Syllabus subtopic: Awareness in the fields of IT, Space, Computers, robotics, nanotechnology, bio-technology and issues relating to intellectual property rights.

News: A parliamentary panel headed by Congress leader Jairam Ramesh began hearing the contentious DNA Technology (Use and Application) Regulation Bill, 2019 with members grilling officials from the Department of Biotechnology on scope for violations of privacy in the proposed DNA data bank.

For Prelims: DNA Bill- features, merits and demerits

For Mains: DNA profiling- uses, challenges, and concerns.

About DNA Bill 2019

- The Bill seeks to create a national data bank, and regional data banks which will have DNA, samples of under trials, suspects, missing persons and unknown deceased persons.
- It has proposed DNA sampling and profiling of citizens accused of crime or reported missing, and storing their missing and unique genetic information for administrative purposes.
- Therefore, the new bill aims to expand the application of DNA-based forensic technologies to support and strengthen the justice delivery system of the country.

Key features of the Bill:

1. **Data Banks**: As per the Bill, national and regional DNA data banks will be set up for maintaining a national database for identification of victims, suspects in cases, under trials, missing persons and unidentified human remains.
2. **Punishment**: According to it, those leaking the DNA profile information to people or entities who are not entitled to have it, will be punished with a jail term of up to three years and a fine of up to Rs. 1 lakh. Similar, punishment has also been provided for those who seek the information on DNA profiles illegally.
3. **Usage**: As per the bill, all DNA data, including DNA profiles, DNA samples and records, will only be used for identification of the person and not for “any other purpose”.
4. **The bill’s provisions will enable the cross-matching between persons** who have been reported missing on the one hand and unidentified dead bodies found in various parts of the country on the other, and also for establishing the identity of victims in mass disasters.
5. **Regulation**: The Bill establishes a DNA Regulatory Board to accredit the DNA laboratories that analyse DNA samples to establish the identity of an individual.

Significance of the bill

- DNA analysis is an extremely useful and accurate technology in ascertaining the identity
of a person from his/her DNA sample, or establishing biological relationships between individuals.

- A hair sample, or even bloodstains from clothes, from a scene of crime, for example, can be matched with that of a suspect, and it can, in most cases, be conclusively established whether the DNA in the sample belongs to the suspected individual. As a result, DNA technology is being increasingly relied upon in investigations of crime, identification of unidentified bodies, or in determining parentage.

- It is expected that the expanded use of DNA technology would result not only in speedier justice delivery but also in increased conviction rates, which at present is only around 30% (NCRB Statistics for 2016).

**Challenges:**

**Prone to misuse:** Information from DNA samples can reveal not just how a person looks, or what their eye colour or skin colour is, but also more intrusive information like their allergies, or susceptibility to diseases. As a result, there is a greater risk of information from DNA analysis getting misused.

**Safety issues:** There’s also the question of whether the DNA labs accredited by the Regulatory Board are allowed to store copies of the samples they analyse. And if so, how the owners of those samples can ensure the data is safe or needs to be removed from their own indices.

**Concern over storage:** It’s not clear if DNA samples collected to resolve civil disputes will also be stored in the databank (regional or national), although there is no index specific for the same. If they will be stored, then the problem cascades because the Bill also does not provide for information, consent and appeals.