Abstract: Modern technologies have revolutionized the spectrum of commission of the crime, and in that respect; it is significant that the prevention of crime and its strategies should be evolved to keep at the pace with the scientific revolution. The impact of forensic evidence on the criminal justice system is undeniably crucial due to advancements in science and technology. The investigation, forensic analysis and role of such evidence in the trial of the civil or criminal matters are notably lacking academic attempt to find a practical coherence and correlation among these three aspects encircling victim and accused. This paper briefly discusses the role of Forensic Science in criminal justice and its impact in the criminal justice system of Pakistan. This paper engages in the analysis of Forensic Science Agency Act 2007 with an aim to highlight the shortcomings in this law to improve it further.

Key Words: Fair Trial, Forensic Science, Forensic Evidence, Forensic Law, Criminal Justice

Introduction

Forensic science is a vital instrument of the criminal justice system. The criminal law of a country always takes its motion with the initiation of investigation and followed by prosecution. The whole story of prosecution in a criminal trial entirely rests upon the evidence and material collected during an investigation (Becker 2013). Investigation agencies in general, have an important role in laying down the foundation of a criminal case, especially in bringing out actual and true facts on record (Hart and Adams 2013). In this context, forensic science plays a significant role in verifying the material evidence for an investigation material. Without scientific and technological tools and methods, neither the administration of criminal justice nor the protection of fair trial rights could be realized (Marks and Bowling et al 2017). Forensic science is considered as the backbone of the criminal justice system. It certainly assures the accuracy and validity of facts in a particular case when it comes before the courts (Koosed 2009).

Similarly, forensic science and technology intrinsically ensure the protection and implementation of the constitutional right to a fair trial (Constitution of Pakistan Article 10). The traditional and conventional ways of investigation are not enough, as a commission of crimes using modern technologies has challenged it; therefore, it is difficult to trace out the facts without using modern techniques and tools (McWen 2010). However, there are chances that forensic technology leads the investigator to the right direction (Murphy 2007). In Pakistan, forensic science and technology is almost a newly born legal discipline (Mateen, Tariq et al 2018) both for state agencies and as well researchers. It needs a categorical analysis mainly in two directions, firstly, understanding and linking criminal justice with forensic science and technology; and secondly the implementation and developmental approach towards forensic science agencies which also includes the capacity building of forensic experts, establishment of more agencies and equipment of agencies with modern and advanced tools. The instant study being legal research mainly focuses on the first approach from above, which is to develop an understanding and linkages of criminal justice with forensic science and technology, and presents a critical analysis of the
Punjab Forensic Science Agency Act 2007 (hereinafter as PFSAA or the Act). Therefore, the paper is divided into two parts. The first part deals with the impact of forensic evidence on the criminal justice system and the role of Forensic Science in the criminal justice system of Pakistan; and second part deals with the analysis of the laws relating to the Forensic Science Agency which is PFSAA 2007 as mentioned above, with an aim to highlight the crucial role of the Agency in the criminal justice system, and to discuss the shortcomings in this law to improve it further.

Research Methodology

This research is qualitative research and it is based on doctrinal research methodology for legal research. Deductive content analysis is applied on available primary and secondary resources on print and online media.

Forensic Science and the Criminal Justice System

The relationship between forensic science and fair trial is an intrinsic and crucial one. An unfair and partial investigation certainly violates the pre-trial rights of the accused and leads to prejudice the accused person during trial if the materials collected during the investigation are exhibited against him/her. Similarly, an investigation without modern scientific techniques coupled with the personal biasness of prosecution witnesses would also amounts to a violation of the fair trial right of an accused person (Findley 2008). The more investigation is based on scientific tools and techniques, the less would be chances of violating the constitutional right to a fair trial (Garret, 2016). Thus, scientific and technology-based investigation can lead to definite results and could ensure the right to a fair trial in both cases of acquittal and conviction (Giannelli 2004). It is also a fact that in the absence of modern forensic science laboratories and agencies, it would be difficult to ascertain the actual facts in the Court (Mateen, Tariq et al. 2018).

Literature Review

In Pakistan, forensic investigation flourished in the wake of terrorism and suicide attacks in the country. There was a need to deploy different forensic techniques, including DNA analysis, to identify the perpetrator and victims during an attack (Essa 2019). Despite rigorous use of these techniques in identifying the dead bodies of the victims, this realm lagged behind in the investigation of criminal cases. According to Khawaja Khalid Farooq, ex head of the Pakistan National Counter Terrorism Authority, the forensic reports in the country is no more than postmortems, chemical analysis and serology a consequence of eye witness to the crime (Farooq and Waheed 2013). According to National Police Bureau each year, 3000 cases of rape are being reported whereas on the other hand, the conviction rate is less than four per cent. Despite the advancement of prosecution and evidence collection techniques in the cases of rape, Pakistan is still using conventional methods (Cheema 2016) to ascertain whether the victim gave consent or not (Munir et al. 2021). Since the year 2001, the government has been revamping the forensic studies infrastructure across the country to aid criminal investigation (Faisal 2018).

The National Forensic Science Agency (hereinafter as NFSA) was approved by the Executive Committee of the National Economic Council (hereinafter as ECNEC) in the year 2002. The agency has different departments dealing with crime scene investigation, trace chemistry, questioned documents and digital forensics. The NFSA was aimed at establishing forensic laborites across the country, but it has not reached its goal yet (Faisal 2018). In Punjab, the Punjab Forensic Science Agency Act (PFSAA) was passed in the year 2007, which led to the formation of the Punjab Forensic Science Agency in the year 2012. Despite its establishment, the forensic investigation is facing serious issues concerning collection, preservation of evidence, budgetary issues and the bulk of cases being reported every day, whereas there is only one agency dealing with the forensic investigation in the province (Punjab Forensic Science Agency, 2012).

The question that whether forensic science has any role in improving the criminal justice system of Pakistan? Requires quantitative analysis of certain data collected from different stakeholders in order to deduce definite and certain results. In our case, only theoretical arguments will be put forward based on available literature and experiences. Every criminal investigation requires certain protocols and standards to be observed (Giannelli 2004). In Pakistan, these standards are somehow codified in the shape of the Police Rules, 1934; however, most of the rules are outdated or do not meet contemporary needs (Munir et al. 2021). Although forensic science laboratories were working in Pakistan before 2012, the functions of those laboratories were limited to the examination of case property or in some cases, DNA and swabs only (Faisal 2018). Until the establishment of the Punjab Forensic Science Agency in 2009, there were no such standards and protocols being observed during the investigation.
However, PFSAA, since its establishment, offers services including a computer forensic unit, a crime and death Scene unit, forensic photography, firearm and tool marks, fingerprints, questioned documents, toxicology and trace chemistry (Punjab Forensic Science Agency Guidelines, 2012).

Learning from the experiences of western and European countries, the criminal justice system could be made more efficient and effective if sufficient funds are allocated to forensic science laboratories (Murphy 2007). In short, forensic science could bring revolution in the arena of the criminal justice system.

**The Laws dealing with Forensic Science in Pakistan**

To date, there is only one enactment known as Punjab Forensic Science Agency Act, 2007 (hereinafter PFSAA or the Act), which only deals with the establishment of the agency and its powers and functions. Besides PFSAA, a few provisions of the Criminal Procedure Code (Section 510 of Cr. P.C, 1898), Qanoon-e-Shahadat Order (Articles 59 to 61 and 65 of the QSO, 1984) and the Investigation for Fair Trial Act, 2013 slightly refers to the opinion of the expert and its admissibility in evidence before the Court of law. In addition to these, Police Rules 1934, as amended in 2002, however, refers to the protocols to observe during the investigation, especially when the same requires forensic examination (Chapter XXV of Police Rules, 1934). Except the abovementioned enactments and rules, there is no exhaustive code or body of rules, that exclusively deal with the forensic science standards and protocols. The Punjab Forensic Science Agency has published guidelines, which contains protocols and standards to be observed while referring a case to the agency on its official website, but till date, no rules have been framed to this effect.

Similarly, the NFSA was established as an autonomous body by the ECNEC in 2002; however, the same has no enactment behind it. It can be inferred that NFSA can be dissolved at any time through an executive order in the absence of a legislative instrument in that respect. In a nutshell, it can be argued that there is a need for an exhaustive and comprehensive law dealing with the forensic science. On the other hand, the lack of proper legislation on the subject reveals the lack of the government’s political will for this purpose. It is a serious drawback and a loophole affecting the very center of our criminal justice system that a very important subject lacks proper legislation and rules. It can also be inferred that only with relevant Federal and Provincial legislation will it be possible to foresee relevant recognition of forensic science as an important pillar of our criminal justice system (Strutin 2009).

**Critical Overview of Punjab Forensic Science Agency Act, 2007**

PFSAA was formally enacted on October 30th, 2007, through An Act of the Provincial Assembly (Farooq and Waheed 2013). The PFSAA contains 17 sections in all. Its objects and purposes are laid down in the preamble to the act, which states: "Whereas it is expedient to provide for the establishment and constitution of an Agency for the purpose of examination of forensic material and rendering of expert opinion in respect thereof before Court, tribunal or other authority and for connected matters" (PFSAA 2007). The object of the Act is crystal clear as it is aimed at establishing an agency with twofold purposes: one examining forensic material (i.e. evidence) and two renderings and securing expert opinion in respect of such evidence. The Act has a scope of its application only to the extent of Punjab province, and the Punjab Government is the forum of supervising the annual performance report of the PFSA, which is submitted annually (PFSAA 2007).

Section 4 lays down a detailed list of functions to be performed by the Agency, which includes a forensic examination of material of investigation, and preparation of an expert opinion on the forensic examination of such material. It is noteworthy here that among those matters which seem to be missing part from the legislation for forensic science and criminal administration to progress in a working liaison, most of those matters are mentioned in under section 4 (PFSAA 2007). A perusal of provision under this section reveals that section 4(e) provides that the agency is empowered to seek clarifications from the person involved in the collection or handling of forensic material, which suggests that the investigation officer, police and forensic expert are to work in a working collaboration. Of note, however, under clause 4(g), the PFSA is invested with the necessary power to proceed with the investigation where the government has called for it under its directions for that purpose. In doing so, the PFSA will collect forensic material and follow the special care and protocol under PFSAA which are developed for forensic examination of material evidence such as use of scientific methods for collection, transmission, and preservation of any material from the crime scene (PFSAA 2007). It seems to be a matter where the legislations for instance, Investigation for the Fair Trial Act 2013, where the law authorizes investigations to process using scientific or
technological evidence but in a limited scope of anti-terrorism activities or wherever government takes action to start an investigation with the assistance of PFSA the agency will collect such forensic material from the crime scene. Additionally, the clause 4(h) highlights the authority of PFSA in respect of forensic database, for that purpose PFSA will maintain a record of the forensic examination of the material evidence and record the information regarding vital points to identify a person who is found to be whether accused of an offence or a victim of an offence (PFSA 2007). This clause reveals that the discussion about a forensic database and its maintenance can also be started from this point of law only if a detailed prescribed procedure is devised under this PFSA. It is to note that clause 4(h) lays down that the agency is empowered to recommend the procedure for the collection, preservation and handling of forensic material (PFSA 2007). This clause seems to be important if read within the scope of Police Rules 1932 because the recommended procedure under PFSA for collection, preservation and handling of forensic material under this clause could also be used to improve some missing information in the Police Rules 1932.

The Punjab Government will review the annual report of PFSA which is a supervisory role of the government, and the Director General of PFSA will hold the administrative power over the PFSA (PFSA 2007 sec. 5&6). Moreover, for the appointment of the Director General of PFSA, the law introduces a mechanism of recommendations of the Search Committee and the members of the Search Committee will be appointed under the PFSA 2007 (PFSA 2007 sec. 7). The administrative and financial powers of the Director General are explained under section 8 of the Act (PFSA 2007). The most important section of the Act is section 9 and 10 regarding expert and the manner of presenting expert opinion (PFSA 2007). Section 9 provides for “expert”, which shall be deemed as appointed under section 510 of Criminal Procedure (Criminal Procedure Code 1898) and a person skilled in forensic material under section 59 of law of evidence (Qanoone Shahadat Ordinance, 1984). Moreover, section 10 provides for expert opinion in that if a court, tribunal or authority sends a forensic material to the agency for examination and expert opinion. It must be noted, that forensic material so send should be in question under an investigation or proceeding before such court or relevant tribunal or authority. Before presenting the expert opinion or the report in the court, it should be authenticated according to the procedure prescribed by the sec. 10, which also includes the requirement of providing the name, designation, and signature of the expert who prepared the report and carried out the examination (PFSA 2007 sec. 10).

Furthermore, section 11 provides for the clarification in case of a certain opinion when it is not clear, then the Court, Tribunal or authority may refer it to the Agency for clarity on a particular question (PFSA 2007). The Agency is bound to send the clarification regarding that particular question to the Court or Authority, and in case of non-submission; the Agency shall state its inability. Any person aggrieved from the opinion of the expert in the Court may also apply for re-examination of a forensic material by the Agency under section 12 (PFSA 2007). Section 11 and 12 of the Act seem to be purposely inserted in order to secure and protect the fair trial rights of the accused and as well any other person party to any litigation, whereas section 13 provides for punishment for the experts who render false or incorrect opinion before the Court, the punishment that may extend to six months and fine extending to fifty thousand rupees (PFSA 2007).

Besides these functions, the agency is empowered under the law to propose improvements in the methods of forensic analysis and suggest modern techniques to make the examination process better (PFSA, 2007).

After taking into consideration the substantive provisions of the Act, it is to be inferred that the law as drafted shows excessive efforts of the legislature, and it shows intent to incorporate the basic elements of the fair trial in the PFSA and to enable the Agency to function in a transparent manner. The problems that are faced by the Agency will be dealt in the next section.

Issues faced by the Punjab Forensic Agency

Institutional Issues

Among other issues, there is only one forensic laboratory set up at Lahore, whereas there are numerous crime scene units set up at different cities of Punjab. The fundamental task of the crime scene units is to reach the crime scene and collect the evidence and transport the same to the forensic laboratory at Lahore. The travelling time consumed between different cities to Lahore has caused great difficulty. The Forensic Unit set up at Rawalpindi along with Faisalabad and Sargodha have complained that the duration of transmission of evidence has serious implication on the evidence. Especially in the cases of
Rape where the DNA test is to be conducted within a few hours of collection (Faisal 2018).

**Procurement of Equipment**

Another issue faced by the Forensic Agency is the lack of funds to procure equipment. Rs. 252 Million was approved in the year 2017 for the procurement of complete laboratory equipment, whereas due to the deflation of rupees, the project has halted. Almost 78% of the equipment has been purchased. The target of the project was to procure the general laboratory instruments, including a DNA analysis kit (Munir et al. 2021).

**Overburdened**

Over the population of more than 30.2 Million only one forensic laboratory which is set up at Lahore is rendering the services. The numbers of cases are increasing day by day with the back log of a huge number of cases. Therefore, it is necessary to set up forensic agencies at every district level. It is necessary that the capacity building and learning of the staff working at the laboratories be done in order to dispose of the cases at the earliest instance (Mateen, Tariq and Rasool, 2018).

The forensic laboratory set up under the PFSA are credible in the eyes of justice, the judges disregard any report from a non-governmental laboratory. The results given by the Punjab Forensic Science Agency attain finality and even sometimes question the credibility of the opinion given by the doctors during the medico-legal examination, therefore, it is the time of need to ensure the laboratories are set up at district levels for the expeditious and proper forensic analysis.

**Lack of Liaison between Police department and Forensic Agency**

There is a lack of liaison between the police department and forensic agency, and for the same reason, the evidence remains in the police custody for a length of time without any timely transmission to the forensic laboratory for analysis. The forensic experts are not called upon by the police at the crime scene, which is the major impediment in the way of justice. If the forensic scientist gets the hold of the whole crime scene in the case, it would be convenient for them to analyze the sample. Moreover, the sample would reach the forensic laboratory in a few hours (Munir et al., 2021). Forensic Experts have to rely on the map and sketches made by the police, which are sometime too vague and ambiguous for the experts to ascertain the situation.

**Conclusion**

Forensic science which is regarded as backbone of the criminal justice system could bring a real change, if it is introduced at the ground root level. The first and foremost problem faced by investigation agencies at the ground level is that the largest investigation department of police is totally detached from them, and police work is dependent upon the operation branch of the Police department in terms of funds, facilities and human resources (Munir et al., 2021). It is to argue that if technically expert staff well trained in forensic science and technology are recruited in the police department to work with the police on the ground, most of the cases would end with certain and accurate results. Moreover, forensic science laboratories need to be established at the divisional level, which could be easily accessible to investigation agencies (McEwen, 2010).
References


Code of Criminal Procedure, 1898


International Covenant on Civil and Political Rights, 1966

Investigation for Fair Trial Act, 2013


Police Rules, 1934


Qanoon-e-Shahadat Order, 1984


The Constitution of the Islamic Republic of Pakistan, 1973

The Punjab Forensic Science Agency Act 2007

Universal Declaration of Human Rights, 1948