

**Supervised Dissertation
ON**

**Problem & Prospects of DNA ACT 2014 in Crime Investigation:
Bangladesh Perspective**

Submitted to

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Declaration

I hereby declare that the thesis titled "Problem & Prospects of DNA ACT 2014 in Crime Investigation: Bangladesh Perspective" was entirely prepared by me under the supervision of Monira Nazmi Jahan, Senior Lecturer, Department of Law, East West University, for my graduation requirement. I further declare that the content of the work has never been used in any evaluation and is completely my responsibility. The contents of other sources are correctly recognised in the references, and other people's and institutions' work have been appropriately cited.

Ariful Amir

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Abbreviations

DNA= Deoxy Ribo Nucleic Acid

USA= United States of America

UK= United Kingdom

NFDPL= National Forensic DNA Profiling laboratory

DMC= Dhaka Medical College

GDPR= General Data Protection Regulation

WCRPA= Women and Child Repression Prevention Act

CRPC = Code of Criminal Procedure

Abstract

DNA Act 2014 could have brought a revolutionary change in the criminal justice system of Bangladesh; however, it could not do so. However, this particular forensic law in Bangladesh has enormous prospects in the criminal investigation and criminal justice system. However, it could not show that much impact due to some lackings in the DNA law and some related laws. After enacting the DNA Act of 2014, people regarding the criminal justice system were very optimistic as they had witnessed the benefit of frequent use of DNA evidence in criminal investigation in other countries. However, after a few years, they are losing hope looking at the development of DNA science in the criminal investigation in Bangladesh. Where other countries regularly practice forensic science in a criminal investigation, we are still in the developing stage. Though we can see colossal case decision based on DNA evidence in the civil matters, the rate is not up to the mark in the criminal matters. Recently the infrastructural development regarding DNA technology in Bangladesh can be visible. However, the Act is not functioning as it intended. In this paper, the author intends to look for the loopholes why the DNA Act 2014 is not giving results as intended and gives recommendations regarding how the Act can be developed and make it functions as intended.

Chapter 1 Introduction

1.1 Introductory Statement: Nowadays, we cannot imagine a single industry that is not influenced by science. We rely on science not only to make things easier but also to provide reliable results. With science, we may deduce things that were unthinkable previously. Applying science to criminal investigations saves time and helps to minimise unwanted inconveniences for innocent parties.

The second chapter of this paper look at the origin of DNA science and its use in criminal investigation, and the current status of DNA evidence in Bangladesh.

In chapter three, the paper explored how other countries use DNA science in Crime Investigation. In this part, the author discusses some cases where DNA science helps in criminal investigation and deciding the cases.

In chapter four, the paper discussed the prospects of the DNA Act 2014 in case of crime investigation, the prospects of DNA science in rape case investigation, the prospects of DNA laboratory and National DNA database and the procedure of collecting DNA evidence and preparing DNA profile under the Act.

In the fifth chapter, the author discusses the loopholes of the DNA Act 2014 and how this Act can be made better, and the sixth chapter discusses the conclusion.

1.2 Objective of the Research

The research is to understand the importance of Forensic Science in the case of Criminal Investigation, To compare Criminal Investigation with DNA profiling in other countries, To understand the DNA Act 2014, to find out the loopholes of the Act, to find out the way to improve it and to find the necessity of Forensic Evidence in case of Rape and Murder.

1.3 Research Methodology

To achieve the purpose of the dissertation, the research will be conducted using the qualitative research approach. This research will include discussion and analysis of legislation, textbooks, articles, journals, blogs, newspapers, websites and international instruments. To conduct this research, the author has prioritised information from primary and secondary sources.

This is qualitatively oriented research, where the research method is based on collecting and analysing data to understand the notions. The author has used the Statues and books as primary sources for this research and national and international journals, newspaper articles, online journals, and online journals and blogs as secondary sources.

1.4 Research Question

- i) What is the Problem and Prospects of the DNA ACT 2014?
- ii) Why the Act is not working as intended?
- iii) How can the Act be developed?

1.5 Literature Review

In a research paper based on DNA Act in Bangladesh and why it is not working in our country, the author claims that the most significant problem the criminal justice system is facing today is the substantial backlogs of unanalysed DNA samples and other biological evidence collected from the crime scene or sexual assault and murder.¹ However, the author did not detect it as a loophole and recommended overcoming this situation.

¹ Al-Hamadi J, 'Laws In Bangladesh On DNA Technology: Why Isn't It Working As Intended' (*Academia.edu*, 2022)
<https://www.academia.edu/41220312/Laws_in_Bangladesh_on_DNA_technology_why_isnt_it_working_as_intended> accessed 7 May 2022

In a law analysis journal, the author claims that there are many cases unsolved due to the inappropriate use of forensic evidence in Bangladesh.² However, that is not the only reason. There are so many reasons collectively which are causing the DNA evidence to be ineffective in the criminal justice system in Bangladesh, and the author did not give attention to that. In an article, the author states while pointing out the benefit of doing DNA testing in sexual assault that his DNA profile can be added to the DNA database even if the perpetrators are not prosecuted.³ This idea can be beneficial, and DNA testing should be mandated in all cases of sexual assault; even if the perpetrators cannot be identified, they can be added to the DNA database, which can be helpful later if the perpetrator is found engaged in another crime. In a book written on DNA technology in the justice system, Dr. Sharif Akhtaruzzaman describes DNA technology from medical and legal perspectives. He describes almost every possible prospect of DNA technology in crime investigation. He also gives detailed information about the DNA sample analysing, pictures of DNA testing results, and discusses cases solved by DNA testing in both Bangladesh and other countries. However, he did not cover the topic from the perspective of Evidence law.

1.6 Limitations of the Research

The study is based on the DNA Act 2014, a new law in nature and type. As a new law, there are few books, blogs, articles, and journals regarding DNA Act 2014. There are a less criminal cases where DNA evidence is used. Thus, we have to look for judgment in other countries like India, the USA, and the UK. Hence the author faced resource and time limitations. As there is little published material regarding this study, I mainly complete my work based on online articles, newspapers, online published journals, and case studies of both Bangladesh and other countries .

² 'The Importance Of Forensic Evidence In Our Justice System' (*The Daily Star*, 2022)
<<https://www.thedailystar.net/law-our-rights/law-analysis/news/the-importance-forensic-evidence-our-justice-system-1755037>> accessed 7 May 2022

³ 'The Importance Of DNA In Sexual Assault Cases | RAINN' (*Rainn.org*, 2022)
<<https://www.rainn.org/articles/importance-dna-sexual-assault-cases>> accessed 9 May 2022

Chapter 2 Historical Background of uses of Forensic DNA Science in Crime Investigation

2.1 History and Previous use of DNA Evidence

DNA is an acronym for Deoxyribo Nucleic Acid. It is present in every cell of the human body. It contains a cell's genetic material. DNA is similar to a code. It can be divided into sections which are called Genes. Genes contain the instruction on how our body will build. It will choose what will be our skin, eyes, hair colour, how we will look like, and every other biological characteristic is saved into the genes of DNA.⁴ 99.9% of the sequence of DNA is almost similar in every human body, but the rest is enough to be used to find the dissimilarities between specific individuals. Except for Identical twins, the DNA sequence in all humans is not similar. Thus without the identical twins, every human carries a unique DNA Sequence.⁵ The process of finding an individual's DNA characteristics is called DNA profiling. It is also called DNA Fingerprinting. It is used in Criminal Investigation, Paternity Testing, and other medical research purposes.⁶

The first use of DNA for identifying some individuals was in 1980.⁷ Jeffrey Glassberg filed the first patent for using DNA variation for forensics in 1983 in the USA. In the UK, another Geneticist Sir Alec Jeffreys independently worked on the DNA profiling process and developed a DNA profiling process on his own.⁸ The first use of DNA profiling in Criminal Investigation was held in the case of Richard Buckland in 1986. In Spite of Buckland admitted the crime of a Murder and Rape of a Teenager who lived in Leicester A City in the East Midland of England he was exonerated as his DNA profiling did not match with the DNA found in the body of the

⁴ (Sdap.org, 2022) <<http://www.sdap.org/downloads/research/criminal/pc15.pdf>> accessed 22 March 2022

⁵ 'Use Of DNA In Identification' (Web.archive.org, 2022) <https://web.archive.org/web/20080426014318/http://www.accessexcellence.org/RC/AB/BA/Use_of_DNA_Identification.php> accessed 22 March 2022

⁶ 'DNA Profiling - Wikipedia' (En.wikipedia.org, 2022) <https://en.wikipedia.org/wiki/DNA_profiling> accessed 18 April 2022

⁷ 'The History Of DNA: From Crime Scenes To Consumer Goods' (University of West Florida Online, 2022) <<https://onlinedegrees.uwf.edu/articles/the-history-of-dna/#:~:text=By%20the%201980s%2C%20labs%20were,with%20solving%20a%20murder%20case.>> accessed 18 April 2022

⁸ 'Eureka Moment That Led To The Discovery Of DNA Fingerprinting' (the Guardian, 2022) <<https://www.theguardian.com/science/2009/may/24/dna-fingerprinting-alec-jeffreys>> accessed 18 April 2022

victim.⁹ Later on, Colin Pitchfork¹⁰ convicted of the same murder and rape the next year. The DNA profiling that safeguards Richard Buckland's innocence convicted Colin Pitchfork for his crimes and made Richard Buckland the first man in history to be convicted based on forensic evidence.¹¹

2.2 Current Status of DNA as an Evidence in Bangladesh

According to section 45 of the Evidence Act 1872, opinions of the experts upon any question of science, foreign law, or finger impressions are relevant. In that case, the experts have to present to give their opinion before the Court. Thus, in the case of DNA evidence, the opinion of the experts in forensic Science who are skilled in DNA profiling will be admissible in the Court. Section 3 of the DNA ACT 2014 states that notwithstanding anything contained in any other effective present law in Bangladesh, the provisions of DNA ACT 2014 will prevail. Section 37 of this ACT states of Evidentiary value of the DNA evidence where it is stated that a DNA profile report will be admissible in the proceeding of the Court. Section 38 of this ACT declares the exemption of the appearance of the expert person by whom the DNA profile report was made if it was made by the officer or by a qualified person under this Act. However, in this Act, section 40 states that if any difficulties arise while giving effect to any provision Government may, by order, publish in the Gazzette will give explanation and clarification regarding that provision. Hence it is clear that DNA evidence is admissible in the Court. In Criminal Miscellaneous Case *Md Mostofa vs Bedena Khatun & Another*¹², the honourable High Court Division also decided to take DNA as admissible evidence. However it was observed in *Badal and Another vs State*, represented by the Deputy Commisioner¹³, that the ocular evidence was in contradiction with the evidence given by the doctor. Later it was decided based on the ocular

⁹ ibid

¹⁰ A British double Child Murderer and Rapist.

¹¹ 'DNA Profiling - Wikipedia' (*En.wikipedia.org*, 2022) <https://en.wikipedia.org/wiki/DNA_profiling> accessed 22 March 2022

¹² Md Mostofa vs Bedena Khatun & Another LEX/BDHC/0168/2012

¹³ Badal and Another vs State 4 BLC 381

evidence of the witness that the girl was raped. On the other hand, *Abdul Quddus vs State*¹⁴ decided that Medical Evidence can be accepted with the corroboration of other evidence.

Three scenarios are possible in light of this. When DNA evidence and other corroborative evidence exist, when DNA evidence exists alone, and when DNA evidence and ocular evidence exist but conflict with one another. In the first case, when the DNA evidence can be corroborated with other evidence, there is no problem in convicting the offender with the DNA evidence. The problem will arise when there is only DNA evidence, and there is no other evidence to support that evidence and when there is a contradiction between Ocular Evidence and DNA evidence. Bangladesh has not convicted any of the offenders solely based on the DNA evidence; there were corroborations with other evidence. There is no confusion that DNA evidence can give reliable results however, to understand the nature of the offence it is also necessary to understand the context. There is a legal maxim which means that "The best interpretation is made from its context". Suppose in the Dihan and Anushka rape case,¹⁵ it is evident from the DNA testing that the semen found in Anushka's body was of Dihan's. However, it does not establish the offence. Hypothetically it can be said that they were engaged in consensual sexual activity. It could be possible that there was consent of Anushka. It could also be possible that there was no consent of Anushka, both can be possible. Thus it is necessary to understand the context also. Thus, corroboration is also needed. We know that convicting any accused's guilt in the criminal justice system must be proved beyond all reasonable doubt. Thus, the accused can not be convicted solely on DNA evidence without corroboration. However, there may be situations where DNA evidence is the only evidence, and if the accused is given the benefit of the doubt, there may be a miscarriage of justice. In that case, it is necessary to implement Judicial prudent and discretion of the judge to find a solution of that case.

¹⁴ Abdul Quddus vs State 43 DLR (AD) 234

¹⁵ 'Kalabagan Rape: Court Allows Police To Conduct DNA Test Of Accused Dihan' (*The Daily Star*, 2022) <<https://www.thedailystar.net/online/news/kalabagan-rape-court-allows-police-conduct-dna-test-accused-dihan-2025509>> accessed 26 April 2022

Chapter 3

Comparative Analysis between cases of application of DNA Testing In Crime Investigation in different Countries

3.1 Bangladesh

Although DNA profiling in Bangladesh is not a common practice, the increasing use of DNA profiling in Crime investigations can be witnessed. A General Diary was filed In Noakhali in January 2000 regarding the disappearance of a woman named Nur Nahar Begum. Fourteen years after the disappearance, the Police discovered that she was killed and buried.¹⁶ With the help of DNA testing on the samples collected from the skeleton recovered from underground. The Criminal Investigation Department (CID) of the Bangladesh Police confirmed that she was the missing Nur Nahar Begum.¹⁷ Later on, the accused were sentenced to life imprisonment. The CID has a private DNA database that is filled with 30000 DNA profiles.¹⁸ They prepared it from samples collected from the crime scenes and different accused.¹⁹ The most number of DNA profiling at a time was witnessed in the Rana Plaza Collapse and the Tazrin Fashion fire accident incident in Bangladesh. It was done to identify the decomposed body of the dead. The Rape and Murder of Cumilla Victoria College student Sohagi Jahan Tonu was discovered through DNA testing, whereas the first two post mortem report was unable to find the reason for the death of Tonu.²⁰ DNA founds on Tonu's clothes exhibits that Tonu was gang-raped before the murder.²¹ Many unsolved murders like the Sagar Runi Double Murder case in Bangladesh could have been solved if the DNA evidence was taken at the preliminary stage of the investigation, but unfortunately, it was not done.

¹⁶ 'CID'S Forensic Lab: Where Technology Blends With Crime Investigation' (*The Business Standard*, 2022) <<https://www.tbsnews.net/bangladesh/crime/cids-forensic-lab-where-technology-blends-crime-investigation-160801>> accessed 23 March 2022

¹⁷ Ibid

¹⁸ Ibid

¹⁹ Ibid

²⁰ 'Tonu Murder: DNA Test Finds Evidence Of Rape' (*The Daily Star*, 2022)

<<https://www.thedailystar.net/country/tonu-murder-dna-test-finds-evidence-rape-1225111>> accessed 18 April 2022

²¹ 'Tonu Murder And Culture Of Impunity' (*New Age | The Most Popular Outspoken English Daily in Bangladesh*, 2022) <<https://www.newagebd.net/article/133168/tonu-murder-and-culture-of-impunity>> accessed 3 April 2022

3.2 India

India has been using DNA evidence in Crime investigations for a long time. The landmark case of using DNA evidence in Crime investigation was the *Tandoor Case* (1995).²² After an investigation and second autopsy, the then (1992) president of Delhi youth congress Sushil Sharma killed his wife Naina Sahni while found her engaged in an intimate phone call with his fellow congress mate.²³ He shot her with his licensed revolver, chopped her into pieces, and burnt her in Tandoor. Later, Sushil Sharma was convicted with the help of the DNA evidence found on the burnt corpse. This sporadic and brutal murder and destruction of evidence shook the whole nation. There was no ocular evidence in that case. The conviction of the case was based on the DNA evidence and a second autopsy.²⁴

3.3 USA

The Murder case of *Sara Lynn Wineski* was solved by DNA evidence. Sara Lynn Wineski was a Homeless female who was found dead on May 22, 2005, in St. Petersburg, Florida.²⁵ There was no witness to that rape and murder of her. While investigating, Police found DNA evidence on the Crime Scene. After analysing the DNA sample, they found it to be Raymond Samuels, who was already serving a prison sentence for another offence. As Police found the DNA at the Crime scene of Lynn rape and Murder place, it was easy for them to link Samuel to that crime. Without the DNA evidence, it was impossible to find Samuel and convict him with Lynn rape and murder as there was no Ocular Evidence.²⁶

²² '1995 Tandoor Murder Case: A Murder Mystery That Shook The Nation' (*DNA India*, 2022) <<https://www.dnaindia.com/india/photo-gallery-1995-tandoor-murder-case-a-murder-mystery-that-shook-the-nation-2698752/chronology-of-events-2698760>> accessed 4 April 2022

²³ 'The Tandoor Murder Case: Case Comment - IJLSI' (*International Journal of Legal Science and Innovation*, 2022) <<https://www.ijlsi.com/the-tandoor-murder-case-case-comment/>> accessed 4 April 2022

²⁴ Ibid

²⁵ 'Crimes Solved By DNA: The Murder Of Sara Lynn Wineski, 2005 - DNASU' (*DNASU*, 2022) <<https://dnasu.com/crimes-solved-dna-murder-sara-lynn-wineski-2005/>> accessed 5 April 2022

²⁶ Ibid

Another Famous Case solved by DNA evidence was the *Three Prostitutes Murder case* (1990), Patricia Beard Murder case (1981), and Anne Palmer Murder Case (1998)²⁷ .

If we compare the application of DNA Evidence in Crime Investigation in the above countries, we can see that Bangladesh is still developing in using DNA Evidence in Crime Investigation. However, with the enactment of the DNA Act 2014, the legal backbone for the application of DNA evidence in Crime Investigation has been established.

Chapter 4

Prospects of DNA Act 2014

4.1 Prospects of DNA Act 2014 in Crime Investigation

Deoxy-Ribo Nucleic Acid Act 2014, also known as DNA ACT 2014, advances the Criminal Investigation in Bangladesh to a New Era. In the case of a fingerprint, it can be changed through plastic surgery.²⁸ However, what makes DNA unique is that it cannot be changed. Blood, Hair, Semen, Skin, Teeth, and Saliva of the offender can be easily found at the crime scene from which DNA can be extracted, which is enough to identify the offender. After an offence is committed the Investigation Officer try to Identify the offender with the help of the Witness and Circumstantial Evidence. If the suspect or accused is known, then forceful confession is taken from them. In that case, there is a chance of a mistake. A witness may give false evidence, and the confession can be false, extracted by force and intimidation.

However, DNA evidence can never be wrong. Every human being possesses a unique DNA Pattern without an identical twin. Thus the chance of a mistake is infrequent. DNA profiling will be used in the case of Murder, Rape, Theft, and Dacoity, where the offender leaves any of his used belongings or biological samples (hair, Saliva, Blood, Skin Cell, Teeth, etc) by mistake or

²⁷ '10 Cold Cases Solved - Forensics Colleges' (*Forensics Colleges*, 2022)

<<https://www.forensicscolleges.com/blog/resources/10-cold-cases-solved>> accessed 5 April 2022

²⁸ Singh, Jasvinder & Kumar, Ram & Srivastava, Gaurav. (2012). Altered Fingerprint Identification and Classification Using SP Detection and Fuzzy Classification. 236. 10.1007/978-81-322-1602-5_139.

<https://www.researchgate.net/publication/259753715_Altered_Fingerprint_Identification_and_Classification_Using_SP_Detection_and_Fuzzy_Classification> accessed 6 April 2022

while being resisted by the victim. The sample collected from the crime scene is analysed in the DNA laboratory, and after DNA profiling is done, it is matched with the suspect of the crime. If there are multiple suspects, the DNA profile will be matched with every suspect's DNA profile. If the suspect or accused is the offender, the DNA profile will be matched if the suspect or accused is innocent, then the DNA profile will not be matched. In case of parentage issue to find the true parents of the Child DNA profile of the Child is compared with the DNA profile of the Father and Mother. In case of an immigration dispute, matching DNA profiles with alleged relatives is very helpful in identifying deceased of accidents. In the Rana Plaza incident, the Tazrin Fire accident, and BDR Revolt's case, the dead body was identified with the help of DNA testing.

4.2 Procedure to collect DNA evidence under DNA Act 2014

If any offence is committed, any police officer not below the rank of Sub Inspector can request the victim, suspect, or accused to give their DNA sample for investigation purposes under section 4 of this Act. If the victim, suspect, or accused is a child or physically and mentally unstable, their parents or any other legal guardian will permit it on their behalf.

DNA samples can be collected from the crime scene or any other place where the DNA sample can be found.²⁹ Usually, a DNA sample is collected from the crime scene, but in this section, it is said that not only the crime scene if there is any other place where a DNA sample can be found the Investigating officer can also collect a DNA Sample from there. This section seems discretionary to the investigating officer. We can think of a scenario where an offender kills someone and wants to hide the dead body and destroy all the evidence of his offence. He somehow managed to destroy the deadly weapon and destroy every possible evidence used to identify him. Then he took the dead body with him to bury the dead body at a distant place; while burying the dead, the offender left some DNA samples by mistake. Police later found the dead body and, by inspecting that place, found a DNA sample and later identified him. It is possible that DNA samples are not recovered from every crime scene. It can also be found in any

²⁹ The DNA ACT 2014 , s 5

other place while hiding or destroying the evidence of the offence. This section ensures that the offender cannot be escaped while collecting DNA samples in Crime Investigation.

DNA samples cannot be taken unless written permission is given in front of not less than two persons according to the form and method prescribed by the rule.³⁰ If a person requested to give a sample did not give consent within 3 hours after the request, then it will seem that the person did not give consent to give his DNA sample.³¹ If the requested person did not give consent, the police officer would write the reasoning for not giving consent in the form. However, the Court can direct to the collection of DNA samples on the application of the concerned Police officer if consent is not given. The Court will give her decision regarding the direction to collect DNA samples based on hearing both sides and after examining documents produced before the Court.³²

Now the question is, who will collect the DNA sample? The answer is that any qualified person prescribed by this Act will collect a DNA sample in front of not less than two witnesses.³³ According to this Act, a qualified person is a person working in the DNA Laboratory and has a Bachelor's Degree in Biochemistry, Bio-Technology or Molecular Biology from any Government approved University. A qualified person knows how to collect DNA samples without mixing it another person's DNA sample. The law enforcement agency is not trained enough to collect the DNA sample properly from the crime scene. This section safeguards DNA contamination to some extent.

4.3 DNA Profile Report and use of DNA Profile under DNA ACT 2014

After Collecting the sample, a qualified person will analyse the DNA sample, prepare a report containing that DNA profile, and sign that report. The report will contain a signed forwarding note from the Head of the DNA laboratory. It will describe how the DNA sample is analysed. The process of analysing and any other thing prescribed by the DNA ACT will be included there also.³⁴ Sometimes it can be possible that the qualified person may have some pressure from any

³⁰ The DNA ACT 2014, s 6

³¹ The DNA ACT 2014, s 7

³² The DNA ACT 2014, s 8

³³ The DNA ACT 2014 s 10

³⁴ The DNA ACT 2014, s 11

party, or it can also be possible that he may have mental pressure to give a report which can create a significant impact on someone's life, including signed forwarding note of the Head of the DNA laboratory may make him a relief to some extent.

DNA Act specified the use of the DNA sample and DNA profile. It states that it can only be used to identify any person, identify any unidentified or lost person, identify someone who has committed any offence, Specify reciprocal relationships between two or more persons, and identify people who died in natural disasters or Accident. To solve conflict and for any other reason prescribed by rules.³⁵ This section covers all the possible use of DNA profiles and creates an opportunity to add more use by rules if needed.

4.4 DNA laboratory

The Government will establish one or more than one DNA laboratories to fulfil the ACT's intention. It will have seemed that the National Forensic DNA profiling laboratory is established under this DNA ACT 2014.³⁶

4.5 National DNA Database

The Government will establish a National DNA database comprising the Crime Scene Index, Convicted Offender Index, Missing Person Index or any other index determined by Government. The Index will contain DNA profile and any other DNA related information made by DNA laboratory under this ACT.³⁷ Interpol claims that 70 countries have an operational DNA Database. China has the largest DNA database, and the USA has the second largest DNA Database.³⁸ DNA database is very effective in case of Crime Investigation. An enriched DNA database can save money and time for the State.

³⁵ The DNA Act 2014 , s 12

³⁶ The DNA Act 2014 , s 14

³⁷ The DNA ACT 2014 , s 24

³⁸ 'Global Summary - FDNAPI Wiki' (*Dnapolicyinitiative.org*, 2022)

<http://dnapolicyinitiative.org/wiki/index.php?title=Global_summary> accessed 13 April 2022

4.5.1 Crime Scene Index

There is a principle that Every Contact Leaves a trace³⁹. The Criminal always leaves a trace. Hence, there is no perfect crime. In a criminal investigation, proper crime scene examination is necessary. Something is always found if the crime scene can be analysed errorlessly and adequately. The DNA samples collected from the Crime Scene are stored in the DNA Database. It can help solve any unsolved crime or connect the offenders with another crime.

4.5.2 Convicted Offender Index

This Index is made of the DNA profile of the offender who is already convicted of another crime. Among the Convicted offenders, some are a habitual offender. They do not commit crimes out of sudden provocation. This convicted offender Index can be helpful for quickly finding out serial killers, rapists, psychopaths, habitual offenders etc.

4.5.3 Missing Person Index

This Index is comprised of a missing person's DNA profile. If any unidentified dead body is found, the missing person index can help if the person is on the missing person's list. It can also help in case of a criminal investigation if the missing person is engaged in any criminal activities or terrorism.

4.5.4 Any other Index determined by the Government

The Government will determine this Index. This Index will consolidate DNA profiles of a group of person's the Government may think fit.

4.6 Advantages and Disadvantages of National DNA Database:

National DNA Database is an essential asset for a country. It will seem a handy feature in case of Criminal Investigation in the upcoming time. Many countries already have expertise in applying DNA Science in Criminal Investigation. An enriched DNA database can identify the Criminal in

³⁹ 'Crime Scene Investigation: Principles' (Forensicsciencesimplified.org, 2022)
<<http://www.forensicsciencesimplified.org/csi/principles.html>> accessed 18 April 2022

a short time. A State spent much money on Criminal Investigation. A DNA database can curtail the cost of Criminal Investigation to some extent. Some may argue that DNA profiles can be used to suppress the opponents like the Digital Security Act 2018. Digital Security Act is a Law of Public fear in the Current Scenario.⁴⁰ However, it is also a necessary law in the present context. We just need to ensure that the law is not misused.

4.7 The Prospect of Investigation with the help of DNA profiling in case of Rape

Rape is one of the most barbaric crimes. Sometimes even everyone knows the offender; however, it is hard to prove the offence because the Court needs solid proof to convict an offender. In criminal law, to convict someone of an offence, it must be proved without any doubt. In the Criminal Justice system, there is a saying that it is better to let ten offenders escape than for one innocent person to suffer. Before DNA profiling was introduced, in rape cases, two-finger tests were done, which was inhumane and violated the right to privacy of the rape victims. The test allows the doctors to check the hymen and laxity of the vagina. However, it is not scientific as this method could not explain whether she is raped or not in cases of middle-aged women, married women, women who have multiple children, or even a woman who has had intercourse earlier.

Considering all the issues, High Court bans the Two Finger test / Virginitly test in medical examination of Rape cases.⁴¹ In the Nari O Shishu Nirjaton Daman(Amended) Act 2020, the framer included compulsory DNA testing of both the victim and accused under the DNA ACT 2014 in section 32A of the DNA ACT 2014. Previously, there was no legal provision related to Accused or Suspect DNA testing in rape cases. Only the victim has to undergo through medical test. After including compulsory DNA testing in the Women and Children Repression Prevention(Amended) Act(WCRPA) 2020, rape cases can be solved more flawlessly from now on. In a rape case, a conservative medical test did not give any information about the offender; it

⁴⁰ Riaz A, 'How Bangladesh'S Digital Security Act Is Creating A Culture Of Fear' (*Carnegie Endowment for International Peace*, 2022) <<https://carnegieendowment.org/2021/12/09/how-bangladesh-s-digital-security-act-is-creating-culture-of-fear-pub-85951>> accessed 19 April 2022

⁴¹ 'HC Bans Degrading 'Two-Finger Test' For Rape Victims' (*The Daily Star*, 2022) <<https://www.thedailystar.net/country/hc-bans-controversial-two-finger-test-1561813>> accessed 9 April 2022

could only tell us if rape is committed or not. However, in a DNA test, it will disclose whether the rape is committed or not. It will give information about the offender or offenders. Sample like semen, saliva, blood, saliva, and hair is collected from the rape victim's vaginal swab , dress , underwear , place of rape, bed sheet (if rape is committed on bed) then it is sent to a DNA laboratory for DNA profiling and compared with the DNA profile of the accused. Semen, in cases of rape case is primarily found in the vaginal swab if a medical test is done as soon as possible till 72 hours⁴² However, even after that period, other samples can be found from dresses, underwear, bedsheet and place of rape which can help in criminal investigation to identify the offender in case of Medical test of the victim could not be done within 72 hours. Recently in the Anushka Rape and Murder case in Kalabagan the police was allowed to conduct a DNA test on the victim and accused Dihan ⁴³ Firstly, it was presumed that Dihan and his friends were engaged in the offence but after DNA test, it was clear that only Dihan was involved in this. In the Tonu rape case inside Cumilla Cantonment Area, Tonu's underwear semen of multiple people was found after the DNA test.⁴⁴ Though it was not identified who the offender was, the DNA Evidence discloses that Tonu was gang-raped before death.

Violence against women is increasing day by day. The increasing rate of gang rape is threatening. So it is necessary to identify every offender engaged in that offence. Conventional Medical reports cannot identify the offender. However, a DNA profile made from the DNA sample collected from the gang-rape victim can expose every rapist errorlessly.

⁴² 'What To Do In The First 72 Hours After Rape Or Sexual Assault - Sexual Assault Care Centre' (*Sexual Assault Care Centre*, 2022) <<https://sacc.aware.org.sg/get-information/first-72-hours-rape-sexual-assault/>> accessed 18 April 2022

⁴³ 'Kalabagan Rape: Court Allows Police To Conduct DNA Test Of Accused Dihan' (*The Daily Star*, 2022) <<https://www.thedailystar.net/online/news/kalabagan-rape-court-allows-police-conduct-dna-test-accused-dihan-2025509>> accessed 11 April 2022

⁴⁴ 'Tonu Murder And Culture Of Impunity' (*New Age | The Most Popular Outspoken English Daily in Bangladesh*, 2022) <<https://www.newagebd.net/article/133168/tonu-murder-and-culture-of-impunity>> accessed 18 April 2022

Chapter 5

Conclusion

5.1 Findings

5.1.2 Loopholes & How can the DNA Act be Developed

5.1.2.1 The Law is progressive and needs Infrastructural Development

One of the biggest problems investigating officers faces while using DNA technology in Crime Investigation is the proper infrastructure support. There are few DNA laboratories in the country, and mostly they are in the Capital. Thus if there is any offence committed outside Dhaka, it is tough even to collect the DNA samples as a qualified person should collect the DNA sample from the crime scene. Though According to the Act, the Government will establish one or more DNA laboratories to fulfil the intention of the Act. However, we can see Divisional DNA screening laboratories have been established after six years of passing the law.⁴⁵ The newly established laboratories are Rajshahi, Sylhet, Barishal, Khulna, Rangpur, and Faridpur.⁴⁶ However, the DNA screening laboratories do not do testing; they just collect the DNA sample. Later they sent them to NFDPL(National Forensic DNA profiling Laboratory) for DNA testing.⁴⁷ The law was passed in 2014; however, it took six years to establish a Divisional DNA screening lab. Still, it can not be done DNA testing on his own. It only collects the DNA sample and sends it to NFDPL at DMC. Thus the Backlog of unanalysed DNA samples keeps increasing. If the DNA sample is analysed within time, then the offender's arrest can be made promptly, and if there is any innocent who is wrongly accused can be made acquit. However, the Infrastructural Development needed for fulfilling the intention of the DNA Act 2014 is not up to mark. Besides, our investigation officers are not adequately trained, and the workforce is scarce in this work. So one of the main reasons the Act is not functioning correctly in Bangladesh is that the Act is way more advanced than the infrastructural and logistics support we had when the Act was passed. To address this shortfall, the Government should prioritise the development of DNA technology's

⁴⁵ 'Bangladesh Opens A New Unit To Run DNA Tests' (*Bdnews24.com*, 2022)

<<https://bdnews24.com/bangladesh/2020/08/13/bangladesh-opens-a-new-unit-to-run-dna-tests>> accessed 24 April 2022

⁴⁶ Ibid

⁴⁷ Ibid

infrastructure and logistics and the introduction of additional training programs and the appointment of appropriately skilled personnel.

5.1.2.2 No Specific direction to deal with DNA evidence, so amendments in Law are required

In present times Bangladeshi Court is dealing with DNA evidence frequently. In the new Women and Child repression prevention (Amended) Act 2020, compulsory DNA testing of the victim and accused are also included ⁴⁸ Thus, the new case of women and child repression require DNA testing, and the Court has to deal with DNA evidence. However, there is no specific direction in the DNA Act 2014 and the Evidence Act 1872 how to deal with DNA evidence in every situation. According to section 45 of the Evidence Act 1872, we know that expert opinion about forensic science is admissible, and DNA Act 2014 states that the evidence containing a DNA profile is admissible. However, there is no specific direction as to what to do if there is only DNA evidence and no other evidence to support that evidence, again, what to do if there is DNA evidence and Ocular Evidence contradict each other? Laws are not specified here on what to do in these circumstances and what will be the degree of Admissibility of DNA evidence? Whether it will supersede the ocular evidence or not? Law should be amended in this case to remove ambiguity in those areas. The Evidence Act 1872 and The DNA Act 2014 should be amended to give attention to those areas. According to DNA Act 2014, all the complaint lodging, investigation, trial and disposal of an appeal under the DNA Act is done according to the Code of Criminal Procedure (CRPC)1898. However, it should be amended in the DNA Act 2014 not because there is a defect in the Code of Criminal Procedure but because the DNA investigation needs special attention.

⁴⁸ 'Rape Accused, Victim Both Have To Undergo Medical And DNA Tests' (*The Business Standard*, 2022) <<https://www.tbsnews.net/bangladesh/crime/rape-accused-victim-both-have-undergo-medical-and-dna-tests-144721>> accessed 29 April 2022

5.2 Recommendations

5.2.1 Need personal data protection law

The National DNA Database established under the DNA Act 2014 is a restricted place except for the person who are allowed by the Act to enter there. Despite the penalty for unauthorised DNA Activities⁴⁹ , unauthorised DNA information collection and disclosure⁵⁰ of DNA sample destruction, alteration and contamination ⁵¹, and unauthorised access to the National DNA database⁵² offences by a company,⁵³ it can not control how the Government will use the DNA data of an individual. Thus personal data protection law is necessary. GDPR(General Data Protection Regulation)sets out seven principles for the lawful use and processing of Personal Data. ⁵⁴

- There should be lawfulness, fairness and transparency. ⁵⁵
- Purpose limitations should also be there. Purpose limitation means the data should only be used for the purpose it was collected, not for other reasons. ⁵⁶
- Data should be minimised to the extent of its necessity to fulfil the purpose of the data collection. ⁵⁷
- The accuracy should be maintained in any case. ⁵⁸
- The storage limitation should be there. Personal data may be stored, but it should be stored only for the purposes of public welfare, scientific purpose, research purpose etc . Besides, the data should be stored in a form which allows the identification of data subjects. ⁵⁹
- Ensure integrity and confidentiality of the data ⁶⁰

⁴⁹ The DNA Act 2014 , s 28

⁵⁰ The DNA Act 2014 , s 29

⁵¹ The DNA Act 2014 , s 30

⁵² The DNA Act 2014 , s 31

⁵³ The DNA Act 2014 , s 32

⁵⁴ 'Data Protection - The Seven Principles' (*Uhi.ac.uk*, 2022) <<https://www.uhi.ac.uk/en/about-uhi/governance/policies-and-regulations/data-protection/the-seven-principles/>> accessed 1 May 2022

⁵⁵ Ibid

⁵⁶ Ibid

⁵⁷ Ibid

⁵⁸ Ibid

⁵⁹ Ibid

⁶⁰ Ibid

- Ensure Accountability.⁶¹

Thus, if it is possible to include these principles in the current DNA Act 2014 through amendments, DNA data can be protected to some extent.

5.2.2 Guidelines should be properly & Strictly followed to avoid contamination of DNA sample

In the case of collecting DNA samples, the most important thing is to avoid contamination of DNA samples. Where the DNA sample can be found, the area should be sealed for the rest except the qualified person for taking the DNA sample. They should wear avoid drinking and eating in that area. They have to wear a mask and avoid talking, sneezing and coughing. They have to wear different gloves while collecting different DNA samples. They have to wear a unique dress which is appropriate for collecting DNA samples. Usually the guideline are provided but is it followed or not it should be certified by a qualified person . The Government should make any other necessary guidelines to avoid contamination of the DNA sample.

5.3 Concluding Remarks

Undoubtedly the DNA Act 2014 could be a remarkable instrument in both the criminal investigation and criminal justice system of Bangladesh; however, it could not go so far for some reasons. It is never late to make amendments and make things work as it intended. This article aimed to examine the future of DNA evidence in criminal investigations in Bangladesh and other countries. The author has witnessed that other countries have solved so many complex criminal cases using DNA Evidence in the crime investigation. They have also convicted the guilty person with DNA evidence. Despite the fact that some civil cases in Bangladesh are decided based on DNA evidence, DNA evidence is admitted in the Court in criminal cases, but it needs corroboration. Indeed, DNA evidence can never be wrong; the wrong can be done by a human while collecting it or while analysing it. If it can be ensured that proper caution is taken while

⁶¹ Ibid

collecting a sample and it can be assured that no contamination is there, then there is no reason to distrust the DNA evidence. However, both the Evidence Act 1872 and the DNA Act should give guidance on applying DNA evidence in cases where there is no ocular evidence except DNA evidence and where DNA evidence contradicts with the ocular evidence. The finding is that all types of medical evidence are corroborative; as DNA evidence is a piece of medical evidence, it should also be corroborated with the eye witness unless it totally rules out the ocular evidence but still needs to corroborate with other evidence available evidences. As mentioned earlier, there is no reason to distrust DNA evidence; however, it can be possible that a DNA sample was planted at the crime scene to accuse some innocent. Thus it has to be also ensured that the crime scene has not been tampered. Suppose there are circumstances in which there is only DNA evidence and no other evidence to support it, and if the accused is given the benefit of the doubt, there can be a miscarriage of justice. Then even the sole DNA evidence could be used to convict someone. Then it should be made sure the crime scene and DNA evidence is not tampered. However, the judges should use their judicial prudent in that case. However, In general cases, it should be corroborated. Even the ocular evidence should be corroborated with the DNA evidence to decrease the degree of error. The Evidence Act and DNA Act should specify those circumstances through amendments. The law was already progressive at the time of its enactment. However, the infrastructure and logistics are developing more than before, but it is not enough. The Government should pay attention to this matter. Guidelines should be strictly maintained in order to avoid contamination of DNA samples. Personal data protection law should be enacted to stop the misuse of DNA profiles and safeguard the national DNA database data. If the Act can be amended and developed according to the recommendations given in this paper, it will hopefully work as intended.

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