

## General Studies – 3; Topic: Awareness in the fields of biotechnology

### DNA Profiling in India

#### 1) Introduction

- DNA profiling (also called DNA fingerprinting, DNA testing, or DNA typing) is a forensic technique used to identify individuals by characteristics of their DNA.
- A DNA profile is a small set of DNA variations that is very likely to be different in all unrelated individuals.

#### 2) The draft DNA Based Technology (Use and Regulation) Bill, 2017

- The Law Commission has drafted a Bill on the use and regulation of human DNA profiling.
- DNA Profiling Bill if approved, will make India among the last large countries to adopt a fingerprinting bill
- The bill permits processing of DNA samples and puts in place safeguards against the misuse of data.
- DNA profiling would be undertaken exclusively for identification of a person and would not be used to extract any other information.
- A DNA Profiling Board will be constituted as a statutory body which will be responsible for supervising, monitoring, inspecting and assessing DNA laboratories
- Creation of National DNA Data Bank and Regional DNA Data Banks (for the states)
- The violators of the provisions would be liable for imprisonment and fine.

#### 3) Benefits

- Help to convict serious criminals and possibly even preventing crime.
- Useful in the aftermath of a natural disaster for disaster victim identification.
- Identification of missing persons and human remains
- Medical research purposes
- Establishing parentage or blood relations between individuals.
- DNA fingerprinting is used in the study of animal and floral populations
- To address the issue of thousands of unclaimed dead bodies that are reported annually.

#### 4) Other countries

- Over the last 25 years, most countries have adopted a DNA fingerprinting law, developed databases for use in criminal investigation, disaster identification and forensic science.
- The UK today maintains DNA profiles of nearly 7% of its citizens.
- DNA database is set up by the Federal Bureau of Investigation (FBI) in the US.

#### 5) Concerns / Challenges

- Concerns arise when tissue samples, genetic information and personal data are stored indefinitely on a DNA database.
- Misuse of the data and threatening individual rights
- Privacy concerns and the ethics involved in this scientific collection of data
- DNA is not foolproof – false matches can take place for multiple reasons
- DNA tests have not led to an improvement in conviction rates in countries where it is already being followed.

### 6) Way Forward

- The procedure for DNA profiling, if given statutory recognition, should be as per constitutional provisions.
- The implications of creating regional and national level DNA databanks need to be fully understood and publicly debated.
- Need for a robust process and structure for collection of DNA samples from a crime scene to the laboratory for analysis, to the DNA Bank for storage and comparison.
- Enact comprehensive privacy legislation in India.
- Enabling the individual to control and know how her/his data is being used. Other countries have recognised this and are taking important steps to empower the individual.
- Safeguards to prevent illegal collection and use of DNA data as stated by A. P. Shah Committee.
- The bodies collecting, analysing and storing DNA data should release an annual report, detailing their practices and organisational structure.

