Indian Biological Data Centre

Why in News?

Recently, government has set up **'Indian Biological Data Bank' at the Regional Centre for Biotechnology (RCB), Faridabad.**

- Indian Biological Data Bank is better known as **'Indian Biological Data Centre (IBDC)'.**

What is IBDC?

- **About:**
  - IBDC is the **first national repository for life science data in India,** where the data will not only be submitted from across India but can be accessed by researchers from across India
  - It is **mandated to archive all life science data in IBDC generated from publicly funded research** in India.
  - The data center is supported by the **Department of Biotechnology (DBT).**
  - It is being established at the **RCB in collaboration with the National Informatics Centre (NIC), Bhubaneshwar.**
  - It costed around **85 crore rupees to be set up.**
- **Key Features:**
  - The digitised data will be stored on a **four-petabyte supercomputer called 'Brahm**'.
    - A petabyte equals 10,00,000 gigabytes (gb).
  - **Different sections of IBDC** would typically deal with **particular type(s) of life science data.**
    - Each IBDC section would have dedicated data submission and access schema.
  - IBDC has a backup data **'Disaster Recovery' site at NIC.**
  - Further, IBDC shall also develop **highly curated data sets in order to facilitate knowledge discovery** in various domains of life sciences.
  - It would also provide **infrastructure and expertise for biological data analysis.**
  - It currently accepts nucleotide sequences — the **digitised genetic makeup of humans, plants, animals, and microbes.**
    - There are now **200 billion base pair data in the bio-bank,** including **200 human genomes sequenced under the '1,000 Genome Project',** which is an international effort to map the genetic variations in people.
      - The project will also focus on populations that are predisposed to certain diseases.
    - It will also **help researchers in studying zoonotic diseases.**
  - Although the database **currently only accepts such genomic sequences, it is likely to expand later to storage of protein sequences** and **imaging data** such as copies of Ultrasound and Magnetic Resonance Imaging (MRI).
- **Objectives:**
  - **Provide IT platform** for perpetually archiving biological data in the country.
  - **Development of standard operating Procedures (SOPs)** for storing and sharing the data as per FAIR (Findable, Accessible, Interoperable and Reusable) Principle.
  - **Perform quality control, curation/annotation of data,** data backup and management of data life cycle.

    - Development of **web-based tools/Application Programming Interface (API)** for data sharing/retrieval.
    - Organization of **training programs on 'Big' data analysis** and benefits of data sharing.
- **Data Access:**
    - IBDC would have majorly two data access types:
        - **Open access/time-release access:** Data submitted at IBDC would be freely accessible across the globe as per international open-access standards. The submitter, however, may choose to restrict the data access for a defined period of time.
        - **Restricted access:** The data would not be made accessible freely. It can only be accessed through prior permission through IBDC from the original data submitter.
- **Significance:**
    - It will **reduce the dependency** of Indian researchers **on American and European data banks.**
    - It will not only provide a platform to researchers to securely store their data within the country, it will **also provide access to a large database of indigenous sequences for analyses.**
        - Such databases have traditionally played a key role in **determining the genetic basis of various diseases** and finding targets for vaccines and therapeutics.

Source: IE

PDF Refernece URL: https://www.drishtiias.com/printpdf/indian-biological-data-centre