reports of forensic evidence which can be easily planted and tampered.

Role of Modern Day Evidences In Forensic Evidences (Case Laws)

The Indian judiciary from time to time have pronounced judgments where emphasis has been laid upon the sanctity and importance of tests like brain mapping and polygraph, and functioning of investigating authorities. In the landmark case of Dinesh Dalmia v. State<sup>35</sup> Hon'ble Court held that there is no disadvantages attached with the commission of such tests and these are like any normal MRI or CT Scan, whose authenticity can be tested during the trial itself. The third degree torture adopted by the police is considered to be very inhuman and therefore it is advised that such practices shall be replaced with use of modern scientific methods.

In the case of Abdul Karim Telgi, various multinationals and politicians were involved in the commission of the scam. He was the main accused in the case commonly referred to as the Indian Counterfeit scam, which involved production fake stamp papers. It was a very big scam in Indian history which could be solved only with the use of techniques like brain mapping and polygraphy. Scam involved amount of 3, Cr. Rupees which had to be recovered from various politicians and Police officers.

In another case of rape Abhishek Kasliwal was the main accused in the rape case. Polygraph and brain mapping test were conducted on him and through other evidences he was convicted and the case of prosecution i.e,, the rape committed on a 52 year old woman in a car was proved and he was convicted for that offence.

It is high time no that the police officials are provided with enough training and equipments to conduct the investigation and set the criminal trial in motion. The same has been held by the Hon'ble Supreme Court of India in the case of Som Prakash v. State of Delhi.<sup>36</sup> It was observed that such techniques improve the efficiency of investigating authorities. It provides great help and assistance durin the investigation.

Even in the 14<sup>th</sup> law commission report it has been stated that it is very important that rights of any accused is not jeopardized and justice is ensured to the actual sufferer from the crime, which can be made easy by use of modern techniques of investigation and implementing proper scheme for same. These are more accurate and reliable in all sense.

#### Conclusion

Through this paper, author has made an attempt to put forth all the aspects involved in an criminal investigation and trial. All the steps involved have been studied starting from collection of forensic evidence till sealing of the sample as evidence. It can be clearly made out from the present scenario that criminals have been time and again adopting to new technologies and techniques for the commission of crime. They serve their ulterior motive of harming someone for their gain through this. Thus it can be concluded that since the criminals have become very smart and clever to hide their involvement in the crime, it becomes equally important that the investigating authorities adopt to new technology as well. The legislature shall also come up with new legislations that make the use of scientific methods compulsory for police officials and provide them plenary powers to use them for the benefit of society at large and save time.

If the people behind framing of laws in India, are not taking their roles seriously and avoiding what shall be done by them, then they are willfully allowing the law breakers to use this vulnerability in their favor and commit crimes without any sort of fear in their minds. It was observed by the Hon'ble Apex court in Mohammad Ajmal Mohammad Amir Kasab v. State of Maharashtra<sup>37</sup> that the objective of an efficient criminal system is to find out the truth of the case and not to provide protection to the accused for the acts done by him. It is the responsibility of the law makers that they realize the existing loopholes in the criminal system and work towards achieving the objective decided. They should not act as the shied to persons committing felony but shall rather amend

laws to incorporate changes in laws relating to forensic science. An ideal legal system should be vigorous and extensive in such a manner that the harmonious purpose of its existence can be fulfilled.

Apart from the criminals, the authorities shall understand that they are equally responsible for increasing crime rates and less conviction rates. Laws shall be made and existing ones shall be amended in order to incorporate modern investigation practices. Authorities shall act more wisely<sup>38</sup> to protect, safeguard the rights and interest of nation to a large extent and prevent any harm to the innocent public anymore.

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