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NEW GENETIC TECHNALOGY IN LEGAL ARENA: A CRITICAL STUDY OF DNA TECHNOLOGY (USE AND APPLICATION) REGULATION BILL, 2019

-Dr. Vaishali Gupta[1*]
Associate Professor, Law, N.R.E.C. College Khurja, INDIA
Email: vguptaj@gmail.com

Abstract:
Technological developments and innovations have developed new methods of providing speedy justice. Genetic technology is one of its kinds of revolution using in legal arena. A number of significant mysteries like Nithari case, Nirbhaya case, Priya Matoo case as well as determination of paternity in ND Tiwari case have been solved through genetic evidence. But still India is far behind any comprehensive law regarding use of such technology. As genetic information is broadly defined as information about genes, or ones inherited characteristic that is derived from a genetic test or a person's DNA sample the advent of genetic testing have triggered a plethora of perplexing ethical and privacy challenges. To regulate the use of DNA information for establishing the identity of people, the DNA Technology (Use and Application) Regulation Bill, 2019 is introduced. The aim of this study is to critically analysis the provisions of the Bill for better enforcement and proper application.

Keywords: Genetic Technology*, DNA Technology Bill, Forensics genetics investigations*

I. INTRODUCTION

The scientific developments and innovations are contributing a lot now days in the process of crime detection and the administration of justice. Forensic science has come to play a larger role in criminal investigation.[2] Among all methods for individualization that genetic technology has provided – blood spatter analysis, dental impressions, deoxyribonucleic acid, enzyme typing, fingerprints, hair and fiber comparisons, serum-protein, striations on bullets, sonographs or voiceprints for the analysis of forensic evidence, the powerful and controversial analysis is the deoxyribonucleic acid 'DNA', the material that makes up the genetic code of most organisms. DNA encodes a detailed set of plans for building different pieces of the cell of a living organism to grow and function. The DNA content of every human individual is comprised of one-half of the DNA from each of the two parents. The DNA blueprint varies from one individual to another, and it is this variation, which makes every individual (except identical twins) unique and different. DNA profiling is the process of determining individual characteristics. The individual-

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[2] Rod Gehl and Darryl Plecas, Introduction to Criminal Investigation: Processes, Practices and Thinking, Chapter 10: Forensic Sciences, BC Campus. 2017, *http://pressbooks.bccampus.ca*

to-individual variations in DNA permit its use as a means of identification and for establishment of biological relationships between individuals.

Genetic technology is increasingly used in criminal investigations and trials to identify criminals with incredible accuracy when biological evidence exists. DNA analysis or profiling, examines DNA found in physical evidence such as blood, hair, and semen, and determines whether it can be matched to DNA taken from specific individuals. It helps in investigation of crimes through biological evidence including semen evidence in rape cases, blood evidence in murder cases, saliva evidence in identification of source of anonymous threat letters, etc. In civil cases, it helps in investigations relating to identification of victims of disasters like cyclones, air crash, etc. A number of crimes are committed by repeat offenders, whose apprehension and conviction will be aided by comparison of biological evidence at the scene of crime with DNA profiles stored in a DNA Data Bank. At the same time, the DNA analysis offers substantial information, which if misused or improperly used, can cause harm to individuals or society. Likewise, DNA can be used to clear suspects and acquit persons erroneously accused or convicted of crimes. This is particularly important for those convicted of serious crimes solely on the basis of eyewitness testimony, which is not always reliable. DNA, based on sound scientific principles has been found to be very effective in establishing the parentage of a child.

Recent advances in genetic technology including cloning, PCR, recombinant DNA technology, DNA fingerprinting, gene therapy, DNA microarray technology, and DNA profiling have already begun to shape environmental sciences, forensic sciences, medicine, legal and national security. DNA technology has been used to identify victims of terrorist attacks on the World Trade Centre in 2001, and natural disasters such as earthquakes disasters or the Asian tsunami in 2004.[3] It is also used to identify the remains of crime and accident victims, civil litigation, particularly in cases involving the determination of paternity or identity pedigree, immigration or emigration, assisted reproductive technologies, transplantation of human organs and in genealogical and medical research.

[3] "Nothing to Hide, nothing to fear?", Human Genetics Commissions, United Kingdom, November 2009; *http://hdl.handle.net/10822/515008*

II. OBJECTIVE OF THE DNA TECHNOLOGY REGULATION BILL

At present, in India, there is no specific legislation, which can provide specific guidelines to the investigating agencies and the court, and the procedure to be adopted in the cases if involving genetic evidence. There is also no such specific provision under the Indian Evidence Act, 1872 and Code of Criminal Procedure, 1973 to manage evidence and technology issues. However, some provisions allow examination of rape victim and person accused of rape by medical practitioner but the admissibility of these evidences has remained doubtful as the opinion of the Supreme Court and various High Courts in various decisions remained conflicting.

To regulates the use of DNA technology for establishing the identity of certain persons in criminal and civil matters including offenders, suspects, victims, people under trial, and missing persons a report is submitted on The DNA Technology (Use and Application) Regulation Bill, 2019.[4] The Bill limits its scope to the regulation of DNA profiling and not regulates all other DNA testing. It recommended that DNA profile be defined as the DNA pattern that establishes only the genetic identity of a person, and not the characteristics of an individual such as physical appearance, behavior, or health status.

The aim of the DNA Technology (Use and Application) Regulation Bill, 2019[5], is to provide the regulation of use and application of DNA technology for the purposes of establishing the identity of certain categories of person including the victims, offenders, suspects, undertrials, missing persons, unknown deceased and **for matters connected therewith or incidental thereto**.[6] Therefore it intends to cover almost all issues related to DNA evidence.

The primary intended purpose of 'DNA Bill' is for expanding the application of DNA-based forensic technologies to support and strengthen the justice delivery system of the country. The utility of DNA based technologies for solving crimes, and to identify missing persons, is well recognized across the world. By providing for the mandatory accreditation and regulation of DNA laboratories, the Bill seeks to ensure that with the proposed expanded use of this technology in this country, there is also the assurance that the DNA test results are reliable, and furthermore that the data remain protected from misuse or abuse in terms of the privacy rights of our citizens. The proposed legislation will empower the criminal justice delivery system by enabling the application of DNA evidence, which is considered the gold standard in crime investigations. Establishment of the National and Regional DNA Data Banks, as envisaged in the Bill, will assist in forensic investigations.

[4] The Standing Committee on Science and Technology, Environment, Forests and Climate Change (Chair: Mr. Jairam Ramesh) 314th report on the DNA Technology (Use and Application) Regulation Bill, 2019 Rajya SABHA Secretariat, New Delhi on February 3, 2021; https://prsindia.org.bills_acts pdf
[5] Bill NO. 128 of 2019 hereinafter 'DNA Bill'
[6] Supra 'DNA Bill' Object and reasons

The proposed Bill will give incentive to the development of uniform code of practices in all laboratories involved in DNA testing throughout the country. This will aid in scientific up gradation and streamlining of the DNA testing activities in the country with appropriate inputs from the DNA Regulatory Board which would be set up for the purpose. It is expected that the expanded use of this scientifically driven technology would empower the existing justice delivery system.

III. PROMINENT FEATURES OF THE DNA BILL

DNA Bill is consists of 9 chapters, 61 Clauses and 1 schedule that is consists of the list of criminal matters,[7] civil disputes[8] and other cases[9] for DNA testing. Clause 2 seeks to define the various expressions used in the Bill. The Bill provides power to the central Government/DNA Regulatory Board to make Rules/Regulations on certain provisions of the Bill. These include amending: (i) the Schedule to the Bill which lists matters where DNA evidence may be used for identification of persons, and (ii) the purposes for which access to DNA information may be given.

Chapter II has clauses related to **DNA Regulatory Board**, its establishment, composition, officers and employees, various functions of the board. The broad functions of the proposed DNA Regulatory Board include: (i) advising the Central Government and the State Governments on all issues relating to establishing of DNA laboratories and DNA Data Banks, laying down guidelines, standards and procedures for establishment and functioning of such laboratories and Data Banks and to make recommendation on funds required for such purpose; (ii) granting accreditation to laboratories for undertaking DNA testing, analyzing, etc., and to suspend or revoke such accreditation; (iii) ensuring quality control in DNA laboratories and DNA Data Bank; (iv) assisting in criminal investigation between various investigation agencies within the country and with any foreign State, international organization or institution; (v) making recommendations to the Central Government for the application of privacy protection in relation to the access to, or the use of, DNA samples and their analysis; and (vi) lay down procedures for

[7] Matters related to Indian penal code 'IPC' for investigation; Offences under The Immoral Traffic (Prevention) Act,1971,The medical Termination of Pregnancy Act, 1956, The Pre –conception and Pre- Natal Diagnostic Techniques (Prohibition of sex Selection) Act, 1994, The Protection of Women from Domestic Violence Act, 2005, The Protection of Civil Rights Act, 1955: The Scheduled Caste and the Scheduled Tribes (Prevention of Atrocities) Act,1989, The Motor Vehicles Act, 1988

[8] *ie.* Maternity and Paternity: Pedigree: Assisted productive Technologies (surrogacy, in-vitro fertilization, intrauterine implantation) or such other technologies; Transplantation of Human Organs Act, 1994; immigration or emigration; establishment of individual identity

[9] *ie.* Medical negligence; Unidentified human remains; Identification of abandoned or disputed children

communication of information relating to DNA profile in civil and criminal proceedings and for investigation of crimes by law enforcement and other investigating agencies etc. (vii) identify scientific advances and recommend research and development activities in DNA testing and related issues, including intellectual property issues; (g) lay down procedures for communication of information relating to DNA profile in civil and criminal proceedings and for investigation of crimes by law enforcement and other investigating agencies; (viii) recommend methods for optimum use of DNA techniques and technologies for administration of justice or for such other relevant purposes as may be specified by regulations; (ix) adopt and disseminate best practices, concerning the collection and analysis of DNA sample to ensure quality and consistency in the use of DNA techniques, and on all ethical and human rights issues relating to DNA testing in consonance with international guidelines enumerated by the United Nations Organisation and its specialised agencies, inter alia, relating to— (i) the rights and privacy of citizens; (ii) the issues concerning civil liberties; (iii) issues having ethical and other social implications in adoption of DNA testing technology; and (iv) professional ethics in DNA testing.

The subsequent chapter is related to **accreditation of DNA laboratories**, prohibition of DNA testing without accreditation, granting or renewal of accreditation, power of Board to suspend or revoke accreditation and appeal against rejection, suspension or revocation of accreditation.[10] Every DNA laboratory is required to perform various functions, including: (i) following standards for quality assurance in collection, storing, testing, and analysis of DNA samples, (ii) establish and maintain such documentation and quality system, (iii) prepare and maintain quality manuals containing such details and (iv) share DNA data prepared and maintained by it with the National DNA Data Bank and the Regional DNA Data Bank, in such manner, as may be specified by regulations.

Chapter IV[11] described the **obligation of DNA laboratories,** appointment of in-charge scientific, technical and other staff of DNA laboratories, their responsibilities and measures to be taken by DNA laboratories. It further prohibits taking bodily substance without consent of the arrested

[10] Clause 13-16 of Chapter III supra note 3 'DNA Bill'
[11] Clause 17-20 of supra note 3 'DNA Bill'

person though it may be voluntarily given. Clause 13 describes the sources and manner of **collection of samples** for DNA testing.

Chapter V[12] is concerned with the **establishment of National and Regional DNA Data Bank.** The National DNA Data Bank shall receive DNA data from Regional DNA Data Banks and store the DNA profiles received from the DNA laboratories in such format as may be specified by regulations. The Central Government shall appoint a Director of the National DNA Data Bank, on the recommendations of a selection committee to be constituted by the Government, for the purposes of execution, maintenance and supervision of the National DNA Data Bank. Further it provides a list of sources for collection of various DNA samples; and laboratory indices for certain categories of data. Every DNA Data Bank shall maintain the following indices for various categories of data, namely: (i) a crime scene index; (ii) a suspects' index or undertrials' index; (iii) an offenders' index; (iv) a missing persons' index; and (v) unknown deceased persons' index. DNA Regulatory Board will supervise DNA data banks and laboratories. Clause 30 of the Bill seeks to provide for the manner of sharing of DNA profiles with foreign Government or organization or institution or agencies. It further provides that the Central Government may, in consultation with the Board, determine the nature and extent of sharing DNA profiles in respect of offenders, suspects, under trials, missing persons and unknown deceased persons with the Government of a foreign State or an international organization or an institution established by that Government or organization, and seek similar information from such foreign State, organization or institutions. Clause 31 of the Bill seeks to provide for the manner of retention and removal of records in the DNA Data Bank.

Chapter VI is related to security and **confidentiality of information and use of DNA profiles**, DNA samples and records etc. for facilitating identification of person, access to information for operation, maintenance and training, restriction on access to information in crime scene index.
The Board will adopt and implement appropriate technical and organizational security measures for this purpose. Besides, the Board is required to take all other necessary measures to ensure that the information related to DNA samples and DNA profiles are protected against access, use or disclosure not permitted under the provisions of the bill and against accidental or intentional

[12] DNA Data Bank: Clauses 25-38

destruction or damage. All DNA data, including DNA profiles, DNA samples and records thereof, contained in any DNA laboratory and DNA Data Bank shall be used only for the **purposes of facilitating identification of the person and not for any other purpose**.

Chapter VII is related to **finance, accounts, audit and reports**. All the grants, investments and loans made to the board will be the part of DNA regulatory Board fund.[13]

The Bill further specify the offences and its **punishment or penalties** for (i) unauthorized disclosure of information in DNA Data Bank; (ii) using obtaining information from bank without authorization; (iii) for using DNA sample or result without authorization; (iv) unlawful excess of information; (v) for destruction, alterations contaminations or tempering with biological evidences; (vi) for offences by companies or institutions.[14] It is noted that negligent behavior can also cause irreparable damage to the DNA information stored. It recommended that every person with access to DNA profile should be strictly liable and the penalties should be applicable even if the offence was not committed intentionally. No court have jurisdiction to entertain in any suit or proceedings in respect of any matter which the board is empowered.

The Bill provides power to the central government/DNA Regulatory Board to frame Rules/Regulations on certain provisions of the Bill.[15] The Committee recommends that some of these provisions should only be amended by legislation. These include amending: (i) the Schedule to the Bill which lists matters where DNA evidence may be used for identification of persons, and (ii) the purposes for which access to DNA information may be given.

[13] See clause 39-44 of DNA Bill
[14] Chapter VII: Offence and Penalties: Clause 45-51 DNA Bill
[15] Chapter IX Clause 58

IV. ALLIED ISSUES WITH THE BILL

There is no specific legislation in India which regulates the collection of DNA evidence. However in criminal investigation DNA examination is required in case of rape and sexual assault.[16] For the examination of accused it is explained: 'examination' shall include the examination of **blood stains, semen, swabs, in case of sexual offences, sputum and sweat, hair samples and finger nail clippings by the use of modern and scientific techniques including DNA profiling and such other tests….**"[17] In addition the report of medical examination of the victim of rape shall also include the description of material taken from the person of the woman for DNA profiling.[18] But the DNA **Bill limits its scope to the regulation of DNA profiling** and not regulates all other DNA testing. It recommended that DNA profile be defined as the DNA pattern that establishes only the genetic identity of a person, and not the characteristics of an individual such as physical appearance, behavior, or health status.

The legislation about 'fingerprints' is expressly protected by several provisions of the Identification of Prisoners Act, 1920, Section 73 IEA, 1872, and Section 293 CrPC, in addition to the general laws related to other forensic techniques. Toxicology rules are expressly addressed in some clauses alongside general laws. However, in the absence of specific legislation or proper guidelines, the investigating officers and forensic experts/ deontologists face trouble in collecting evidence involving modern scientific techniques and there is lack of procedures to be adopted by court in the cases involving DNA evidence.

The most important reason that courts sometimes are reluctant in accepting the evidence based on DNA technology is that it imposes a serious challenge to some legal and fundamental rights of an individual. The basic contention was that by compelling a person to give sample of his handwriting or signature, or forcing him to go through Narco-analysis, Polygraph Test and Brain Mapping, the Court was compelling a person to self incriminate, which is in violation of Article

[16] Section 53-A Code of Criminal Procedure, 1973 hereafter CrPC: Examination of person accused of rape by medical practitioner
[17] See Section 53 CrPC (Explanation-in this section and Ss.53 a and 54) substituted by Amendment Act 25 of 2005 S.9 (w.e.f. 23-6-2006)
[18] Ibid. Section 164-A CrPC

20(3) of the Constitution. Many times accused deny to provide a DNA sample for their criminal investigation on the basis **of 'right to privacy' and 'right against self-incrimination**.'[19] It is censured that DNA profiling bill is a violation of such rights as it could also compromise the privacy of the individuals. If DNA profiles related to civil matters were to be stored in the Data Banks, there may be a violation of the right to privacy as the storage of DNA profiles for civil matters (paternity etc.) in the Data Banks may not serve a public purpose.

Also, questions are being raised on how the bill plans to safeguard the **privacy of DNA profiles** stored in the databanks. The DNA profiling bill follows a long list of bills that are being introduced without the data protection law in place. The government is bestowed with the responsibility of protecting the citizens' privacy. The easiest way to achieve this would be prior adoption of a privacy or Data protection bill, 2019.This would allow individuals some recourse if their rights were not protected.

Bill may cover DNA technology for medical or research purposes:

The purpose of DNA Bill is to regulate the use of DNA technology to identify criminal offenders, victims, missing, and deceased persons. However, the Bill also allows the use of DNA technology for certain civil matters specified in the Schedule.[20] In particular, the Schedule includes DNA testing for issues relating to establishment of individual identity. Currently, laboratories also carry out DNA testing for medical or research purposes. For example, diagnostic laboratories use DNA testing to check whether an individual may be diagnosed with a particular disease, like cancer. The DNA testing conducted in these laboratories can also be used to identify an individual. Under the Bill, any laboratory that undertakes DNA testing must get accreditation from the DNA Regulatory Board, if it analyses a DNA sample for establishing human identification in respect of matters listed in the Schedule. Given the purpose of the Bill as stated before, it is unclear whether the Bill intends to regulate DNA laboratories that conduct DNA testing for medical and diagnostic purposes.

[19] The right to privacy has been included under Right to Life and Personal liberty or Article 21 of the Indian Constitution, and Article 20(3) provides Right against self-incrimination which protects an accused person in criminal cases from providing evidence against him or evidence which can make him guilty.
[20] See supra note 7

1) *Biological Observation*

All DNA footprints at a crime scene might not be of those associated with the incident.There is apprehension, therefore, that the DNA repository proposed by the Bill could end up bundling information of people who have nothing to do with the crime being investigated. Thus, it may allow state-sanctioned biological surveillance.

2) *Complicate Criminal Investigations:*

Using DNA effectively during criminal investigations requires proper crime scene examination, trained and reliable policing, a trusted chain of custody of samples, reliable analysis, and proper use of expert evidence in court. Without these prerequisites, a DNA database will exacerbate rather than solve problems in the criminal justice system. For example, false matches or misinterpretation or planting of evidence can lead to the travesty of justice.

In civil matters Consent of individual not specified for DNA profiling:
The Bill requires consent of an individual when DNA profiling is used in criminal investigations or identifying missing persons.[21] Victims of a crime as well as arrested individuals must give their written consent before their DNA sample is collected. However, such consent is not required in case of DNA profiling for civil matters.

Written consent for collecting DNA samples on arrest may be inadequate:
Consent not required for offences with punishment higher than seven years. Written consent is required for collecting DNA samples for offences punishable with up to seven years of imprisonment. However, the Bill does not include safeguards to ensure that the consent is voluntary. In some other procedures, such as that of obtaining a confession for a crime, the Code of Criminal Procedure, 1973, provides a safeguard that the statement is made to a Magistrate (not the police). In case consent is not given, a magistrate can order the collection of DNA samples.
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Storage of DNA profiles for civil matters in the DNA Data Bank:
Under the Bill, DNA laboratories are required to share DNA data prepared by them with the National and Regional DNA Data Banks. It is unclear whether DNA profiles related to civil matters tested by DNA laboratories will also be included in the DNA Data Banks. Note that the Bill does not specify any indices in the DNA Data Banks for the storage of DNA profiles for

[21] Clause 21 of DNA Bill Consent for taking bodily substances to be taken from a person arrested: 21. (1) No bodily substances shall be taken from a person who is arrested for an offence (other than the specified offences) unless the consent is given in writing for the taking of the bodily substances. Explanation.—For the purposes of this sub-section, "specified offences" means any offence punishable with death or imprisonment for a term exceeding seven years.

civil matters.[22] Further, there are no provisions for removal of DNA profiles for civil matters from the Data Banks.

DNA profile may include information other than identification:
Under the Bill, a DNA profile is defined as the result of analysis of a DNA sample for establishing the identity of a person.[23] While DNA can establish the identity of a person, its analysis can also reveal information related to his medical and physical characteristics, which could affect his privacy. For this reason, DNA profiling to establish the identity of a person is done using a specific portion of the DNA that does not reveal any additional information about the individual. The Bill does not specify that, information other than identity will not be included in a DNA profile.

No mechanism for grievance redressal for removal of profiles:
The Bill provides that DNA profiles will be removed by the Director of the National DNA Data Bank as per the process. However, the Bill does not provide any mechanism for redressal of grievances in cases where the DNA profile is not removed from the data banks by the Director of the National DNA Data Bank.

Collection of DNA samples from photograph or video is unclear:
DNA profiles are prepared from DNA samples collected from individuals. The Bill provides a list of sources for collection of samples for DNA profiling. This includes biological substances such as blood sample, hair, and mouth swab. However, the Bill also lists photographs or video recording of body parts as a source for sample collection. It is unclear how a DNA sample can be collected from a photograph or video recording.

3) The Lack of legal aid systems:

One of the longstanding defects of India's criminal justice system is the lack of legal aid systems to help both victims and accused, especially those from marginalized sections of society.A growing body of literature has shown that most people charged with criminal offenses are not aware of their rights.This concern may exacerbate when a sophisticated technology, such as genetic profiling, is deployed to establish a crime.

[22] Clause 26 of DNA Bill: Maintenance of indices by DNA Data Bank: Every DNA Data Bank shall maintain the following indices for various categories of data, namely:— (a) a crime scene index; (b) a suspects' index or undertrials' index; (c) an offenders' index; (d) a missing persons' index; and (e) unknown deceased persons' index.
[23] Clause 33 of the Bill seeks to provide all DNA data, including DNA profiles, DNA samples and records thereof, contained in any DNA laboratory and DNA Data Bank shall be used only for the purposes of facilitating identification of the person and not for any other purpose.

4) *Misuse In Caste-Based Profiling:*

The standing committee pointed out that the DNA profiles can reveal extremely sensitive information of an individual & hence could be misused for caste/community-based profiling.

5) *Establishing Independent Regulator:*

The Bill's proposed DNA Regulatory Board is still too powerful and insufficiently transparent or accountable.Therefore, consideration should be given to an independent forensic science regulator to ensure oversight of both laboratory quality assurance and crime scene examination.

Ensuring Transparency: With a new system of indexing DNA profiles of undertrials, criminals, missing and deceased persons, it becomes all the more important to think about the openness of the techniques of DNA profiling.

V. CONCLUSION AND SUGGESTION

The DNA bill follows a long list of bills that are being introduced without the data protection law in place. Without these prerequisites, a DNA database will exacerbate rather than solve problems in the criminal justice system. *E*.g., false matches or misinterpretation or planting of evidence can lead to the contempt of justice. In addition there are criticisms that the DNA profiling bill is a violation of human rights as it could also compromise the privacy of the individuals.

There aer lack of infrastructure for conducting DNA tests in the country. A proper reevaluation of existing law are urgently required, and changes need to be made accordingly since no rule is present in the Indian Evidance Act 1872, and Criminal Procedure Code 1973 to manage forensic science and technology issues.

Although DNA technology can help law enforcement agencies, in solving crimes, the government must assuage apprehensions over the use of the DNA Technology Bill, 2019. In each method and techniques for the purpose of investigation, it must be ensured that the rights of the individual are not hampered. In cases where the rights of the accused are affected, the constitutionality of the evidence comes into question. This sort of technology is extremely complex; few people are able to understand it. To make the technology of DNA profiling more reliable, the legislative and court have to come up with certain guidelines or legislation so that there will be lesser poor investigation and so are the chances of miscarriage of justice.

A strong legal aid system to help both victims and accused, especially those from marginalized sections of society is needed to spread awareness about DNA profiling. The DNA profiles can reveal extremely sensitive information of an individual & hence could be misused for caste/community-based profiling. The easiest way to achieve this would be prior adoption of a

privacy or Data protection bill, 2019[24]. This would allow individuals some recourse if their rights were not protected. Apart from this, the infrastructural issues linked with the number of labs need to be addressed. The effective and just use of this technology will require educating a range of criminal justice functionaries — police, lawyers, magistrates.

[24] Personal Data Protection Bill 2019, Parliament of India; https://prsindia.org.bills_acts

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