BRAIN MAPPING, NARCO-ANALYSIS & LIE DETECTOR TEST: RELIABILITY, RELEVANCY AND REQUIREMENT

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INTRODUCTION

The association of Forensic Sciences and the Investigation has become a matter of prime importance in the field of the administration of the Criminal Justice System. The advancement of technology and the benefit arising out of these Sciences for the help in the matter of investigation is noticeable. As the advancement in the technology has helped the victim to be protected from various new crimes like Cyber Crimes, similarly the different sciences have helped in collection of evidences which in normal circumstances would be hard to collect. But when such situation arises, the Forensic Experts come up as a helping hand. The general discussion made in the article2 by Peter Aldridge is focused on the problems faced by Forensic Experts in collecting evidences under prevalent law. It divides the Forensic Evidences in two parts, one is Science which works on 'pure logic' and other is law, which is never static but dynamic.

The problem arises because of difference in their field of evolution and difference in their supplementary objectives. When the matter is pertaining to Science it is generally the logical deduction of a theory meaning that it complements itself by identifying the theory in black and white, the presence of any grey area would itself offend the very basis of science which in turn states that it is conclusive in itself. But when the matter is looked through the eyes of the law then a larger concern is welfare of the society which is a reflection of Justice. The objective of the science it to bring out the truth and rather it is based on the principle of truth and false but when the matter is in consideration with the objective of doing Justice, the means to achieve Justice may change from time to time.3

The attribute of Indian Criminal Justice System which follows the principle of ‘Guilt should be proved beyond reasonable doubt’ can be achieved if equal reliance is made on the forensic

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evidences but the problem lies with the acceptability or admissibility of the expert report. These expert reports are challenged and cross-examined on the basis of the mechanism used reaching such conclusion. But time and again they are made inadmissible on the grounds of lack of procedural formality, under-developed technique used for research, lack of theoretical basis for technique used or doubts are raised on integrity of Institutions which conduct these operations.

The role of Judiciary has become very crucial as the Judges have responsibility to determine the weight of Forensic Evidence and to decide whether to accept it or to reject it. In United States, the Supreme Court earlier established ‘standards’, or more precisely, ‘Guidelines’ for Courts to assess the Forensic Evidences through Frye Test (which laid down standards to accept any forensic mechanism in collecting and analyzing evidences) but later it was ruled down after the Daubert Trilogy decision i.e. Daubert v. Merrell Dow Pharmaceuticals, Inc.⁴, General Electric Co. v. Joiner⁵, and Kumho Tire Co. Ltd v. Carmichael.⁶

In India the problem with Forensic Evidences and use of Forensic Evidences if threefold, first is lack of research & development in this field, Secondly, due to lack of research and development, it becomes difficult for courts to assess the admissibility of the evidences as whether the technique used is reliable for collection and analysis of evidence. Thirdly, in cases where techniques are well established, based on thorough research, and evidences are reliable, but Court has to analyze it with the Part-III of the Constitution of India i.e. Fundamental Rights. This article will be dealing with such problems in a systematic manner. Firstly, the problem between the ‘Science and Expert’ with Law is discussed and later the issues of using forensic techniques in Investigation is dealt with respect to a recent Blast case and lastly it is Concluded with relevant Suggestions.

**SCIENCE VIS A VIS LAW**

The Conventional Evidences and Expert Opinions were considered of unequal weightage in the recent past but drastically as the technology has developed, the scientific evidences have become

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⁴ 509 U.S. 579 (1993)
⁵ 522 U.S. 136 (1997)
⁶ 526 U.S. 137 (1999) (Extending the “evidentiary reliability” requirement to expert testimony.)
more précised. But still both Science and Law operate in two different realms i.e. of ‘calculation & observation’ and ‘Justice’ respectively. ‘Conclusiveness’ of Science on the basis of its exactness becomes incompatible with the weightage given to evidences by Court of law on the basis of substantiveness and corroboration. As per the viewpoint of Law, ‘Hard Science’ can be taken as conclusive evidence but on the other hand ‘Soft Science’ is not so reliable in eyes of law because of its inexact conclusiveness and if both will be given equal reliability, it will jeopardize the core principle of Administration of Criminal Justice System. Hard Sciences comes up with the results which can be easily proven such as DNA profiling, fingerprinting but Soft Sciences deals with psychology of a person and its results are not more than mere observation of the Examiner which may vary with person to person. The mechanism involves obtaining the evidences from the memories of event which has already occurred and alteration to it can be made willfully by the person examined or his memory might fade till the time such examination is done. There is no direct relationship between administration of those drugs and finding out truth as the actual content which comes out in examination can be psychotic manifestation, hallucination, illusion, disorientation.

The other reasons for less reliability of Soft Science are paucity of scientific research to confirm the validity of techniques, quantification of measures of uncertainty in concluding the examination. The absence of applied and scientific research focused on technological innovation, no autonomy of laboratories, no uniform and mandatory accreditation and certification programs, shortage of training and research done by practitioners.

An Expert holds the ground when it comes to Science but with regard to a dispute of Law, he is just a Witness which is used as tool by the lawyers. It is assumed that the expert should be neutral and unbiased but the reality is not the same. The Expert opinion is generally used for proving the guilt of accused but not for bringing up the Truth. The final say is of the Judge who

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7 Hard Science examples can be DNA profiling, Fingerprinting, a blood/alcohol level or the speed of the car which generated a particular skid mark. See Jane Campbell Moriarty and Michael J Saks, “Forensic science-grand goals, tragic flaws, and judicial gate keeping”, Vol. 44, no.5, ABA J., pg 21 (Fall 2005).
8 Ibid, Soft Science examples can be psychiatry or forensic linguistic.
10 Ibid, pg.134
has to decide the case and it leads to gross injustice in cases where expert has led to wrong conclusions and when it happens, who should be blamed for the same. The problem raised in this regard are to an extend valid because of these theories conflicting view they might not function in consonance but according to me the important factor here to consider is that these mechanism are providing with a corroborative help over the conventional evidence which are hard to find in many cases like of the uncorroborated confession or any other crime where there is lack of conventional evidences.

The other problem related with the scientific evidences is of the certification process, as various mechanism of Forensic science is evolving continuously so it becomes the responsibility of the judiciary to certify these processes. Previously during the during the eighty's era the rule of Frye’s test was applied where any new test which was popular and had any bit of backing was used which in turn lead to various incompetent for of test and mechanism for scientific evidence but later in Daubert case this rule was rejected and the following principles were laid down

1. Whether the theory or technique can be or has been tested by the scientist.
2. Whether the theory or technique has been subjected to peer review and publication an aid to evaluating the quality of the testing so to determine its authenticity
3. The potential or known rate of error of the theory or technique when applied
4. The existence and maintenance of standards controlling the technique’s operation
5. Whether the technique or theory has been generally accepted in the relevant scientific community.

After these principles were laid down it has become the responsibility of the judiciary to look upon and follow these principles strictly otherwise this will lead to the inclusion of abrupt processes which in turn will hamper the justice delivery system. Other important features for the forensic experts is firstly to credit the various research like getting it peer reviewed and that the

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13 Supra 12, 1002
14 Frye v. United States, 293 F. 1013, (1923), (holding proposed evidence must be sufficiently established to have gained general acceptance in the particular field in which it belongs)
15 Supra 4
research is accredited from the proper authorities so that these evidences hold the proper evidentiary value secondly the disclosure of the same to the defense is very necessary otherwise this will be against the principle of natural justice so the defense should also be foretold about what kind of evidences of scientific evidences are taken against him so he can be prepared accordingly.16

The deception detection tests (DDT) like polygraph17, brain-mapping18, Narco-analysis19 are useful to know the hidden information related to crime. This kind of information which is known only to self is essential for criminal investigation. The DDTs are used usually by the investigating agencies with the knowledge that the extracted information cannot be used as evidence during the trial. But they contended that it is not dangerous like third degree methods. It is claimed that by using these scientific techniques, it becomes easier for investigating agency to collect the chain of events which enhance the rate of prosecution of the guilty and the surety of release of the innocent20 But recently, In case of Selvi V. State of Karnataka, the Supreme Court of India has clearly stated that DDTs cannot be performed without consent.21 Earlier, In Dinesh Dalmia’s case, the Madras High Court ruled that investigating agency should complete investigation in a reasonable time period and it may involve Scientific methods to boost up the Investigation process and reveal the mystery.22 If it is not done then the benefit of delay is to be given to the accused. Observing the same strength in another judgment, the court had held that the Narco test is a step in aid of investigation. It creates an important foundation for further investigation as it leads to gathering of further evidences. The Supreme Court’s judgment in

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18 Gee JC, Thompson, Guest editorial, special issue on computational neuro-anatomy. IEEE Trans Med Imaging (2007), (a mathematical brain modeling approach where brain surfaces and subvolumes are viewed as complex geometrical patterns and are modeled as 3D continuous mesh models, or deformable shapes, that can be averaged and combined across subjects, and on which statistics can be defined.)
19 Supra 9, pg.27, (Polygraph means an instrument that Records simultaneously changes in cardiovascular, respiratory, and electrodermal patterns as minimum instrumentation standards and a polygraphy test means that portion of the polygraph examination during which the polygraph instrument collects physiological data based upon the individual’s responses to test questions from the examiner.)
21 AIR 2010 SC 1974
22 Dinesh Dalmia v. State, 2006 CriLJ 2401
Selvi V. State of Karnataka23 raised serious concern on performing these tests involuntarily on the basis of violation of ‘Right against self-incrimination’ enumerated in Article-20(3) of the Constitution, which states that no person accused of an offence shall be compelled to be a witness against himself/herself, and Right to life and personal liberty given under Article-21 which was interpreted to include ‘Right against cruel, inhuman or degrading treatment.24

FORENSIC INVESTIGATION: THE PETLAWAD BLAST CASE (2015)25

Investigation is the crucial stage of a Criminal Trial on basis of which the Judgment is derived. The principle of ‘Guilt proved beyond reasonable doubts’ which is followed by Courts to provide benefit of doubt to the accused is raised by the defendant only on basis of ‘Faulty Investigation’. We have been focusing more on ‘Evidentiary value’ of Forensic evidences but we have not focused much on ‘Investigative Value’ of Forensic Science.

Recently in ‘Petlawad’, a small town in Madhya Pradesh, on 12th September, 2015, an explosion caused due to illegally stored explosive detonated with LPG gas Cylinders, which killed around 105 people.26 The explosive blasted was the Gelatin used for blasting in mines, road, wells etc. The prime accused, Mr. Rajendra Kasawa was absconding since the blast and his family members, relatives and helpers tried to hide or to abscond but were arrested later by the Special Investigation Team of Madhya Pradesh from various places like Ratlam, Mumbai, Shirdi.27

The Officials said the explosion took place between 8.05 am to 8.30 am on Saturday and the location of accused’s cell phone was 4.30 pm at Ratlam which is 54 km far from the scene of blast. The phone was switched off after that. The SIT police believed that the accused was alive and so they asked for the permission of the High Court for performing Narco test of Kasawa’s

23 Supra Note 21
24 The Constitution of India, Article-21
26 Ibid
Relatives, Wife and Children.\textsuperscript{28} The High Court allowed the SIT to perform the Narco Test so that it can help in arresting the Prime Accused. The SIT got the permission from High Court of Madhya Pradesh on 19\textsuperscript{th} October, 2015, for Narco Test and Brain Mapping test on five people which included four family members of Kasawa but due to lack of budget for conducting tests, the SIT did not performed the tests. The Gujarat based Government Narco test Unit allotted the period of 2\textsuperscript{nd} November to 10\textsuperscript{th} November, 2015 for the tests. Meanwhile, the bodies of the persons died in blast were given to their families but 25 bodies were unidentified so their DNA samples were sent to State Crime branch Forensic Science Laboratory (Sagar).\textsuperscript{29} But no samples were matched with the Kin’s of accused. Later, samples from four bodies were again sent for DNA Test and this time one of the samples matched with the DNA of accused.\textsuperscript{30}

The questions were raised by Victims on integrity of the Investigation agency as earlier the samples didn’t matched and now the results have changed. In reply to which the SIT said that earlier the samples were taken from hand of the body and now from the Hip Bone. Many of the eye witnesses who got injured in the blasts contended that the accused left the place before the blast took place and so he didn’t die in the Blast. The case is still pending and SIT has not yet decided whether to stop the Investigation with the DNA reports which proves death of accused or to continue with Investigation on basis of Eye-Witnesses statements which states that accused was not there at the time of blast.

PLAUSIBLE QUESTIONS TO BE RAISED

The whole incident and investigation mentioned above, raises many different questions.

- The first question to be raised here is regarding the reliability and requirement of Soft Science techniques in Criminal Investigation.


\textsuperscript{30} Petlawad Blasts, “DNA report reveals Petlawad blast accused was killed”, Deccan Herald News (7th December, 2015), Retrieved From http://www.deccanherald.com/content/516247/dnareportrevelspetlawadblast.html, (Last accessed on 26/09/2016)
• Secondly, whether weightage should be given more to DNA report or to the statements made by the Eye Witnesses.
• Thirdly, the question also arises regarding the relevancy of DNA Reports vis-à-vis Narco Analysis and Brain mapping reports.

If Court goes through the New DNA report which proves that accused died on the Spot, then the case is Open and shut case and no more investigation is required but on the other hand if Court gives more weightage to traditional evidences like Eye-Witnesses Statements and corroborate it with Chain of Events like absconding of family members, workers, partners and tracing of Cell-phone of accused at some other place, it raises doubts on death of the accused. The Degree of relevance and reliability over any of the side leads to a Conclusion different then the other one.

Further, the question also arises regarding the relevancy of DNA Reports vis-à-vis Narco Analysis and Brain mapping reports. As Court has ordered earlier for the Narco Tests and Brain Mapping tests of five people, which were delayed due to lack of funds, such Tests can be performed by SIT now or SIT should stick to the DNA reports as it is a Hard Science. All the above questions are important to be focused. Such kind of faulty ‘Investigation’, gives space to Accused to enjoy benefit of doubt. It has become easier to raise doubts and get away with the Crime and with such critical and contradictory ‘Investigation’ for collection of Evidences, Justice can’t be reached.

For reaching to the answers of above raised question, it is important to go through the basic lacunas prevailing in the system which give space to such doubts and leads to rejection of forensic evidences. The Forensic Science fraternity in India lacks in some basic traits like the mandatory standardization, certification, and accreditation, unanimity in interpretation between disciplines and within disciplines, a body for research is to establish limits and measures of performance and well trained judicial framework which can adequately discover the “scientific truth.
CONCLUSION AND SUGGESTION

The issues raised in the paper were not only for creating more doubts on the ‘Forensic Investigation’ but to aid something new to answer such ‘Plausible Questions’. The basic issue regarding Reliability & Relevancy of the Forensic Techniques is the Independency of the Forensic Institution which is conducting the investigation. The Indian Criminal Justice System provides for a structure where the Investigative Institution is in control of State Executive Body. The investigation maybe a biased one, if it involves Pro-Government Accused then it may be biased towards the accused or on the other hand if it involves someone which opposes government, the investigation can be focused on making him guilty not on finding the truth.

Forensic Investigation is a useful in now days because of changing pattern of Crime and organized way in which Crime is committed. If an Investigation spot is compromised and evidences are not collected on time then such investigation can be doubted on the basis of delay, improper sample collection etc. If the Investigation agency is Independent then it will go for collecting the evidences from both the sides i.e. prosecution as well as defendants which will bring out the truth. As we follow the principle of ‘Saving the Innocent’, many innocent people who are framed under some Crime can be saved. And on the other hand, the wrongdoers can be held ‘Guilty beyond reasonable doubts’.

Here the proposal is to include the inquisitorial procedure in the working of the Criminal Justice System where there is an officer of a Forensic Investigation who conducts the forensic investigation with the police. The contention regarding the use of these forensic science is the lack of Supervision over the same and equal weightage to forensic evidences, so this mechanism could help to sort out the problem as it would lead to supervision over the investigation and the problem of proving the evidences collected during the investigation retrospectively would also be ruled out as the investigation was already under the supervision of Forensic Expert. The expert should be devolved with post of the Judicial Officer which in term would make their admission to the particular case of more importance which as such in the adversarial system is considered to be of a mere witness and the sanctity of their evidence is questioned upon and upon, so to negate the particular situation the authority should be attributed over them of Judicial Officers by the Judiciary.
It is suggested to incorporate the following features in Forensic Investigation System to make it more reliable and admissible in Indian Criminal justice System.\(^{31}\)

- To establish standard terminology for reporting and testifying on forensic sciences.
- To fund peer-reviewed research.
- To allocate incentive funds to state and local jurisdictions so that administrative control of forensic science laboratories becomes independent of law enforcement.
- To encourage research on human observer bias and sources of human error.
- To work with and fund the National Institute of Standards and Technology for establishing national standards and code of ethics for all forensic science disciplines.
- To attract students to the physical and life sciences to pursue graduate studies in forensic sciences.
- To launch a nationwide fingerprint data interoperability.

In conclusion, DDT’s (Brain Mapping, Narco-Analysis, Lie-detection tests), are under-developed techniques in India and it is not clear to what extent such techniques can be held reliable. But on the other hand, such techniques are very relevant in today’s Crime Investigation and required for efficient investigation without undue delay. According to me, the involuntariness of the tests should not be a bar to its admissibility at Investigation Stage. Like in the Petlawad Blasts Case, where the Evidences are so contradictory, such tests should be performed, even without any consent because the basic principle of the Criminal Justice System is to bring the truth and provide Justice to people, not just to shut the cases by reaching any conclusion. Further, it is also needed to go for an Independent Investigating Agency which has the responsibility as well as authority to conduct all such Investigation and to undergo research and developmental plans for such techniques and to have standard operating guidelines for conducting such tests.