#### Application of Big Data in Official Statistics

National Statistical Office Ministry of Statistics and Program Implementation Government of India 11<sup>th</sup> October 2022

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The better the question. The better the answer. The better the world works.

#### Indian Official Statistical System

- Indian official statistical system is decentralized
  - horizontally across the Ministries/Departments
  - vertically across the states
- Data pertaining to different sectors are collected by different agencies from multiple sources at various disaggregated levels.
- NSO, Ministry of Statistics & Programme Implementation, Government of India is the nodal ministry for planning integrated development of the statistical system in the country
- NSO, India is also tasked with laying down and maintaining norms and standards in the field of statistics

### Data Sources

- ► Administrative Data
- ► Census
- ► Surveys

#### Need for Big Data and its usage

- Tremendous scope for developing new data products and processes through use of advanced ICT to address primary concerns of NSOs
  - > Quick and timely response to emerging information needs
  - > Issues in addressing quality concerns while harnessing alternative sources of data
  - vulnerability to shocks
- In the constantly evolving data ecosystem, integration of traditional and non-traditional data sources is the need of the hour

# NSO, India Initiatives On Big Data

## Use of BIG data in compilation of GDP

## Goods and Services Tax (GST) data is used in compilation of quarterly GDP estimates

### MCA21 used in preparing estimates of Non-Financial Private Corporations.

## **Monitoring of SDGs**

- GIS used in compiling some of the SDG National Indicators covering areas like Forest, Wet Lands, Land Use.
- Indicators related to Water, Land Cover, Built up Area of cities are being explored for use of GIS

### **Engagement with International Bodies**

- Acquired Membership of UN Committee of Experts on Big Data and Data Science for Official Statistics
- Technical Assistance from UNSD for Capacity Building of NSO, Officials in field of Big Data and Data Science for Official Statistics
- Member of the Data Integration Community of Practice (DI-CoP), UN ESCAP
- Active Participation in UNSC sessions held on Big Data and Nontraditional Sources for SDGs

## **Geospatial data benefitting Agriculture**

- Geo-tagging of Rashtriya Krishi Vikas Yojana (RKVY) Assets using Geoportal Technologies
- Bhuvan Geo-Portal provides facility to visualize asset spread in the context of high resolution image backdrop with GIS analytical capabilities.
- National Hydrology Project (NHP) is engaged with:
  - Generation of geospatial products & services pertaining to water resources sector
  - Generation of high resolution digital elevation models
  - Development of flood early warning systems
  - Decision support system development for irrigation water management
  - Modelling & dissemination of hydrological products to support water resources management
- Yuktadhara portal to collect data through remote sensing which will benefit the agriculture sector for irrigation

**Unifies District Information Systems for Education (U-DISE+)** 

- Collects information from all schools imparting formal education from Classes I to XII.
- Collects information on school profile, physical infrastructure, teachers, enrolments, examination results, etc.
- Entire system is now online.
- Stakeholders can access and analyse information to make evidence-based decisions.
- Monitor and measure school performance in real-time.
- Cross-sectional analysis of data to study the relationship among various factors impacting the school's performance especially in enrolment.



**Unifies District Information Systems for Education (U-DISE+)** Contd.

#### GIS Mapping

- The exact geographic location of schools with latitude & longitude can be viewed.
- Base map services like street maps and high-resolution satellite images are available for a better understanding of the topography/ terrain of the school locations.
- School report cards giving vital information such as school category, management, infrastructure, enrolment, student-teacher ratio, studentclassroom ratio, etc. will be linked to the photos of the schools on the map.



# **Applications at Sub-National Level**

## Water Management

- To provide equitable water supply
- To plug Revenue Losses
- To measure water quality on a real time basis

Some of the most useful examples on Integration of services and platforms include Aadhaar platform of Unique Identification Authority of India (UIDAI), Payment Gateways, Mobile Seva platform.

#### Linking of Aadhaar with DBT

It enables Ministries/Departments under Centre and State governments to provide Direct Benefit Transfer to the beneficiaries using the Aadhaar Payment Bridge.



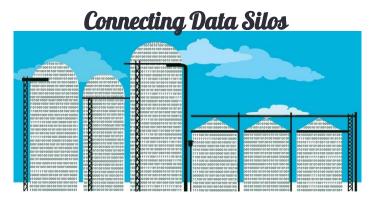


### **Official Statistical System – Digitised Data: Challenges**



Data Availability Unstructured Formats





**Missing Key Identifier** 



Duplication



Privacy and Confidentiality



#### THANK YOU

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