THE DNA TECHNOLOGY (USE AND APPLICATION) REGULATION BILL, 2019: A CRITICAL ANALYSIS

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Abstract

The aim of this paper is to explain the emergence and use of DNA fingerprinting technology in India, noting the specific concerns faced by the Indian Legal System related to the use of this novel forensic technology in the justice process. Furthermore, the proposed construction of a National DNA Data Bank is discussed taking into consideration the challenges faced by the government in legislating the DNA Bill into law. A critical analysis of the DNA Technology (Use and Application) Regulation Bill, 2019 is provided to throw light upon many ethical, social and legal issues that need to be addressed before the operationalization of the Bill to ensure that this technology is governed democratically to protect the civil liberties of citizens.

Keywords: *DNA, DNA Bill, forensic, technology, crime*.

I. Introduction

FORENSIC DNA evidence has been used in the Indian Legal System for more than two decades now. During this time, this forensic technology has been normalised as an incontrovertible scientific witness in the Indian courtrooms. The initial controversies regarding the accuracy of forensic DNA typing have given way to the claim that the DNA test results are valid if the tests are conducted in a scientifically rigorous manner. Increasingly, the use and application of DNA technology is being perceived to be a magic bullet that will enhance the efficiency of the Indian Legal System. Consequently, DNA evidence is now increasingly demanded in court cases.

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India has also been on a journey to build its own National DNA Data Bank since 2003. The creation of a digital DNA data bank is seen as crucial for the purpose of improving the efficiency of justice delivery in India. The DNA profiles added to the data bank can improve the process of scientific investigation of crimes, leading to a greater conviction of the criminals. The DNA Data Bank can also be used to identify unidentified bodies or missing persons.

The aim of this paper is to explain the emergence and use of DNA fingerprinting technology in India, with specific emphasis on the issues regarding the use of this novel forensic technology in the process of administration of justice. Further, the move towards the establishment of a National DNA Data Bank is discussed taking into consideration the challenges faced by the government in legislating the DNA Bill into law for the governance of both forensic DNA profiling technology and DNA databases in India. A detailed analysis of the DNA Technology (Use and Application) Regulation Bill, 2019 is provided to throw light on the many ethical, social, and legal issues that need to be addressed before its enactment and operationalization.

II. DNA in the Indian legal system

DNA fingerprinting emerged as a revolutionary tool of human identification in the laboratory of Alec Jeffreys at the University of Leicester, the United Kingdom in 1984. The invention of DNA fingerprinting enabled the differentiation of each individual according to his or her unique genetic profile. This uniqueness of the genetic profile has enabled the investigators, in a hitherto unprecedented way, to match the biological sample with the body of the person concerned. This revolutionary technology is used in crime investigation, paternity testing and immigration verification procedures globally.

After the invention and the first successful use of the technology, DNA fingerprinting was used in case of a criminal investigation involving the rape and murder of two fifteen-year-old girls, one in 1983 and the other in 1986 in England near Leicester University. With this breakthrough forensic technology, the double murders case was solved leading to the arrest and confession of the murderer. Following the successful application of DNA fingerprinting in the Colin Pitchfork case this technology crossed over the Atlantic to be used in the conviction of Tommy Lee Andrews in

the United States in 1987.[1] Gary Dotson became the first convict in the United States to be exonerated based on DNA fingerprint evidence in 1988.[2]

Lalji Singh at the Centre for Cellular and Molecular Biology (CCMB), Hyderabad pioneered the use and application of forensic DNA technology in the Indian legal system in 1988. The first case in which he used his novel technology was in Tamil Nadu concerning a paternity dispute involving a child named Mary wherein two sets of parents claimed the child to be their progeny in 1989.[3]

This verdict was later challenged in the Kerala High Court which upheld the verdict given by the lower court concerning the validity of DNA evidence in 1991.[4] After this landmark judgment, the doors for the use of DNA evidence in the Indian legal system were opened and Lalji Singh led the crusade in using DNA evidence as a "silent witness"[5] in court cases across the length and breadth of the country. He travelled across India delivering his reports to the courts as a scientific expert in cases related to DNA testing and evidence. The use of DNA fingerprinting technology to help solve cases of rape and murder committed by high-profile, rich and powerful men pushed DNA into the public limelight as a technology of truth in a leaky criminal justice system where witnesses were neither dependable nor trustworthy, *i.e.,* prone to "native mendacity".[6] Contrary to the undependability of ocular witnesses and their testimonies, DNA was propelled as an unbiased and incorruptible forensic "genetic witness"; as Lalji Singh stated, "DNA never tells lies".[7] The application of DNA fingerprinting in solving rape cases was especially forceful in ensuring that this technology gained acceptability in the Indian legal system as rape is endemic in Indian society and a cause of much media attention and moral panic.[8] In India, the authority of DNA evidence as a technology of truth-telling was never successfully challenged in the courtrooms as was the case

[1] *Andrews* v. *State*, 533 So. 2d 841 (Fla. Dist. Ct. App. 1988)
[2] Rob Warden, "First DNA Exoneration" *Bluhm Legal Clinic Centre on Wrongful Convictions*, *available at:* http://www.law.northwestern.edu/legalclinic/wrongfulconvictions/exonerations/il/gary-dotson.html (last visited on Mar. 7, 2020).
[3] Lalji Singh and Madhusudan W Pandit, *DNA Fingerprinting: The Witness within* 59-61 (I.K. International Publishing House Pvt. Ltd., New Delhi, 2012).
[4] *Kunhiraman* v. *Manoj*, II (1991) DMC 499.
[5] Amade M'Charek, "Silent Witness, Articulate Collective: DNA Evidence and the Inference of Visible Traits" 22(9) *Bioethics* (2008).
[6] Vinay Lal, "Everyday Crime, Native Mendacity and the Cultural Psychology of Justice in Colonial India" 15(1) *Studies in History* (1999).
[7] Lalji Singh, *My Travails in the Witness Box* 43 (I.K. International Publishing House Pvt. Ltd., New Delhi, 2012).
[8] Dipu Rai, "Sexual violence pandemic in India: Rape cases doubled in last 17 years" *India Today*, Dec.13, 2019, *available at:* https://www.indiatoday.in/diu/story/sexual-violence-pandemic-india-rape-cases-doubled-seventeen-years-1628143-2019-12-13 (last visited on May 16, 2020).

in America. There is no evidence available publicly to suggest that the lacunae pointed out by experts have been rectified, or even acknowledged by the forensic laboratories. It is crucial to recognise that DNA evidence is a *product* significantly dependent on the fool-proof and scientific *process* used to obtain the results along with the ability of the expert to communicate only the facts. This means that how DNA evidence is handled and communicated is crucial for its efficacy. The legal life of DNA from the crime scene to the forensic laboratory to the courtroom is a complex exercise involving different actors and institutions, which includes the police, medical officers, forensic scientists, lawyers, judges, and the media. The biological evidence can be planted at the crime scene, the sample can become contaminated at the crime scene or in the laboratory due to faulty handling of the chain of custody, the DNA results can be based on the scientist's interpretation of data (especially for samples containing biological material from many individuals, degraded samples and in low template count cases), the forensic scientists can exaggerate or hide some of their results (due to corruption or political pressures), the lawyers and judges may be unable to comprehend the scientific nuances of the results, or media pressure might influence the acceptability of the DNA test (especially in high-profile cases involving rape and murder).[9] Despite all these possible loopholes, the normalization of DNA evidence as 100% accurate and fool-proof in the Indian legal system resulted in the amendment to the Code of Criminal Procedure (CrPC), 1973 (insertion of section 53-A in 2005) authorizing the investigation officer to collect a DNA sample from the body of the accused and the victim with the help of a

[9] *Id.*, at 187-188;
William C Thompson, *The potential for error in forensic DNA testing (and how that complicates the use of DNA databases for criminal identification),* Council for Responsible Genetics (CRG) national conference, Forensic DNA Databases and Race: Issues, Abuses and Actions (New York University, June 19-20, 2008), *available at:* https://www.surlytrader.com/wp-content/uploads/downloads/2011/01/H4T5EOYUZI.pdf (last visited on May 15, 2020); Bruce Budowle, Arthur J Eisenberg, *et.al.,* "Validity of Low Copy Number Typing and Applications to Forensic Science" 50(3) *Croatian Medical Journal* (2009); Itiel E Dror and Greg Hampikian, "Subjectivity and bias in forensic DNA mixture interpretation" 51(4) *Science and Justice* (2011); Elonnai Hickok, "Rethinking DNA Profiling in India", 27(43) *Economic & Political Weekly* (2012); Pallavi Polanki, "DNA experts could also be guilty of giving false results" *First Post,* Oct. 11, 2012, available at: https://www.firstpost.com/india/dna-experts-could-also-be-guilty-of-giving-false-results-486289.html (last visited on May 15, 2020); Christopher J Lawless, "The low template DNA profiling controversy: Bio legality and boundary work among forensic scientists" 43(2) *Social Studies of Science* (2013); Peter Gill, *Misleading DNA evidence: Reasons for miscarriages of justice* (Academic Press, 2014); VR Dinkar, "Forensic scientific evidence: problems and pitfalls in India" 3(2) *International Journal of Forensic Science & Pathology* (2015); John M Butler, "The future of forensic DNA analysis" *370*(1674) *Philos. Trans. R. Soc. B: Biol. Sci.* (2015); Naresh Kumar, Aanchal Maitray, *et.al.,* "Effect of preservation of DNA and its profiling from sternum bone from unidentified bodies" 17(2) *J. Punjab Acad. Forensic Med. Toxicol.* (2017); GK Goswami and Siddhartha Goswami, "Management of DNA sampling in rape cases" *SCC Online,* Nov.29, 2018, *available at:* https://www.scconline.com/blog/post/2018/11/29/management-of-dna-sampling-in-rape-incidents/ (last visited on May 16, 2020); *Prem Singh* v. *State of NCT,* (2016) 235 DLT 467 (DB).

medical practitioner.[10] Goswami *et al.* note that, "in answer to whether forced DNA testing against consent, in criminal cases, violates right against self-incrimination protected under article 20(3) of the Indian Constitution, 1950, the judiciary has preferred harmonious construction of competing interests of the individual and society in ordering DNA testing."[11] They further noted that, "for criminal proceedings, section 293 of CrPC entails 'reports of certain government scientific experts' of the chemical examination, explosive, fingerprint and serology. Interestingly despite being widely accepted in the courts, DNA expert lacks legal recognition. India has attempted several times to legislate the Human DNA Profiling Act, but efforts are yet to be fructified."[12]

As evidenced by Dipa Dube in her analysis of the use of DNA evidence in rape cases in High Courts and the Supreme Court, the use of DNA fingerprinting for human identification, especially in cases relating to rape and murder, is getting increasingly normalized in India,[13] unlike the narcoanalysis, lie detectors and brain mapping tests, the use and application of which have been limited by the Supreme Court in *Selvi* v. *State of Karnataka*[14] as infringing on the right against self-incrimination under article 20(3), and right to life and personal liberty under article 21 of the Constitution by delineating a legal distinction between physical privacy and mental privacy.[15] DNA fingerprinting and data banking is being sold as a magic bullet that will ensure that perpetrators of rape will be identified leading to their conviction in a criminal justice system with numerous systemic defects which remain benignly unaddressed. The collection and analysis of DNA evidence are being pushed as a part of a right to fair investigation and trial leading to the increasing use of forensic DNA by the police in their investigations.[16] The courts have also been

[10] N Jagadeesh, "Legal changes towards justice for sexual assault victims" 7(2) *Indian J. Med. Ethics* (2010).
[11] GK Goswami and Siddhartha Goswami, "Three Decades of DNA Evidence: Judicial Perspective and Future Challenges in India" in Hirak Ranjan Dash, Pankaj Shrivastava, *et.al.* (eds.), *DNA Fingerprinting: Advancements and Future Endeavors* 189 (Springer, 2018).
[12] *Id.*, at 201.
[13] Dipa Dube, "Determining the applicability of DNA evidence in rape trials in India" 2(1) *Int. J. Soc. Sci. Res.* (2014).
[14] (2010) 7 SCC 263.
[15] Gautam Bhatia, "Privacy and the Criminal Process: *Selvi* v. *State of Karnataka*" in *The Transformative Constitution* 299-326 (Harper Collins, 2019).
[16] Vivek Sood, "Necessary tool for criminal justice" *The Statesman*, July 4, 2018, *available at:* https://www.thestatesman.com/supplements/law/necessary-tool-criminal-justice-1502657328.html (last visited on May 16, 2020); Editorial "Experts demand use of DNA evidence to solve crime in India", *Business Line*, Mar.12, 2018, *available at:* https://www.thehindubusinessline.com/business-wire/experts-demand-use-of-dna-evidence-to-solve-crime-in-india/article22220443.ece# (last visited on May 16, 2020); Editorial "DNA Biggest Weapon against Rape: Delhi Police, AIIMS Team up To Curb Sexual Crimes" *Outlook*, Nov. 27, 2019, *available at:* https://www.outlookindia.com/website/story/india-news-dna-biggest-weapon-against-rape-delhi-police-aiims-team-up-to-curb-sexual-crimes/343132 (last visited on May 16, 2020).

demanding that DNA evidence be made mandatory as part of police investigations in criminal cases.[17]

In 2019, the Supreme Court, in *Assessment of the Criminal Justice System in Response to Sexual Offences, In re,*[18] observed:[19]

> Forensic examination and report play an important role during the investigation as well as trial for linking the culprit with the crime. With the advancement of the DNA science and its accuracy, the sampling for the purpose of Forensic examination and expeditious reports after due examination are vital to the just adjudication of the case. The sampling for the purpose of DNA test as well as other forensic tests like forensic odontology is essential to cases relating to rape.

This increasing reliance on DNA evidence is reportedly changing the role of DNA from being used as corroborating evidence to being accepted as conclusive evidence by courts, especially in POCSO cases, as per the lobbying and consultancy firm Gordon Thomas Honeywell-GA.[20]

There is a worldwide trend wherein technologically advanced countries are using forensic DNA analysis for human identification purposes. This technology is used for criminal identification, parentage confirmation, identification of missing persons, identification of body parts, and in immigration-related cases. It is essential that proper forensic infrastructure is established for DNA evidence to be legally valid. In the current scenario, police work is heavily tilted towards maintaining law and order and less on crime investigation. Proper crime scene management, which includes training police personnel in securing the scene of a crime and handling forensic evidence is lacking in many states. Rape kits are not available for the collection of biological evidence. Furthermore, quality control in forensic laboratories is questionable. There is a long backlog in the

[17] *Mukesh* v. *State [NCT of Delhi]* (2017) 6 SCC 1; Jayant Sriram, "DNA testing mandatory in all rape cases, says court" *Indian Express*, Jan. 29, 2012, *available at:* http://archive.indianexpress.com/news/dna-testing-mandatory-in-all-rape-cases-says-court/905091/ (last visited on May 26, 2020); Ashutosh Shukla, "Omission of DNA test in rape cases: Show-cause notice to 1,256 police officials" *The Times of India*, Aug. 10, 2019, *available at:* https://timesofindia.indiatimes.com/city/bhopal/omission-of-dna-test-in-rape-cases-show-cause-notice-to-1256-police-officials/articleshow/70612254.cms (last visited on May 16, 2020).

[18] (2020) 18 SCC 540.

[19] *Id.*, at para 16.

[20] Editorial, "Forensic DNA method helps courts in taking quick decisions in rape cases, says firm", *Hindustan Times,* May 13, 2020, *available at:* https://www.hindustantimes.com/india-news/how-forensic-dna-method-helps-courts-in-taking-quick-decisions-in-rape-cases/story-KmVcr5l8woQts8yPPbbo2M.html (last visited on May 16, 2020).

analysis of DNA evidence due to a lack of trained personnel and technical infrastructure as a result police are reluctant to submit biological evidence for DNA testing.[21]

Whereas a 2009 report by the National Academy of Sciences in the U.S. has categorically stated that most of the forensic technologies in use currently do not meet the standard of being "scientific".[22] The Indian legal system does not have any established guidelines for evaluation before accepting novel forensic technologies, unlike the *Frye* and the *Daubert* standards in the United States of America.[23] According to the Indian Evidence Act, 1872, the expert witnesses provide their "opinion" to the court based on their expertise, experience and credibility. The opinions provided by the scientific experts are meant to be corroborative and not conclusive. However, in both criminal and civil cases, the trend seems to be shifting towards accepting DNA test results as conclusive and incriminatory evidence. DNA analysis results are based on statistical probabilities which must be properly understood by the scientists, lawyers and the judges involved in the case.[24] Considering that both public and private genetic laboratories will be allowed to conduct DNA analysis under the DNA Bill, the scientists from these laboratories should be allowed

[21] Gopal Ji Mishra and C Damodaran, "Perspective Plan for Indian Forensics" (Ministry of Home Affairs, 2010); Editorial "Home ministry guides states on searching crime scenes & collecting evidence" *Economic Times,* Jul.11, 2018, *available at*: https://economictimes.indiatimes.com/news/politics-and-nation/home-ministry-guides-states-on-searching-crime-scenes-collecting-evidence/articleshow/64940735.cms?from=mdr (last visited on May 25, 2020); Editorial "Hyderabad: Advanced forensic labs cut backlog by 50 per cent in a year" *Deccan Chronicle,* May 17, 2019, *available at*: https://www.deccanchronicle.com/nation/current-affairs/170519/hyderabad-advanced-forensic-labs-cut-backlog-by-50-per-cent-in-a-year.html (last visited on May 25, 2020); Pallavi Polanki, "DNA experts could also be guilty of giving false results" *First Post,* Oct.11, 2012, *available at*: https://www.firstpost.com/india/dna-experts-could-also-be-guilty-of-giving-false-results-486289.html (last visited on May 25, 2020); Apoorva Mandhani, **"**Delhi HC Orders CBI Probe Into Irregularities In DNA Reports Submitted By Forensic Science Laboratory, Delhi" *LiveLaw.in,* Aug.7, 2018, *available at*: https://www.livelaw.in/delhi-hc-orders-cbi-probe-into-irregularities-in-dna-reports-submitted-by-forensic-science-laboratory-delhi-read-judgment/?infinitescroll=1 (last visited on May 25, 2020); Manasi Paresh Kumar, "Tampered evidence, delayed lab reports: Why forensics isn't leading to convictions in rape cases" *Citizen Matters,* Jan.21, 2020, *available at*: https://bengaluru.citizenmatters.in/rape-cases-investigation-forensic-evidence-collection-lab-reports-40071 (last visited on May 25, 2020); VR Dinkar, "Forensic scientific evidence: problems and pitfalls in India" 3(2) *Int. j. forensic sci. pathol.* (2015); Kaushik Deka, Amitabh Srivastava, *et.al,* "Why we have all failed Nirbhaya" *India Today,* Jan.31, 2020, *available at*: https://www.indiatoday.in/magazine/cover-story/story/20200210-why-we-have-all-failed-nirbhaya-1641446-2020-01-31 (last visited on May 25, 2020); Karn Pratap Singh, "Long wait at Delhi's forensic labs leading to rising backlog of police cases" *Hindustan Times,* Jul.17, 2018, *available at:* https://www.hindustantimes.com/delhi-news/long-wait-at-delhi-s-forensic-labs-leading-to-rising-backlog-of-police-cases/story-b9qUWrWz7n9SRQbjaGVsEL.html (last visited on May 25, 2020).

[22] Committee on Identifying the Needs of the Forensic Science Community, "Strengthening Forensic Science in the United States: A Path Forward" (National Research Council, 2009).

[23] Lyn M Gaudet, "Brain Fingerprinting, Scientific Evidence, and Daubert: A Cautionary Lesson from India" 51(3) *Jurimetrics* (2011).

[24] Colin Aitken, Paul Roberts, *et.al.,* "Fundamentals of Probability and Statistical Evidence in Criminal Proceedings" (Royal Statistical Society, 2010).

to testify in court and the defence should be allowed to get the tests validated from a different laboratory if required. This will ensure that the accused gets a fair trial and the judges base their decisions on the evaluation of scientific evidence presented by both the parties involved. Furthermore, both prosecution and defence scientific experts should be allowed to be cross-examined.

When it comes to civil matters, things become a lot more complicated. Owing to greater awareness among the public and the patriarchal culture of society,[25] cases related to paternity verification have been piling up in the courts.[26] In these matters, DNA testing is solicited as the ultimate arbiter of truth, in cases related to confirmation of biological parentage. This trend shows how DNA testing is increasingly being instrumentalized as a form of "genetic certification" by men to surveil, police and discipline women's sexual and reproductive choices, thereby leading to paternity dispute cases in the courts.

GK Goswami and Siddhartha Goswami have identified a trend in the use of DNA technology for civil cases wherein there is a shift from the presumption of legitimacy of the child based on section 112 of the Indian Evidence Act to a movement towards greater acceptance of genetic tests to verify biological parentage.[27] However, this jurisprudence is still evolving taking due care in deciding the acceptance of DNA evidence when there is an "eminent need" after scrutinizing that there was "no access" between the parties involved.[28]

To conclude this section, it can be asserted that the use of DNA fingerprinting technology as an arbiter of truth is gaining acceptance in the Indian legal system and will have a significant impact on the delivery of justice by the courts in criminal and civil cases.

III. Governance of DNA Data in India

[25] Anjali Thomas, "India's Doubting Fathers and Sons Embrace DNA Paternity Tests" *The New York Times*, Aug. 16, 2013, *available at*: https://india.blogs.nytimes.com/2013/08/16/indias-doubting-fathers-and-sons-embrace-dna-paternity-tests/ (last visited on Mar 10, 2020).
[26] S. Abdul Khader Kunju, "To redefine the maxim 'Pater est quem nuptiae demonstrant'" *LiveLaw.in*, Feb. 24, 2015, *available at:* https://www.livelaw.in/redefine-maxim-pater-est-quem-nuptiae-demonstrant/?infinitescroll=1 (last visited on Mar. 10, 2020).
[27] *Supra* note 11.
[28] *Goutam Kundu* v. *State of West Bengal*, 1993 AIR 2295; *Kamti Devi* v. *Poshi Ram*, AIR 2001 SC 2226; *Shri Banarsi Dass* v. *Mrs. Teeku Dutta* (2005) 4 SCC 449; *Bhabani Prasad Jena* v. *Orissa State Commission for Women* (2010) 8 SCC 633; *Nandlal Wasudeo Badwaik* v. *Lata Nandlal Badwaik* (2014) 2 SCC 576; *Dipanwita Roy* v. *Ronobroto Roy*, AIR 2015 SC 418; *'W'* v. *'H*, 2016 DHC 1227; *E.C Ramakrishnan* v. *Mrinalini @ Nalini*, O.P. (F.C) No.556 of 2017.

National DNA Data Banks are currently operational in sixty countries and thirty-four countries are in the process of expanding or establishing their databases.[29] In the USA, the FBI created the Combined DNA Index System (CODIS) software to database DNA profiles in 1990. The DNA Identification Act of 1994 enabled the creation of a centralised national DNA database that became fully functional in October 1998. The United Kingdom also created its National DNA Database (NDNAD) and operationalized it in April 1995. Most western countries established their own national DNA databases during the 1990s.[30] Clearly, we can now see a trend of the globalization of DNA Data Banks from the developed countries to the technologically advanced developing countries, most prominently, India, China, South Africa and Brazil. The use of DNA evidence in the courtrooms and the project of creating a digitized DNA Data Bank is advancing in India.

The idea of creating a national DNA database in India germinated at the Centre for DNA Fingerprinting and Diagnostics (CDFD), Hyderabad which was headed by Lalji Singh and his team of forensic scientists in 2003. The first draft of the DNA Bill was prepared by the "DNA Profiling Advisory Committee" consisting of members from CDFD and the Department of Biotechnology in 2006. This became the Human DNA Profiling Bill, 2007, which intended to "establish standards for laboratories, staff qualifications, training, proficiency testing, collection of bodily substances, custody trial from collection to reporting and a Data Bank for policies for use and access to the information therein, its retention and deletion".[31] This draft Bill acknowledged that, "DNA analysis offers sensitive information which, if, misused can cause harm to person or society. There is, thus, a need to regulate the use of DNA profiles through an Act passed by Parliament only for Lawful purposes for establishing identity in a criminal or civil proceeding and for other specified purposes".[32]

The government introduced The DNA Technology (Use and Application) Regulation Bill, 2018 in the Lok Sabha on August 9, 2018. Amid the demand for greater scrutiny of the draft bill by the opposition parties and privacy activists, in October 2019, the Rajya Sabha Chairman acknowledged the controversial nature of the Bill and referred it to a Parliamentary Standing

[29] Forensic Genetics Policy Initiative, *available at:* http://dnapolicyinitiative.org/ (last visited on Feb 2, 2020).
[30] Barbara Prainsack and Jay D Aronson, "Forensic Genetic Databases: Ethical and Social Dimensions", in James D Wright (ed.), *International Encyclopedia of the Social & Behavioral Sciences* 340 (Elsevier, 2015).
[31] Elonnai Hickok, "Rethinking DNA Profiling in India", 27(43) *EPW* (2012).
[32] Draft DNA Profiling Bill 2007, India, *available at:* https://www.prsindia.org/uploads/media/draft/DNA_Bill.pdf (last visited on Feb. 9, 2020).

Committee on Science and Technology, Environment and Forests to examine the Bill in detail and submit its report to the Parliament within three months.[33] The delayed report of the expert committee headed by MP Jairam Ramesh was finally released on February 03, 2021.[34] The report raises various issues and documents dissents by its members which need urgent attention. This report has been submitted to the Parliament. The Bill is still pending approval. The next section provides a detailed analysis of the DNA Bill in its current *avatar* and provides our critical analysis of the various dimensions of the Bill which highlights the major problems which need to be considered before passing it in the Parliament.

IV. Social, ethical and legal issues concerning the DNA Bill

Explicit and inexplicit objectives of the Bill

The DNA Technology (Use and Application) Regulation Bill, 2019 is intended to ensure that the use of this novel forensic and biometric technology is governed through a law that is necessary, proportionate and protects individual liberties while simultaneously ensuring security and well-being of citizens in a democratic polity. The long title states that the DNA Bill is "…for the purposes of establishing the identity of certain categories of persons including the victims, offenders, suspects, under trials, missing persons and unknown deceased persons and for matters connected therewith or incidental thereto". It may be noted that despite the collection of DNA samples for profiling them being the main aim of the Bill, "collection of DNA samples" is not mentioned in either the short or the long title of the Bill. The long title is also silent on whether this legislation is intended only for use of DNA technology for forensic human identification or will it also regulate the use of DNA technology for medical diagnostics and kinship/ancestry testing as well.

The expansive purposes for which the DNA technology may be used are enshrined in the Schedule of the Bill. It clearly states that DNA testing will be used for offences under the IPC in Part A. Part B includes offences under special laws *viz.* The Immoral Traffic (Prevention) Act, 1956, The Medical Termination of Pregnancy Act, 1971, The Pre-conception and Pre-natal Diagnostic

[33] PTI, "DNA Technology Regulation Bill referred to parliamentary standing committee", *Economic Times*, October 19, 2019, *available at:* https://government.economictimes.indiatimes.com/news/technology/dna-technology-regulation-bill-referred-to-parliamentary-standing-committee/71662534 (last visited on Mar. 14, 2020).

[34] Parliament of India, Rajya Sabha, "Report No.340" (Parliamentary Standing Committee on Science and Technology, Environment, Forests and Climate Change, 2021).

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 Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989, and The Motor Vehicles Act, 1988. Part C allows for use in civil disputes and other civil matters *viz.* parental dispute (maternity or paternity) and issues relating to pedigree, reproductive technologies (surrogacy, in-vitro fertilisation and intrauterine implantation or such other technologies), transplantation of human organs (donor and recipient) under the Transplantation of Human Organs Act, 1994 (42 of 1994), immigration or emigration, and establishment of individual identity. Part D allows for use in other cases *viz.* medical negligence, unidentified human remains, and identification of abandoned or disputed children and related issues. The expansive list of purposes for which DNA can be obtained from citizens is a cause for concern considering that even a minor traffic violation can lead to the submission of one's DNA information to the government. It also means that the DNA Data Bank will hold many profiles which may not be those of violent and repeat offenders. The creation of a large database might not necessarily translate to a more effective database,[35] but it certainly will increase the use of scarce technical and human resources leading to a further backlog in cases requiring DNA testing.[36]

Extensive powers are given to the DNA Regulatory Board

Chapter II of the DNA Bill provides for the establishment of the DNA Regulatory Board (hereafter DRB) to oversee the governance and regulation of DNA profiling and database in India. Though the Board is central to the entire governance architecture envisaged under the Bill, clause 3, which provides for its establishment, ironically uses the word "may" and not "shall". It indicates that the provision is a "directory" and not "mandatory". As per the scheme, the Board, as and when established, is to be composed of twelve officials from different departments and ministries with the Secretary, Department of Biotechnology as its *ex officio* Chairperson. The DRB is a central

[35] Filipe Santos, Helena Machado, *et.al.*, "Forensic DNA databases in European countries: Is size linked to performance?" 9(1) *Life Sci. Soc. Policy.* (2013).

[36] Moushumi Das Gupta, "Over 12,000 sexual assault cases pending due to backlog at forensic labs" *Hindustan Times*, Apr.26, 2018, *available at*: https://www.hindustantimes.com/india-news/over-12-000-dna-samples-from-sexual-assault-cases-pending-examination-at-forensic-labs/story-AzD26fBHTEibaUu7OKinoN.html (last visited on May 18, 2020); Editorial "India's state forensic labs expanding infrastructure on back of rising demand for DNA Testing" *Business Standard*, May 16, 2019, *available at*: https://www.business-standard.com/article/news-ani/india-s-state-forensic-labs-expanding-infrastructure-on-back-of-rising-demand-for-dna-testing-119051600921_1.html (last visited on May 18, 2020).

component of the governance architecture for regulating the use and application of DNA technology in India, and like many other regulatory bodies, it is also invested with vast legislative, executive, adjudicative and advisory powers. There is an excessive concentration of power in the DRB without any effective oversight mechanism. The DNA Bill is designed in such a way that the regulatory and oversight functions have been merged and conferred on a single body, which goes against the basic doctrine of separation of powers in the Indian Constitution.[37] Further, clause 57 states: "No court shall have jurisdiction to entertain any suit or proceeding in respect of any matter which the Board is empowered by or under this Act to determine." This clause, which squarely ousts the jurisdiction of all courts, including the Supreme Court and the high courts, is *prima facie* unconstitutional being violative of the basic structure of the Constitution as per the law laid down by the seven-judge constitutional bench of the apex court in *L. Chandra Kumar* v. *Union of India.*[38]

The DRB is also designed in a way that it functions without any independent regulatory or ethical oversight. This is contrary to best practices adopted in other developed countries for governing DNA databases. They have an independent ethics and privacy committee to scrutinize and guide the governance of DNA databases. For example, the UK has established the 'Biometrics and Forensic Ethics Group'. Similarly, Canada has established the 'The National DNA Data Bank Advisory Committee'.[39] As the DRB is given extraordinary powers in the DNA Bill, the establishment of an independent ethics oversight committee is crucial to ensure that the use and application of DNA technology in India are governed lawfully and democratically. This demands that independent experts from civil society and lawyers become part of the governance structure of the Board. There is also a need to enhance public discussion and deliberations so that the citizens become aware and participate in the regulation of DNA technology for dealing with crimes in society, as they are the primary stakeholders.

Issues related to informational privacy and bioethics

[37] See, for further discussion, P. Puneeth, Manpreet Dhillon, "A (Re) look at the Proposed DNR Regulatory Board" 56 (3) *EPW* 19-20 (2021).
[38] (1997) 3 SCC 261.
[39] National DNA Data Bank Advisory Committee, *available at:* https://www.gov.uk/government/organisations/national-dna-database-ethics-group and https://www.rcmp-grc.gc.ca/dnaac-adncc/index-eng.htm (last visited on May 2, 2020).

DNA data is a sensitive personal *bioinformation* that can reveal a huge amount of genetic and behavioural information about an individual under investigation.[40] Hence, it is pertinent that the individual's DNA information be protected and handled with the utmost sensitivity by the State as a data fiduciary.[41] It is the responsibility of the State to ensure that the possibility of harm resulting from the analysis of DNA and its databasing is minimised and DNA data is used for clearly defined and limited legal purposes only. For the protection of the bodily autonomy and informational privacy of the individual, the intent of the legislation needs to be informed. Taking note of this concern, clause 33 states that "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." However, clause 34(f) provides a blanket exemption to the DRB to decide on the sharing of DNA information for "such other purposes, as may be specified by regulations." Clause 35(b) also allows the sharing of DNA information "to the personnel of any DNA laboratory for the sole purpose of training." Clause 12(f) of the Bill states: "identify scientific advances and recommend research and development activities in DNA testing and related issues, including intellectual property issues." In Part C (ii) of the Schedule related to matters for DNA testing, it is stated that the technology will be used for "issues relating to pedigree." The use of DNA information from an individual for any research purposes must be defined legally with clear ethical boundaries set in place and use limitation provisions based on complete data anonymization and protection of individual dignity according to the highest national and international standards.[42] The Statement of Object and Reasons of the Bill states that: "DNA analysis offers substantial information, which if misused or improperly used, can cause harm to individuals and society." The Report of the Group of Experts on Privacy headed by Justice A.P. Shah has also acknowledged the sensitivity of DNA data and recommended in 2012: "All use of DNA samples and personal information should be limited to the purposes and timeframes specified by the Act. For example, DNA samples collected for forensic purposes should be restricted from being used for other purposes like health research, behavioural

[40] Robin Williams and Matthias Wienroth, "Ethical, Social and Policy Aspects of Forensic Genetics: A Systematic Review" (2014).
[41] Helen Wallace, "The UK National DNA Database: Balancing crime detection, human rights and privacy" 7 *EMBO reports* (2006); Nuffield Council on Bioethics, "The forensic use of bioinformation: ethical issues" (2007).
[42] Indian Council of Medical Research, "National Ethical Guidelines for Biomedical and Health Research involving Human Participants" (2017); UNESCO, "International Declaration on Human Genetic Data" *available at:* http://portal.unesco.org/en/ev.php-URL_ID=17720&URL_DO=DO_TOPIC&URL_SECTION=201.html (last visited on May 2, 2020).

research."[43] Even the Law Commission's Report No.271[44] on the use of DNA technology recommends in Para 8.2 (b): "DNA profiling would be undertaken exclusively for identification of a person and would not be used to extract any other information." The emerging use of DNA phenotyping[45] by law enforcement authorities in Western countries to create a genetic "mug-shot" from the biological sample to gain relevant intelligence for investigative purposes needs to be considered for its impact on the ethical, social and legal aspects, which is currently lacking in the Bill.[46] According to the UN International Declaration on Human Genetic Data, forensic DNA data should be used "only in accordance with domestic law consistent with international law of human rights."[47]

DNA information is also a type of biometric data as defined in The Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules, 2011 that demands a robust privacy protection architecture to ensure its usage for legally defined purposes only.[48] The draft of The Personal Data Protection Bill, 2019 in clause 3 (7) also defines biometric data as: "facial images, fingerprints, iris scans, or any other similar personal data resulting from measurements or technical processing operations carried out on physical, or behavioral characteristics of a data principal, which allow or confirm the unique identification of that natural person" and in clause 3 (36) both biometric and genetic data are considered to be a part of "sensitive personal data" wherein "genetic data" is defined in clause 3 (19) as: "personal data relating to the inherited or acquired genetic characteristics of a natural person which give unique information about the behavioral characteristics, physiology or health of that natural person and which result, in particular, from an analysis of biological sample from the natural person in question." Clause 27 (i) of the draft Bill states: "where the significant data fiduciary intends to undertake any processing involving new technologies or large scale profiling or use of sensitive

[43] Justice A.P. Shah, "Report of the Group of Experts on Privacy" 33 (Planning Commission, 2012).
[44] Law Commission of India, "271st Report on Human DNA Profiling – A draft Bill for the Use and Regulation of DNA-Based Technology" (July, 2017)
[45] Andrew Pollack, "Building a Face, and a Case, on DNA" *The New York Times*, Feb. 23, 2015, *available at:* https://www.nytimes.com/2015/02/24/science/building-face-and-a-case-on-dna.html (last visited on May 2, 2020).
[46] Matthias Weinroth, Barbara Prainsack, *et.al*, "Approaching ethical, legal and social issues of emerging forensic DNA phenotyping (FDP) technologies comprehensively: Reply to 'Forensic DNA phenotyping: Predicting human appearance from crime scene material for investigative purposes' by Manfred Kayser" *Forensic Science International: Genetics* (2016).
[47] International Declaration on Human Genetic Data, *available at*: http://portal.unesco.org/en/ev.php-URL_ID=17720&URL_DO=DO_TOPIC&URL_SECTION=201.html (last visited on Mar. 8, 2022).
[48] The Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules, 2011.

personal data such as genetic data or biometric data, such processing shall not be commenced unless the data fiduciary has undertaken a data protection impact assessment in accordance with the provisions of this section." Therefore, as per the draft Personal Data Protection Bill it is incumbent on the part of the DRB to undertake a data protection impact assessment. The draft Privacy Bill also mandates the establishment of a Data Protection Authority of India (hereafter DPA), which will be tasked with the regulation of data (including biometric and genetic data) in the country. The powers and jurisdiction given to the DRB and the DPA overlap with each other, which will hamper the effective governance of DNA data in the country. The DNA Bill and the Personal Data Protection Bill need a concurrent reading, and both need streamlining in a manner which, apart from removing contradictions between the two, will ensure the robust and effective protection of DNA bioinformation by the State.[49]

The jurisprudence of privacy in India has witnessed a significant watershed with the proclamation of a Fundamental Right to privacy as intrinsic to fundamental rights guaranteed under Part – III of the Constitution in general and article 21 in particular by the Supreme Court in *Puttaswamy* v. *Union of India*[50] in Aug. 2017. This means that the assertion made by the Law Commission in Para 7.4 of its report on the DNA Bill that "whether in Indian context privacy is an integral part of article 21 of the Constitution is a matter of academic debate" in July 2017 is no longer tenable as the legal verdict is explicit that privacy is a fundamental right of the citizen. It is in this context that the DNA Bill must be aligned to ensure compliance with privacy principles.[51]

Concerns regarding the Collection, Use, and Processing of DNA data

The first question that comes up when DNA is collected from the individual is the question of bodily integrity and the legal protection of the person from self-incrimination. In the context of the collection of DNA samples from persons, the compelling state interest in ensuring the provision of justice supersedes the right of the individual to deny the State their bodily property.[52] This is contrary to the legal reasoning applied in the case of narcoanalysis, polygraph and brain mapping

[49] Justice B.N. Srikrishna, "A Free and Fair Digital Economy: Protecting Privacy, Empowering Indians" (2018); Mandira Narain and Nupur Chowdhury, "Privacy and hunt for the code" *The Telegraph*, Feb. 6, 2020, *available at*: https://www.telegraphindia.com/opinion/privacy-and-hunt-for-the-code/cid/1742651 (last visited on May 2, 2020).
[50] (2017) 10 SCC 1.
[51] Usha Ramanathan, "DNA profiling bill: Pinning you down with data" *India Today*, Aug. 31, 2018, *available at*: https://www.indiatoday.in/magazine/up-front/story/20180910-dna-profiling-bill-pinning-you-down-with-data-1327615-2018-08-31 (last visited on May 4, 2020).
[52] *Selvi* v. *State of Karnataka* (2010) 7 SCC 263.

wherein the Supreme Court has acknowledged that forced usage of these technologies on a suspect is a form of self-incrimination from which the citizen is to be legally protected. As Gautham Bhatia has convincingly argued, on the question of self-incrimination, the law has a different *locus standi* on bodily integrity and a different *locus standi* on mental integrity.[53] In 2005, section 53-A[54] was inserted in the CrPC which allowed the collection of DNA samples by a registered medical practitioner for examination in cases related to rape and other sexual offences. When the DNA samples will be collected from the crime scene and the bodies of suspects and victims by the State which will later be processed in the DNA laboratory to create DNA profiles, it becomes a matter of great significance how the samples and profiles will be maintained and for how long. Hence, the criteria for collection and inclusion of DNA profiles in the database also become a significant question of public policy. For the purposes of collection, DNA samples (bodily substances) are classified into intimate and non-intimate wherein intimate sample collection and forensic procedure can only be conducted by a registered medical practitioner. Given that both non-intimate bodily substances and non-intimate forensic procedures are also physically invasive in nature, it requires the supervision of a medical practitioner from a government hospital. For women, transgender and person who identify as women, both these procedures should be performed by women registered medical practitioners from government hospitals only.[55] The DNA Bill appears to be in conflict with the guidelines for forensic examination in sexual assault cases issued in 2018 by the Central Forensic Science Laboratory (CFSL), Ministry of Home Affairs. The guidelines clearly state: "The victim (minor or adult), the parent/guardian/person in whom the victim reposes trust, has the right to refuse either medico-legal examination or collection of evidence or both, but that refusal will not be taken as denying [sic] for medical treatment of survivor after sexual violence."[56] These guidelines provide the rationale for forensic examinations that include DNA

[53] *Supra* note 15.

[54] The Code of Criminal Procedure (Amendment) Act, 2005; Also see, Ashok Bhan, "DNA and the Indian System" *The Statesman*, Jun. 7, 2018, *available at*: https://www.thestatesman.com/supplements/law/dna-indian-system-1502645292.html (last visited on May 4, 2020).

[55] The DNA Bill, 2019 appears to be in conflict with the guidelines for forensic examination in sexual assault cases issued by the CFSL, Home Ministry in 2018. These guidelines provide the rationale for forensic examinations that include DNA analysis i.e. to link a suspect to the victim in a crime. Therefore, a procedure for the collection of DNA samples (intimate and non-intimate) of both victim and the accused has been laid down. The CFSL clearly lays down, in the guidelines, that only a registered medical practitioner shall conduct such test on sexual assault victims.

[56] Central Forensic Science Laboratory, Chandigarh, "Guidelines for Forensic Medical Examination in Sexual Assault cases" 3 (Directorate of Forensic Science Services, Ministry of Home Affairs, Government of India, 2018)), *available at*: http://cfslchandigarh.gov.in/Uploads/Media/Original/20180627121658_MO-SOP%20Final.pdf (last visited on May 4, 2020).

analysis i.e. to link a suspect to the victim in a crime. Therefore, a procedure for the collection of DNA samples (intimate and non-intimate) of both victim and the accused has been laid down. The CFSL clearly lays down, in the guidelines, that only a registered medical practitioner shall conduct such tests on sexual assault victims. The Bill should be amended to include such a provision.

This proviso allows for collection from victims and "those reasonably suspected of being a victim." Only victims can voluntarily consent to provide DNA samples and this consent should be prior informed consent in writing. There should not be mandatory DNA collection from victims or those suspected to be victims. The "suspected to be victims" category should be removed since it is only through self-identification, that a 'victim' should be recognized. Victimhood cannot be attributed to those, who do not consider themselves to be victims. Further, there should be a clear statement that the least physically invasive procedures for the collection of DNA samples will be preferred over intimate forensic procedures that are more intrusive. The Bill should oblige the police officer/medical practitioner to explain to the victim in order to secure her prior informed written consent. It should specify that every reasonable effort must be made to ensure that the forensic procedure is carried out in privacy, as quickly as possible and with minimum discomfort and inconvenience to the victim. And that carrying out forensic procedures must not involve excessive removal of the victim's clothing or more inspection or examination of the victim than is necessary and should comply with the guidelines and protocols for medico-legal care of survivors/victims of sexual violence laid down by the Ministry of Health and Family Welfare and the World Health Organization (WHO).[57] No protocol has been laid down for the data security and protection of photographs or casts taken, like who is the authority, which cameras are used, where are the images stored, what happens if the image is leaked and how is privacy assured? The DNA Bill should provide for maintaining the anonymity of rape victims as provided under IPC. In cases of custodial violence and torture, a strict and accountable procedure to ensure that DNA samples are not destroyed by the police must be laid down. This proviso also allows the investigating officer in the case to go to the Magistrate for approval to collect DNA samples in case of refusal by the victim, "suspected" victims, relative of missing person, and guardian of a minor or disabled person. The approval by the Magistrate must be necessary and proportionate with clear reason documented in

[57] Government of India, "Guidelines & Protocols – Medico-legal care for survivors/victims of sexual violence" (Ministry of Health and Family Welfare, 2014); World Health Organization, "Guidelines for medico-legal care for victims of sexual violence" (2003).

writing by the Magistrate as to why such an exception has been given to the investigating officer, infringing on the right of refusal by the affected party. Furthermore, this proviso also envisages a situation when children consent to voluntarily give their DNA and parents/guardians disagree, the investigation officer can request for an order for the mandatory collection of bodily substances. This subsection should be wholly deleted as it allows for the mandatory collection of DNA from children on the basis of their consent. Children are not legally capable of providing consent. The essence of voluntary submissions of bodily substances is that it is non-mandatory so there is no role for the Magistrate to play in such instances.

The scientific collection and preservation of the DNA samples from the crime scene and the bodies of victims and suspects are crucial for the effective use of this technology. The safe and proper preservation of biological samples by the police needs infrastructure that supports evidence preservation. This is to ensure that crucial evidence does not get damaged or destroyed due to environmental conditions or human errors. Considering that bodily parts will be preserved by the police, biobanks may need to be created. However, currently, there is no legislation to regulate biobanks in India.[58] The collection and preservation of DNA evidence need to be streamlined.

Furthermore, the inclusion of the Immoral Traffic (Prevention) Act, 1956, Medical Termination of Pregnancy Act, 1971, Pre-conception and Pre-natal Diagnostic Techniques (Prohibition of Sex Selection) Act, 1994, and Protection of Women from Domestic Violence Act, 2005 in Part B and issues related to "assisted reproductive technologies (surrogacy, in-vitro fertilisation and intrauterine implantation or such other technologies)" in Part C of the Schedule to the DNA Bill has the potential of being discriminatory towards women, children, transgenders and sex workers by criminalizing them leading to further marginalization of these already vulnerable populations.

Bearing in mind that the use of DNA profiling and the creation of a National DNA Database can have a disproportionately negative impact on minority communities and vulnerable sections of society, the creation of a DNA Data Bank Ethics Committee with representatives from the National Commission for Minorities, National Commission for Scheduled Castes, National Commission for Scheduled Tribes, National Commission for Backward Classes, National Commission for Women,

[58] Sachin Chaturvedi, Krishna Ravi Srinivas, *et.al.,* "Biobanking and Privacy in India" 44 *J Law Med Ethics* (2016); Indian Council of Medical Research, "National Ethical Guidelines for Biomedical and Health Research involving Human Participants" (2017).

National Commission for Protection of Child Rights, Indian Council of Medical Research, independent non-governmental organizations, activists and academics having the required experience and expertise in the governance of DNA technology will enhance public trust and enable the necessary oversight that is needed to maintain a necessary and proportionate balance between enhancement of civil liberties and the prevention of crime by the State. In the current design of the DNA Bill, this balance is dangerously tilted towards enabling the police to identify individuals during the investigation. It is lacking an independent and autonomous oversight structure in place to ensure the accountable and transparent governance of DNA technology, which is the best practice followed internationally.

Concerns regarding inclusion, retention, sharing and deletion of DNA data

Once the DNA samples are collected by medical practitioners or crime scene investigators, they are analysed by the DNA laboratory. The resulting digital DNA profile is then loaded into the DNA Data Bank. This database is most likely to use the CODIS software developed by the Federal Bureau of Investigation (FBI) in the United States, already installed at the Centre for DNA Fingerprinting and Diagnostics (CDFD), Hyderabad in 2014.[59] The DNA Data Bank will have five indices into which the DNA profiles will be loaded *viz.*

a. Crime Scene Index
b. Suspects or Under trials Index
c. Offenders Index
d. Missing Persons Index
e. Unknown Deceased Persons Index

In Canada, the criminal and civil databases are segregated.[60] In India, the Bill does not provide for segregation of the DNA database and the DNA profiles obtained for both criminal and civil

[59]Combined DNA Index System (CODIS), *available at:* https://www.fbi.gov/services/laboratory/biometric-analysis/codis (last visited on May 4, 2020); "Federal Bureau of Investigation installs 'CODIS' software at city-based CDFD" *Economic Times*, Oct.10, 2014, *available at:* https://economictimes.indiatimes.com/news/politics-and-nation/federal-bureau-of-investigation-installs-codis-software-at-city-based-cdfd/articleshow/44777812.cms (last accessed on May 17, 2020).

[60] The Canadian criminal database is the National DNA Data Bank (NDDB) which has four main indices: 1) The Convicted Offender Index (COI), 2) The Crime Scene Index (CSI), 3) The Victims Index (VI) and The Voluntary Donors Index (VDI); The non-criminal/humanitarian database is the National Missing Persons DNA Program (NMPDP) which has three indices: 1) Missing Persons Index (MPI), 2) Relatives of Missing Persons Index (RMI) and 3) Human Remains Index (HRI), *available at:* https://www.rcmp-grc.gc.ca/en/national-missing-persons-dna-program

(humanitarian) purposes will all be loaded into a single database.[61] However, the proviso in clause 29 (1) states: "The database shall include "the identity of the person from whose bodily substances the profile was derived" for DNA profiles included in the suspects, undertrials and offenders index. For the remaining indices (crime scene, missing persons, unknown deceased persons), the case reference number of the investigation will be loaded along with the DNA profile. A Director shall be appointed by the Central Government for "the purposes of execution, maintenance and supervision of the National DNA Data Bank." This official "shall be a person of eminence possessing such educational qualifications and experiences in the biological sciences, as may be prescribed." Similarly, the Central Government may appoint a Director for each regional DNA Data Bank as well. Clause 54 provides the Central Government with the power to supersede the DRB, wherein the functions of the DRB will be taken over and administered by "an official not below the rank of a Secretary to the Government of India, to be appointed by the Central Government." Given the expansive nature of functions to be performed by the DRB, expecting one administrator to function in lieu of the DRB is inadequate and will lead to regulatory incapacity or collapse.

The DNA Data Bank is currently designed to be an expansive database that will bottom trawl DNA profiles from the prison population (convicts and undertrials), crime scenes, victims (or perceived victims), suspects (or perceived suspects), missing persons and unidentified dead bodies. The expensive infrastructure and specialized manpower that is required to run and maintain the laboratories and the DNA Data Bank should be put to optimal use by ensuring that the recidivists in the active criminal population are the main target and not the "suspect populations", and minimise the collection of DNA from those who are not violent criminals. Once the DNA profile is included in the database, the criteria of retention and deletion becomes a significant civil liberties concern. The deletion of DNA profiles for a suspect and an undertrial will be through a court order. For an individual who is neither a suspect, offender nor an undertrial, the deletion will be via a written request to the National DNA Data Bank as per regulations to be established later. In case the request comes from a minor or a disabled person, the removal shall be made on the basis of a written request from the parent or guardian. However, what is disconcerting is clause 31 (4), which

(last visited on May 4, 2020). The NDDB and NMPDP are segregated, however comparisons can be made between certain indices.

[61] Helen Wallace, "Decoding the DNA Bill" *The Hindu*, Aug. 9, 2018, *available at:* https://www.rcmp-grc.gc.ca/en/national-missing-persons-dna-program (last visited on May 4, 2020).

states: "Subject to this section, the criteria for entry, retention and removal of any DNA profile in, or from, the DNA Data Bank and DNA laboratories shall be such as may be specified by regulations." These "regulations", to be formulated by the DRB later, will specify how long data is to be retained for different categories of data subjects. Will there be automatic deletion of the DNA data and retention of data from children and juveniles? The European Court of Human Rights decided in 2008 in the case of *S. and Marper* v. *The United Kingdom*[62] that indefinite retention of DNA information by the State infringes on the right to privacy of those individuals against whom charges were dropped after arrest or they were acquitted by the court. The UK has enacted the Protection of Freedoms Act, 2012 which limits the scope of DNA data banks.

Since the majority of the prison population in India are poor and illiterate, they will be unable to pursue their right to have their profiles deleted from the database. Considering this reality, the onus of deletion should shift to the data fiduciary. Furthermore, the retention and deletion of biological samples have not been clearly explained, especially when it comes to the maintenance of a fool-proof chain of custody, which is one of the prime requirements for the DNA samples and profiles to have legal relevance. The only mention of the maintenance of biological samples is regarding the penalty to be imposed for the destruction, alteration, contamination or tampering of biological evidence in clause 49, wherein the penalty prescribed is imprisonment for up to five years and also fine extendable up to two lakhs. However, clause 52 protects the officials from prosecution as they are deemed to be public servants and no legal action can be taken against them for any action taken in "good faith."

The DNA Bill also allows the sharing of DNA data with any foreign state, international organization, or institution, including the sharing of partial profiles. The sharing of partial profiles with foreign governments and institutions will expose innocent persons to suspicion and investigation due to their genetic similarities with a specific profile, creating "genetic suspects" through "familial searching",[63] meaning they are suspects because they share a similar genetic profile with a particular person of interest to the foreign investigation agencies. Cross border sharing of biological data needs to be done within a legal framework that protects the rights of individuals in a democratic society. The level of human rights protection accorded by the other

[62] [2008] ECHR 1581; Application nos. 30562/04 and 30566/04
[63] Erin Murphy, "Relative Doubt: Familial Searches of DNA Databases" 109 *Michigan Law Review* (2010).

countries with which data is being shared should be taken into consideration. Different governance standards, retention rules, and modes of organizing criminal justice systems between nations can subject the data shared to be treated differently in the country it is sent to. Human rights including privacy and presumption of innocence are at stake. The transfer of DNA data must occur legally only under a bilateral or multilateral arrangement[64] such as the Mutual Legal Assistance Treaty (MLAT) or the Interpol DNA Gateway.[65] Appropriate measures must be taken to ensure that DNA data is not provided to any foreign government which does not uphold civil rights. The sharing of DNA data with non-governmental bodies is a matter of grave concern. Any cross-border transfer of DNA data must be done in a transparent and accountable manner in the public interest. A report on such transfer of DNA data should be available in the public domain. Given the proliferation of biometric databases being created by the state and central governments, the DNA Bill is silent on the question of whether the DNA Data Bank will be linked with any other database, like Aadhaar or the National Population Register, in the future.[66] The ethical, social and legal ramifications of networking the DNA Data Bank with other biometric databases need a serious public and deliberative consultation and not be left to the DRB to decide on its own.

Powers of Central Government and financial aspects of the project

The Central Government can amend the Schedule in the Bill as per clause 56. The Central Government is also enabled with the power to make rules on various aspects, including, under Clause 58(2) (c), "the manner in which the Board shall assist and co-operate in criminal investigation between various investigation agencies within the country and with any foreign State, international organization or institution in dealing with DNA testing under clause (n) of section 12", along with the inclusion, retention and deletion criteria of DNA information in the database. The procedure to be followed for making changes in the Rules and Regulations is prescribed in

[64] In the European Union, the sharing of DNA data is authorised under the Prüm Convention since 2005; Victor Toom, "Cross-border Exchange and Comparison of Forensic DNA Data in the Context of the Prüm Decision" (Policy Department for Citizens' Rights and Constitutional Affairs, European Parliament, 2018); Aaron Opoku Amankwaa, "Trends in forensic DNA database: transnational exchange of DNA data" *Forensic Sciences Research* (2019).

[65]The communication protocols between Indian law enforcement authorities and their foreign counterparts regarding fingerprint data may be used to prepare guidelines for communication of DNA fingerprints as well; Mutual Legal Assistance in Criminal Matters, *available at:* https://www.mea.gov.in/mutual-legal-assistance-in-criminal-matters.htm (last visited on April 30, 2020); Interpol, "Interpol Handbook on DNA Data Exchange and Practice" (2009).

[66] Editorial "Aadhaar link to DNA profiles to be decided later, says minister" *Times of India,* Aug.18, 2018, *available at*: https://timesofindia.indiatimes.com/city/hyderabad/hyderabad-aadhaar-link-to-dna-profiles-to-be-decided-later-says-minister/articleshow/65381046.cms (last visited on May 17, 2020).

clause 60. At the same time, in clause 61, the Central Government is endowed with the power to remove any difficulties that crop up within two years from the commencement of the Act "by order published in the Official Gazette." It is, however, required that "every order made under this section shall be laid, as soon as may be after it is made, before each House of the Parliament." By virtue of these clauses, the Rules and Regulations to be framed respectively by the Central Government and the DRB or the order issued by the Central Government to remove difficulties in the Act may be operationalized even before obtaining the approval from the Parliament. Prior approval before operationalization is not the statutory requirement. They are required to seek subsequent approval and in case the Parliament does not approve them, its non-approval does not affect the validity of anything done previously under those rules or regulations.

Furthermore, the financial memorandum attached to the Bill provides for the establishment of a DNA Regulatory Board Fund in clause 40 "into which shall be credited grants and loans made to the Board, all sums received by the Board including fees or charges, or donations from such other source as may be decided by the Central Government and any income from investment of the amount of the Fund." The estimate provided, in the financial memorandum, for recurring expenditure is five crores per annum and for non-recurring capital expenditure is approximately twenty crore rupees. The financial memorandum explicitly states that no other recurring or non-recurring expenditure from the Consolidated Fund of India will be involved if the Bill is enacted and operationalized. This financial memorandum lacks a detailed report of the different expenditures to be involved and the specific method by which the DRB will fund this endeavor. Since public funds will be used for setting up the DNA Data Bank for a public purpose, a detailed report on exactly how this project will be funded is required, especially since clause 40(b) allows the DRB to receive donations. This provision needs to be removed as donations to the regulatory body may create a potential conflict of interest and may compromise its independence, thereby affecting the regulatory functions. It should also be ensured that none of the members involved in the running of the DNA Data Bank should have any financial, professional, or personal connections with the private laboratories that will do the DNA testing.

V. Conclusion

The establishment of the National DNA Databank in India is meant to enhance the well-being of the citizens by using technology to make the criminal justice system more effective. The use of

forensic DNA technology and DNA databases has the potential to assist the police and the courts in bringing the guilty to justice while at the same time exonerating those who are innocent. The creation of a DNA database is a complex socio-technical exercise involving many actors like the government, scientists, lawyers, activists, and other non-governmental organizations. There is no universally acceptable blueprint to follow in the regulation and governance of DNA technology as each country will have their own specific technical, political and socio-legal systems to engage with. The project to operationalize a data bank, which can identify criminals through their digital genetic profiles must be evaluated through the rubric of whether it has the potential to enhance or retract civil liberties. This is an exercise that demands a fine balance between liberty and security. The effective governance of DNA Data Banks in the West has acknowledged this complexity and engaged with civil society to provide policy suggestions for regulating the use of DNA technology. As has been highlighted in this paper, the latest version of the DNA Bill is deficient in many respects. The deficiencies mentioned in the Bill need to be rectified before its enactment as law for effective and efficient delivery of justice to the citizens.