PBS's Modernization through Digitalization

Presentation at SESRIC 14th Session, Ankara, Türkiye
By
Dr. Naeem uz Zafar (SI)
Chief Statistician,
Pakistan Bureau of Statistics

LAYOUT

- **Digitization provides basis for digitalization**

- **Addressing discrete Data Gaps**

- **Moving towards National Statistical System (NSS), beginni Digitalization**

- **Engagement with Provinces**

- **Engagement at Federal level**

- **Changes within PBS**

- **Data Fest**

- **Final Thoughts**

DIGITIZATION PROVIDES BASIS FOR DIGITALIZATION

- It is good to keep **digitalization** in sight but not without passing through **steps of digitization**

- PBS embarked on this journey by **digitizing the data collection** for major national survey like **Village Census, Social & Living Standards Measurement, Household Integrated Economic Survey, Labor Force Survey, and ongoing activities for Price data collection**

- This created necessary base for digitizing **sampling frame**; **digital sample selection**; **digitizing questionnaire**, **develop a management system of enumerators, EB, and device to track progress**, monitor, and improve data quality

- Major outcome of this change was **efficient and effective data collection**

- This also created a **digital base for creating information and decision portals** for general public and administration

ADDRESSING DISCRETE DATA GAPS

- Digital data collection for major **national surveys** and **development of portal** and DSS based on these surveys developed confidence and capabilities in PBS officials to plan for first digital census of Pakistan

- The confidence and capabilities led to conduct of **First Digital Census in Pakistan in 2023, the largest Digitization exercise of South Asia**

- This census counted more than **241 million people**, geotagged more than **40 million structures** and collected data on sociodemographic characteristic of population

- This census included question in **listing module** on **economic characteristic of structure** which result in collecting **7.2 million establishments.**

- Based on responses, the economic category of respondents was geotagged using **2 digit ISIC** codes thus developing the basis of **Economic Frame.**

ADDRESSING DISCRETE DATA GAPS

- The build up to address discrete data gap continued and the accumulated information helped in innovating for conducting **agriculture, livestock, and machinery census** in a integrated way

- Challenge was to get merge the three universes representation **agriculture, livestock, and machinery** populations into one universe so that single unified representative sample may be drawn for conducting **integrated census**

- It was done through a detailed and iterative process using **Village Census 2020** and **Housing & Population Census 2023**. Population census was especially useful as it had industrial and occupational information of whole population

- After getting **unified sample**, rest was planning and details. Integrated agriculture census was done in less than **1.5 years compared to 10 years** it used to take when three censuses were done sequentially

- Another major benefit brought by integrated agriculture census was the conformity of **data collection with agriculture practice in Pakistan**, i.e. the three decisions of **crop, livestock, and machinery** is done simultaneously and not sequentially

MOVING TO NSS, BEGINNING OF DIGITALIZATION

- Between **2022 and 2023**, PBS conducted **First Digital Census** and this provided basis for conducting **data collection and verification exercise** for economic census and then for **Integrated Agriculture Census**

- Thus in short period of **2 Years**, PBS delivered **Economic** and **integrated Agriculture Censuses**

- This not only provided **significant increase in management capabilities** and confidence but also increased **PBS digital capabilities and digital infrastructure**

- More importantly, its helped PBS in reflecting on its role as a secluded data producer or **develop a data system be in which PBS is at hub**

- This thinking led to engagement with **data producers for data/statistics acquisition** from provincial counterparts and sharing back information they need for **policy and decisions**

- As a matter of fact this thinking embodies the **development of NSS**
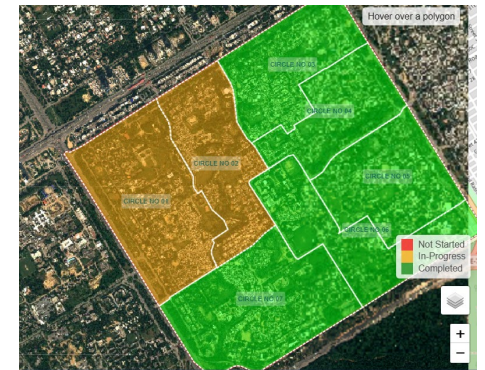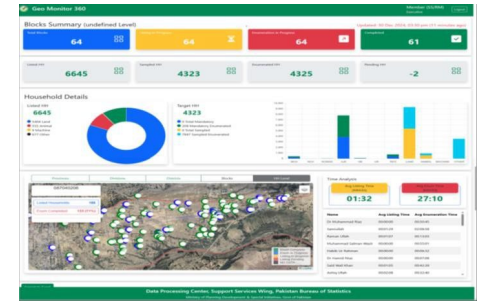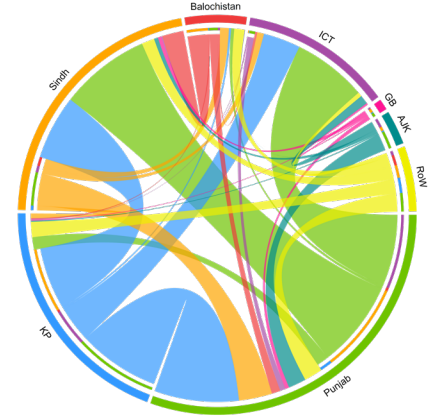
ENGAGEMENT WITH PROVINCES

- Unlike Digitization, Digitalization is not defined by organization centered endeavors but rather steps involved in developing a system comprising of **data producers and users**, **communicating with each other** through data and information flows in both directions

- There are various steps in this pursuits, some of these relate with engagement with **sub-national entities**, some are related with cresting necessary **digital infrastructure**, some are related with **data governance**, some are related with **reform and constitutional**

- I will state the **digitalization process** in Pakistan's context

- Pakistan is the federation of **four provinces** in which major **socioeconomic sectors are devolved to provinces**

- The **capacity of provincial bureau** vary significantly

- There are **few national statistics, like censuses, national income** which are exclusive to federation but there is big potential of helping information needs of **provincial stakeholders** as their **capabilities of data collection** and developing needed information are limited and not uniform
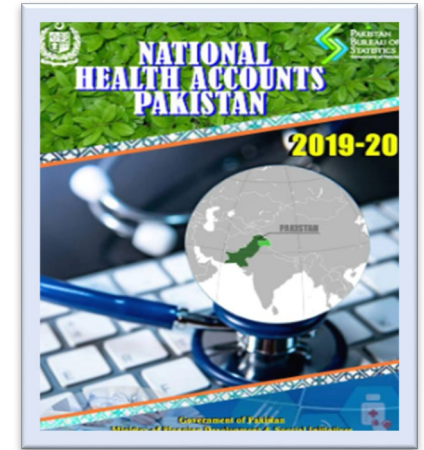
ENGAGEMENT WITH PROVINCES

- PBS adopted engagement with **provincial stakeholders, especially the Planning & development departments** and **Provincial Bureau** and major line department in social and economic services and showed them the insights, uses cases, and business cases based on **Housing & Population Census, Economic Census, Integrated Agriculture Census**

- Focus was to show the **interactive portals based on above datasets** to show them the help in **need identification, <u>improvement in governance</u>, fiscal comparison between mode of service delivery, and impact evaluation**.

- In short, development and growth possibilities these data sets were presented to be used by provincial stakeholders in **result framework** of their socioeconomic policies and interventions.

- This engagement led to **MoUs** between **Provincial Governments** and PBS for **data sharing and strengthening provincial bureau**

ENGAGEMENT AT FEDERAL LEVEL

- Another major lever NSOs have is **National Accounts**

- PBS has been compiling annual **GDP since early 50s** and it started compiling Quarterly **GDP since November 2023**

- Recently, PBS engaged with **Federal Ministries** in **Energy, Telecommunication**, **Transportation, Food Security, Financial Sector,** and industry to strengthen data sharing through **APIs.**

- As the next stage PBS plans to:

  - Engage with authorities for issuing individual identity for development of **Population Register**

  - Engage with **Security Exchange Commission**, **Electricity Regulator, Natural Gas Regulator** and also to rely on field data collection and updating to develop **Statistical Business Register** from Economic Census

CHANGES WITHIN PBS

- To realize the development of stated objectives and measures, PBS significantly improved in following
  - Digital infrastructure, bank of **125,000 tablets** coupled with a **950 TB data** server capable of handling any data collection exercise
  - Significant number of **IT officials trained in R, Python, AI/ML, Web scrapping, GIS programming**
  - Development of **Web portals, mobile apps, call centers, APIs, SMS gateways**,
- Development of a project in which focus is on:
  - **Data quality, communication, data analytics, and Data products, and Data as a Service**
  - Development of **National Statistical Hub**
  - **Establishment of a Learning & resource center** hosting Economic Intelligence Unit, Social & Demographic Intelligence Unit, Training, and Incubation center
  - Development of **5 to 10 years work calendar of NSS (PBS + Provincial Bureaux)** defining role of PBS and provincial Bureaux in data collection, data acquisition, and information sharing

Pakistan Bureau of Statistics

www.pbs.gov.pk

DATA FEST

- With an objective to create a platform which can bring **stakeholders** together to discuss the **benefits from data sharing**, PBS conducted first **Data Fest of Pakistan in 2024**
- This included discussion in **six thematic areas** in which stakeholders may engage in voluntary data and information sharing for improved need identification, governance, fiscal efficiency, growth & investment, fiscal broadening, and diester risk & climate adaptation
- Participants included **public sector, private sector, UN, multilaterals, tech, academia, and civil society**
- These stakeholders also showcased their **databases, data products, data services, digital capabilities and services in expo area.**
- Idea was to **increase data literacy and usage**
- This year, Data Fest is planned on **11th & 12th November**, all are **cordially invited to join**
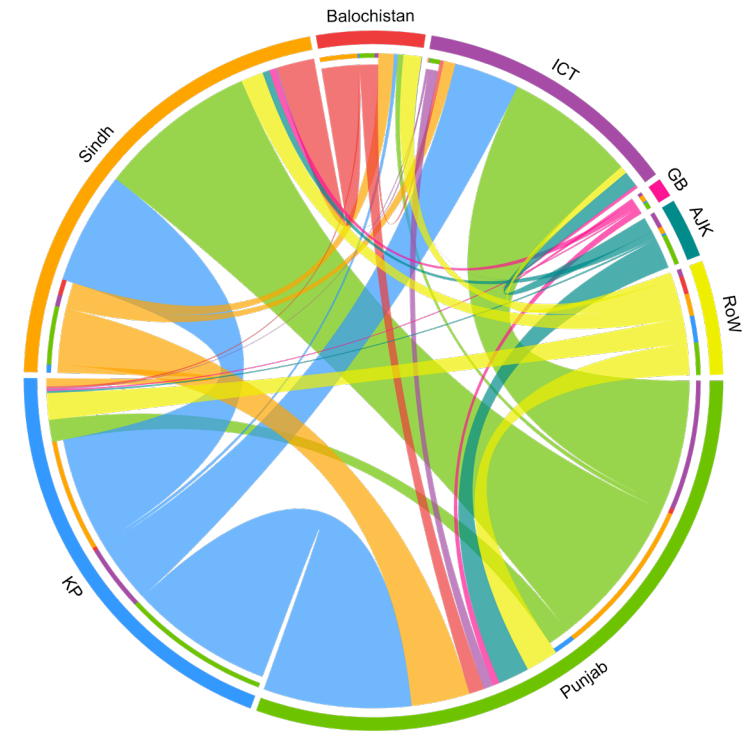
FINAL THOUGHTS

- No other body in a country can have more **detailed, diverse, and standardized data** than a well functioning **NSO**

- No other body has **knowledge and capabilities to collect, process, and curate survey, census, and administrative data into useable and useful forms**

- Continuing, no other body is better placed than **NSO** to pass **big data through sieve of standards** and bring it to a form where it may supplement national statistics **(Data Stewardship)**

- No other body has history of engaging and coordinating all major data producers for **National Accounts Administrative Data** etc. thus no other body is more mandate able for deepening of **data collection/acquisition for developing NSS**

- No other body is than NSO in the business of **Data as a Public Good**

- It is upto NSO to keep sitting on pile of data or to take conscious steps to improve data's **Usability** so that its **Usefulness** may be conveyed back for improvement

ENGAGEMENT WITH PROVINCES

ENGAGEMENT WITH PROVINCES

- PBS adopted engagement with **provincial stakeholders, especially the Planning & development departments** and **Provincial Bureau** and major line department in social and economic services and showed them the insights, uses cases, and business cases based on **Housing & Population Census, Economic Census, Integrated Agriculture Census**

- Focus was to show the **interactive portals based on above datasets** to show them the help in **need identification, improvement in governance, fiscal comparison between mode of service delivery, and impact evaluation**.

- In short, development and growth possibilities these data sets were presented to be used by provincial stakeholders in **result framework** of their socioeconomic policies and interventions.

- This engagement led to **MoUs** between **Provincial Governments** and PBS for **data sharing and strengthening provincial bureau**