



Project SWADESH

Why in News

Recently, the [Department of Biotechnology \(DBT\)-National Brain Research Centre \(DBT-NBRC\)](#) has developed **Project SWADESH**, for managing Neurological disorders.

- NBRC is the only institute in India dedicated to **Neuroscience Research and Education**.

Key Points

▪ About:

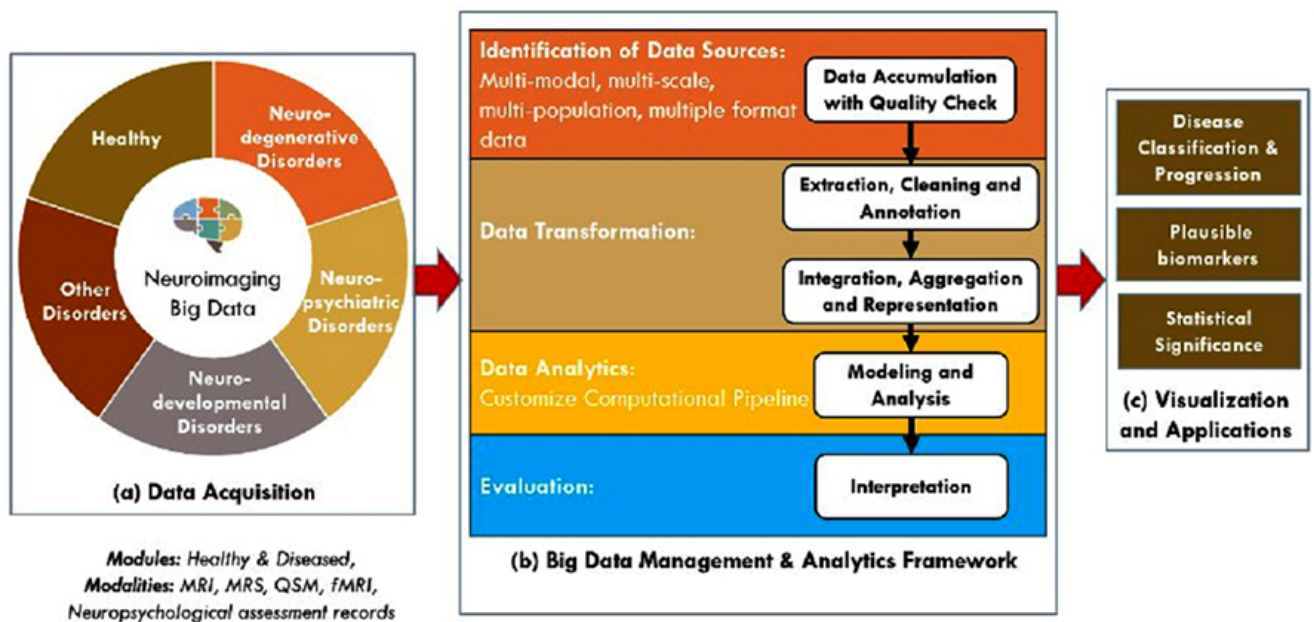
- It is the **first large-scale multimodal neuroimaging database** designed specifically for the Indian population with **big-data** architecture and analytics for various disease categories under one platform.
- It proposes a **big-data architecture** that manages and **analyzes six modules**, namely **neurodegenerative** [AD, Mild Cognitive Impairment (MCI), and **Parkinson's disease** (PD)], neuropsychiatric (schizophrenia and bipolar disorder), neurodevelopmental (autism and **epilepsy**), **Covid-19**-related disorders, other disorders, and healthy subjects.
- It is supported by **JAVA-based workflow environments and Python**. Backed by a dedicated storage system, it provides quality control, data analysis reports, and data backups.

- **Python and Java** are both computer programming languages.

▪ Significance:

- It will be useful in conducting multimodal brain studies to understand **Alzheimer's disease** and several neurological disorders.
- Its development will facilitate the **integration of multi-site data and collaborative research worldwide**.

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Framework for SWADESH: a comprehensive platform for multimodal neuroimaging data, quality control, and data analytics. The major components are: (a) data acquisition, (b) big data management and analytics framework, and (c) visualization and applications

Neurological Disorders

▪ Meaning:

- Neurological disorders **are diseases of the central and peripheral nervous system.**
 - In other words, the brain, spinal cord, cranial nerves, peripheral nerves, nerve roots, autonomic nervous system, neuromuscular junction, and muscles.

▪ Types:

- **Non-Communicable Neurological Disorders:** Stroke, Headache disorders, [Epilepsy](#), [Cerebral palsy](#), [Alzheimer's disease and other dementias](#), Brain and central nervous system cancer, [Parkinson's disease](#), [Multiple sclerosis](#), Motor neuron diseases, and other neurological disorders.
- **Communicable Neurological Disorders:** [Encephalitis](#), [Meningitis](#), Tetanus.

▪ Injury-related Neurological Disorders:

- Traumatic brain injuries, Spinal cord injuries.

▪ Indian Scenario

- Neurological disorders **contribute 10% of the total disease burden in India.**
- There is a growing burden of **non-communicable neurological disorders** in the country, which is mainly attributable to the ageing of the population.
- The contribution of non-communicable neurological disorders to total DALYs (disability adjusted life-years) in India **doubled from 4% in 1990 to 8.2% in 2019**, and the contribution of **injury-related neurological disorders increased from 0.2% to 0.6%.**
 - Burden, high blood pressure, [air pollution](#), dietary risks, high fasting plasma glucose, and high body-mass index are the leading contributors for Neurological Disorders in India.

[Source: PIB](#)

