



## In Depth - DNA Technology Bill

The DNA Technology (Use And Application) Regulation Bill, 2019 was introduced in the Lok Sabha. The bill which is **also known as the DNA profiling bill**, tries to check use of DNA technology to establish the identity of a person. According to the government, the DNA technology bill aims to establish the identity of missing persons, victims, offenders, under trials and unknown deceased persons. The Lok Sabha passed a similar bill in January, 2019 but it lapsed when the Rajya Sabha could not clear it due to lack of support from the opposition.

### Provisions of the Bill

- It seeks to establish a **national data bank** and regional DNA data banks.
- It envisages that every databank will maintain indices like **the crime scene index, suspects' or undertrials' index**, offenders' index, **missing persons' index** and unknown deceased persons' index.
- It also seeks to establish a **DNA Regulatory Board**. Every laboratory that analyses DNA samples to establish the identity of an individual, has to be accredited by the board.
- The bill also proposes a **written consent** by individuals be obtained before collection of their DNA samples. However, consent is not required for offences with punishment of more than seven years in jail or death.
- It also provides for the **removal of DNA profiles** of suspects on the filing of a police report or court order, and of undertrials on the basis of a court order. Profiles in the crime scene and missing persons' index will be removed on a written request.

### DNA Profiling Bill and India

- DNA evidence was first accepted by the Indian courts in 1985, but it was not till January, 2019 that a bill on the issue was first introduced in Parliament and even passed by the Lok Sabha.
- The **initiative** to draft a bill regulating the use of DNA samples for crime related reasons began in the year **2003**.
- The Department of Biotechnology established a committee known as the **DNA Profiling Advisory Committee** to make recommendations for the drafting of the DNA profiling bill 2006. This eventually became the Human DNA Profiling Bill, 2007.
- The **2007 draft bill** was prepared by the Department of Biotechnology along with the Union Government for **DNA fingerprinting and diagnostics**.
- In 2007, the draft Human DNA Profiling was made public. However, it was never introduced in the Parliament. It was criticized by civil society members and non-government organizations for not addressing the privacy concerns.
- **In 2013**, the Department of Biotechnology formulated **an expert committee** to deliberate on concerns raised about the bill and also to finalize the text.
- In 2015, the government planned to table the bill in the Parliament during its monsoon session but did not do so due to widespread criticism over privacy and data security safeguards.
- In 2016, the Use and Regulation of DNA based technology in Civil and Criminal Proceedings, Identification of Missing Persons and Human Remains Bill was listed for introduction, consideration and passing. Activists and experts raised concerns over the 2016 version of the bill as well.
  - They raised questions of how the bill plans to safeguard the privacy of those whose DNA profiles will be stored in the databank, the safeguards the samples and data banks will

have against contamination and theft and the terms of use and availability of the profiles among law enforcement officials, scientists and foreign agencies.

- However, in 2016, **Andhra Pradesh became the first state** in India to start DNA profiling to stop crimes.
- In 2018, the **Law Commission of India in its 271<sup>st</sup> report** prepared the draft bill named the DNA Based Technology (Use and Regulation) Bill 2017.
  - The commission examined various judicial pronouncements and constitutional provisions and recorded that DNA profiling was indeed used for disaster victim identification, investigations of crime, identification of missing persons and human remains and also for medical research purposes.
  - However, it also flagged the privacy concerns and the ethics involved in this scientific collection of data were very high.
  - The commission said the procedure for DNA profiling if given statutory recognition should be done legitimately as per the constitutional provisions.

## DNA Profiling

- **Deoxyribonucleic acid**, commonly known as DNA, is the hereditary complex molecule present in humans and almost all other organisms.
- Nearly every cell in a multicellular organism possesses the full set of DNA required for that organism. Most DNA molecules consist of two bio polymer strands coiled around each other to form a **double helix**. The two strands are called **polynucleotides** since they are composed of simpler monomeric units called nucleotides.
- Each nucleotide is composed of one of **four chemical bases: cytosine (C), guanine (G), adenine (A), thymine (T)**.
- It also has a sugar called deoxyribose and a phosphate group. These nucleotides create proteins that is needed for the cell.
- DNA contains all of the information necessary to build and maintain an organism including biological information.
- Although 99.9% of human DNA sequences are the same in every person, some of the **DNA is unique** that makes it possible to distinguish one individual from another.
- DNA can be **extracted** from the saliva, hair, blood samples, any small amount of the muscles or tissues of a person, nail scraping.
- DNA's molecular structure was **first identified by James Watson and Francis Crick** in 1953. They won the **nobel prize** for the same in 1962.
- With time, DNA technology evolved and in **1984**, British scientist **Sir Alec John Jeffrey** discovered the modern technology of **DNA profiling**.
- DNA Profiling is the process of **determining an individual characteristics** and most commonly used as a forensic technology to identify a person.

## DNA Index System

- It is a first-of-its-kind initiative which allows **generation of DNA profiles from live samples** like saliva and blood stains within **90-120 minutes**.
- This system uses the latest DNA technology developed by IntegenX, Inc USA, known as the RapidHit DNA system.

## Benefits of DNA Profiling

- Through DNA profiling technique, heinous crimes can be easily solved.
- It can also help to **nab criminals**.
- DNA profiles taken from the place of crime can be matched with the samples of criminals arrested even after several years.
- This technique is very effective in identifying accident victims, missing people or identifying disaster victims.
- The **identification of parents** is also possible with the use of the DNA profiling.

## Criticism

- DNA profiling is being criticized as a technique that **breaches an individual's privacy**. It is being seen as interfering in someone's privacy by collecting his/her genetic data.

### International Guidelines on DNA Profiling

- On the international platform, in the case of DNA sampling and profiling, the privacy of an individual has not only been done through human rights but also through the guidelines issued for the use and maintenance of DNA.
- The **DNA Commission** constituted by the **International Society for Forensic Genetics (ISFG)** has issued strict guidelines in this regard.
  - In case of an emergency, the Forensic DNA laboratory is required to first inform the concerned officer.
  - Before taking the DNA sample of an injured or the deceased person, it is necessary to seek an opinion from the person or his family.
  - At the time when a person's DNA is taken, the name of officer on duty should be clearly mentioned.
  - There should be a **guarantee to keep the investigation and collection private**. At the same time, proper maintenance should be ensured.
  - It is clearly mentioned in the ISFG's report that to streamline the process of DNA collection, it is important to make an accurate system and report. If many agencies are collecting DNA sample, then the clarity of the number of people and correct data must be ensured.
  - Besides, there are strict provisions for getting the DNA test of a missing person done from a recognised laboratory. The laboratory should have long and authentic work experience. Apart from this, it is also necessary to have a **centralised electronic database** to collect all DNA samples.
  - **All countries including India has been following these guidelines.**

### DNA Profiling in Other Countries

- Over 60 countries have made legal provisions for the use of DNA technology to **investigate criminal cases**. These countries include Argentina, United States, China, Britain and Canada.
- DNA Profiling is **allowed only in serious criminal cases** in the Netherlands, Germany, France and Austria. This provision also exists in India. By taking prior permission from the court, biological samples of suspects in criminal cases can be taken for DNA profiling.

### Arguments Against the Bill

- Many claim that the DNA profiling bill is a **violation of human rights** as it could compromise with the privacy of the individuals, that is because all the details of the person's body and his DNA profile will be with the state. **The Supreme Court has recognised the Right to Privacy as a fundamental right.**
- It will be used not only in the settlement of criminal cases **but also in civil matters** like using DNA profiling in matters such as surrogacy, maternity or paternity check, organ transplantation and immigration.
- The **International Human Rights Declaration** and the **1964 Helsinki agreement** are also being cited for the case against it.
  - **The Universal Declaration of Human Rights 1948** adopted by the United Nations General Assembly expresses concern about the rights of human beings against involuntary maltreatment.
  - **The Declaration of Helsinki, 1964**, set the guidelines adopted by the 18th World Medical Association General Assembly. It contains 32 principles, which stress on informed consent, confidentiality of data, vulnerable population and requirement of a protocol, including the scientific reasons of the study, to be reviewed by an Ethics Committee.

### Arguments in favour of the Bill

- **Individual privacy is ensured** as the custodian of the databank will not release any information without a formal requisition. The one who is need of the DNA process i.e. investigator has to go through a requisition process via police. Data will be accepted from the investigators which will be matched with the data available in the databank.
- The DNA pattern will be kept in the DNA bank and that will be used whenever **required** for any purpose **in national interest**, police interest or forensic interest.
- DNA profiles will be kept under a government regulatory body with certain terms and references. There are a least chances of any misuse.

*Whenever a new law is brought or changes are made in the existing law, privacy and human rights should be a top priority.*

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