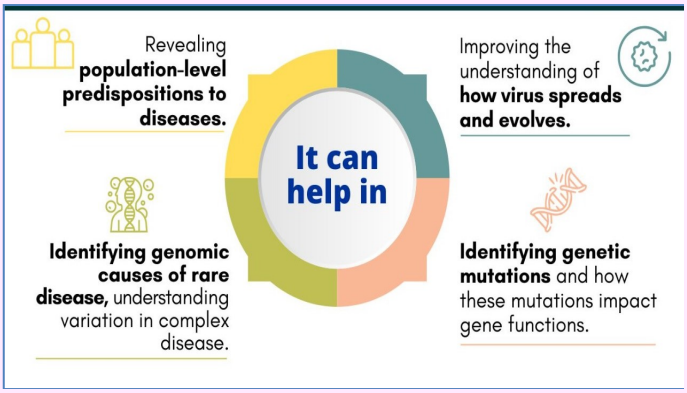
- It is also seen as a **precursor to a much larger exercise to map** a larger swathe of the population in the country.
- Now, CSIR has announced the **conclusion of 'Whole Genome Sequencing"** of 1,008 Indians from different populations across the country. It was found that:
  - **32% of genetic variations in Indian genome sequences are unique** as compared to global genomes.
  - The computational analysis led to the identification of 55,898,122 single nucleotide variants in the India genome dataset.

**Significance of the 'Indigen Project'**

- **Understanding the Indian genome variation:** This could help in:
  - **Understanding the epidemiology of genetic diseases** to enable cost effective genetic tests.
  - **Carrier screening** (determining chances of having a child with genetic disorders) applications for expectant couples.
  - **Pharmacogenetic** (study of how genes affect a person's response to drugs) tests to prevent adverse drug reactions.
  - **Understanding the genetic diversity** on a population scale.
  - Making **genetic variant frequencies** available for clinical applications.
- **Understanding genomes:** Study of the entire genome sequence will help scientists understand how the genome as a whole works.

**About Genome sequencing**

- A genome is an **organism's complete set of DNA.** It includes all chromosomes, which houses the DNA, and genes.
- Each genome contains all of the information needed to build and maintain that organism.
- The genome can be understood through the process described as sequencing.
- **Genome sequencing** means deciphering the exact order of base pairs in an individual.




**Related information**

**Human Genome Project (HGP)**

- It was the international research effort to **determine the DNA sequence of the entire human genome.**
- It began in 1990 and completed in 2003.
- The HGP gave us the **ability, for the first time, to read nature's complete genetic blueprint** for building a human being.
- It was coordinated by the **National Institutes of Health, USA and the Department of Energy, USA.**

**Genome India Project**

- It is **India's gene-mapping project** that is being described as the "first scratching of the surface of the vast genetic diversity of India".
  - **A genome sequence** spells out the order of each base/nucleotide of the DNA, while **genome mapping** simply identifies a series of landmarks in the DNA.
- It hopes to form a grid after collecting 10,000 samples in the first phase from across India, to arrive at a representative Indian genome
- It was cleared by the **Department of Biotechnology, Ministry of Science and Technology** in Jan, 2020.
- It involves **20 leading institutions** including the Indian Institute of Science in Bengaluru and a few IITs.

## 1.5. OTHER IMPORTANT NEWS

### 1.5.1. BIOPESTICIDES

**Why in News?**

Recently, Institute of Pesticide Formulation Technology, under Ministry of Chemicals and Fertilizers has developed **Bio-Pesticide Formulation for insect control in seed spice crops.**

**More on News**

- The formulation has **good shelf life, safe to user & environment** and it may be effectively used for controlling different agricultural insects.
  - For controlling losses from the insects, large amounts of synthetic chemical pesticides are used in seeds crops, resulting in higher levels of pesticide residues in seed spices which leads to risks for human health and environment.
- It is based on **entomo-pathogenic fungus Verticillium lecanii**.