

Data Revolution: Navigating the Highs and Lows of Implementing Innovative Data Solutions for Informed Decision Making

Instructions: Click on the link to access each author's presentation.

Organiser and chair: Faryal Ahmed

Participants:

Khalid Abu-Khalid: Integration of statistical and geospatial information to produce SDG 11 indicators

Mossaab Dergaa: Challenges and progress in the use of mobile positioning data to gain insights on internal migration

Phong Nguyen: Experience working with countries on the application of Small Area Estimation, specifically in Viet Nam



Data Revolution: Navigating the Highs and Lows of Implementing Innovative Data Solutions for Informed Decision Making



Utilizing the geospatial data to inform national policy and decision- making for the implementation of the 2030 Agenda

(11.3.1 and 11.7.1 indicators)

Palestine case

Khalid Abu Khalid/ PCBS



Setting the priorities

**National SDGs committee (headed by
Prime Minister Office)**

Palestinian Central Bureau of Statistics

Ministry of Local Government (MoLG)

**Association of Palestinian Local
Authorities**

WHY indicators 11.3.1

- ❖ **lack of data about urban expansion patterns.**
- ❖ **Geo-political limitations, such as illegal settlements and Israeli Military sites located in the administrative boundary of the Palestinian localities.**

WHY indicators 11.7.1

- ❖ **Value of public spaces is often overlooked or underestimated by policy makers, citizens and urban developers.**
- ❖ **Its a good indicator of shared prosperity; as the share of land allocated to streets and open public spaces is critical to its productivity, and can enhance community cohesion, civic identity, and quality of life.**

Pre-requisite preparations

With mutual cooperation with MoLG, several virtual technical meetings with D4N and UN-Habitat HQ were held for preparing the needed data files, including the geospatial data and the population projections.

Capacity Building

A training course was organized for 5 days by D4N initiative and UN-HABITAT HQ.

Other follow up online training sessions and meetings were held too.

Participants: GIS specialists, Statisticians and urban planning specialists. (PCBS, MoLG, Municipalities, Association of Palestinian Local Authorities and UN-Habitat\ Palestine office)

Theoretical and Practical training



Methodology: Sample selection

Sampling frame

All localities in the West Bank and Gaza Strip for the year 2023, which were classified as urban localities.

Sample Strata

Region: (Northern West Bank, Central West Bank, South West Bank, Gaza Strip)

No. of Population: (less than 10,000, more than 10,000 inhabitants)

Targeted localities

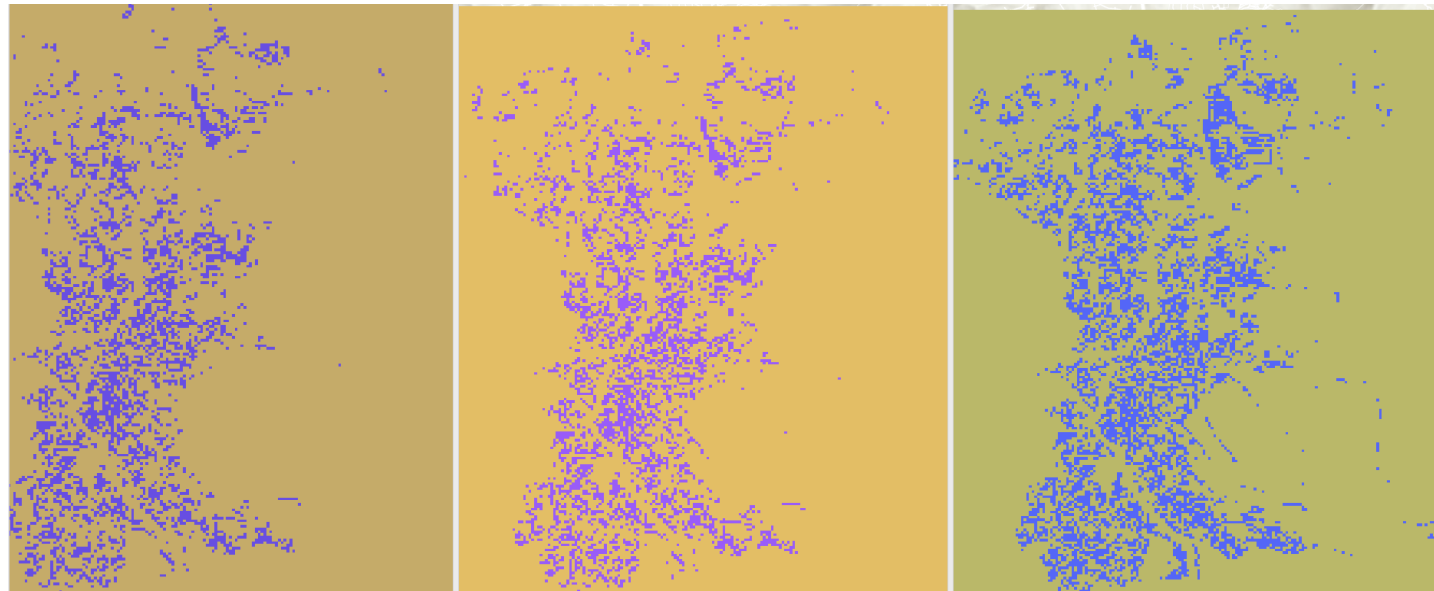
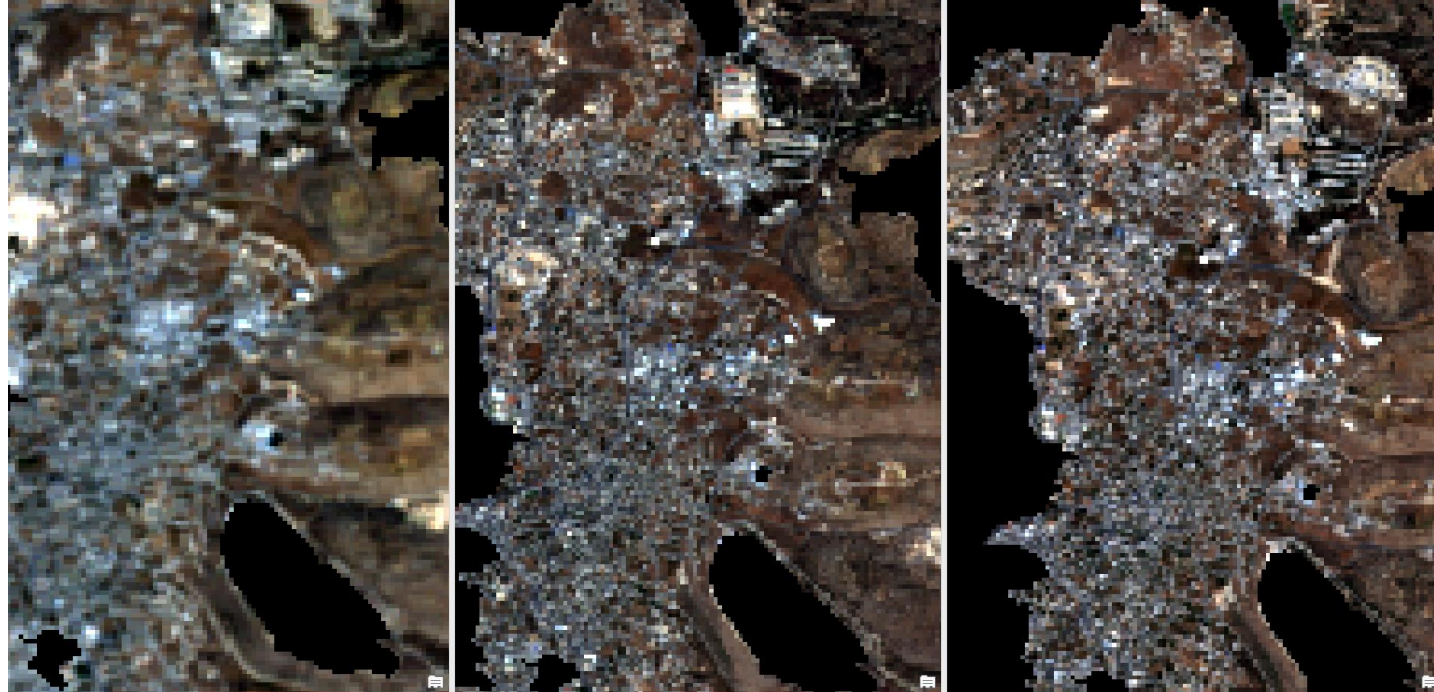
34 urban localities were selected out of 137

Data Sources

Aerial photos sources: Google earth engine

PCBS: Population projections at the Enumeration area level in addition to census data and the boundaries of the selected localities as well.

Open sources to get the satellite imagery



Analysis Period

2012



2017



2022

Limitations

11.3.1

Imagery Photos

Each Imagery Photos' resolution differs from one year to another, this could directly affect the results of the calculations,

The Israeli illegal settlements

Settled within the administrative boundary of the Palestinian localities. (excluded)

Refugee camps

Some of such localities are located within the boundary of the urban area, accordingly they were included in the calculation.

Limitations

11.7.1

Data readiness at Local level

The administrative records at sample locations, depend on the readiness of data at the locality, more time was needed for field verification of data.

Ongoing War on Gaza

70-80% of Gaza Strip' built up localities are severely destroyed with 1.7 million displaced, changing the realities on the ground.
(excluded)

How will this data be utilized by decision makers for urban planning and improving the lives of people

11.3.1,

- ❖ **Support the decision making at national and city level to develop policies and actions for sustainable use of land, and control land consumption in rational manner.**

11.7.1

- ❖ **Support decision makers and urban planners to increase accessibility regardless of income, gender, or disability status.**
- ❖ **Better decision making for equitable access to public space. The indicator also demonstrates the gaps of designed network of streets and distribution of Public spaces thus support planners decisions.**

Current status,

Indicator 11.3.1: **Results are ready!**

- To be validated with main stakeholders.
- To be disseminated on PCBS and MoLG portal
- Shared with UN-HABITAT \QH and UN HABITAT Palestine.

Indicator 11.7.1: **Ongoing,** It is expected to produce the results by June 2024.

Next step

PCBS will expand the cooperation with MoLG and Ministry of Transport with the support of Data For Now commencing work on SDG indicator 11.2.1 on convenient access to public transport.





Thank you





Data Revolution: Navigating the Highs and Lows of Implementing Innovative Data Solutions for Informed Decision Making



Use of mobile positioning data to gain insights on internal migration in Tunisia

Mossaab Dergaa, INS Tunisia



Beginning of the story

September 2022

Tunisia Joined the Data For Now initiative

January 2023

The government established the Tunisian Development Plan 2023-2025

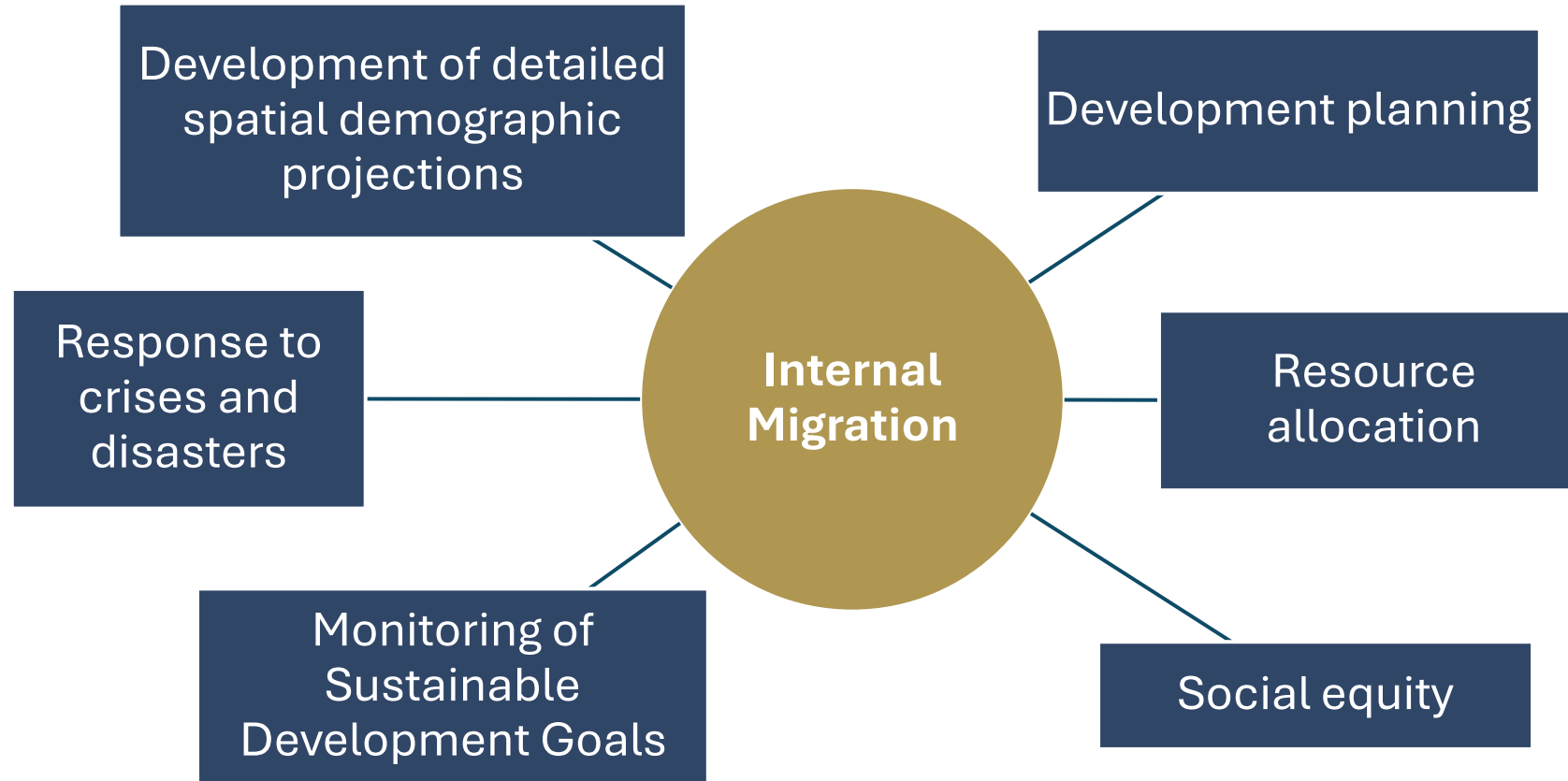
February 2023

A delegation from the Data4Now team came to Tunisia to discuss indicators prioritization

Since February 2023

We've selected a few indicators, including indicators for internal migration

Why Internal Migration Indicators



- The Tunisian Development Plan 2023-2025, established by the government, was based on six pillars and among these pillars there is the social equity and the regional development.
- Hence the need to have these indicators updated with short periodicity (currently, they are calculated every ten years during the Census) and with reliable real-time data such as Mobile Phone Data (MPD)

Why Mobile Phone Data

Granularity of Data

Real-Time Tracking

Large Sample Sizes

Cost-Effectiveness

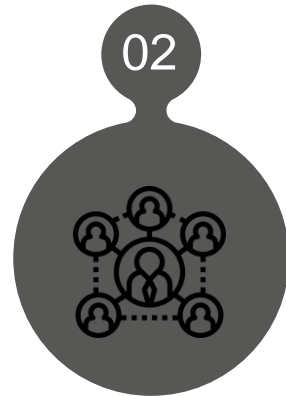
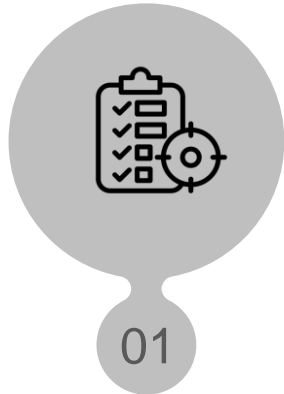
Anonymized Data

Integration with
Other Data Sources



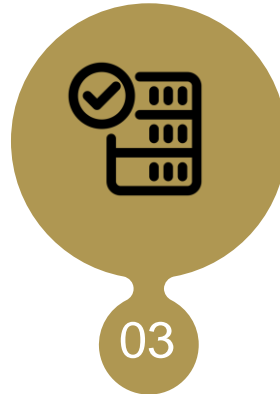
Processing with MPD

Define Objectives and
Scope



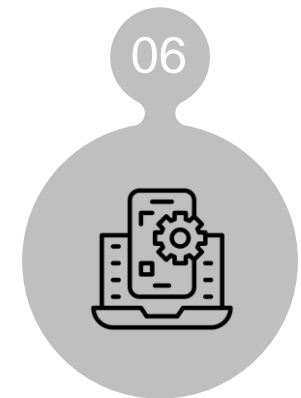
Identify Stakeholders

Assess Data Availability
and Quality



Address Data Privacy and
Security

Technical Feasibility



Develop Solutions and
Applications



What we are doing?

In October 2023, the Data For Now initiative, in collaboration with its core partner GPSDD, enrolled three employees from the National Institute of Statistics (INS) and three others from the National Telecommunications Authority in the “**Mobile Network Operator Data: Effective and Ethical Access and Use**” virtual training conducted by an expert from “Positium”. This training allowed us to:

- Acquire understanding of the technical, governance, and ethical factors essential for initiating the use of mobile data.
- Understand the practical applications of Mobile Phone Data across diverse use cases.
- Develop a roadmap for accessing and efficiently using Mobile Phone Data.
- Participate in discussions and understand the diverse perspectives of stakeholder groups involved.

What we are doing?

- Also, we started discussions with the National Telecommunications Regulator to facilitate contact with Mobile Network Operators (MNOs) to attend a webinar aimed at sharing insights into the international use of MNOs data for statistical purposes, compliance with regulatory frameworks, and the specific need for such data in understanding internal migration patterns within the country.
- This webinar was held on May 2nd 2024 with the participation of many stakeholders such two MNOs, the telecommunication regulator, the telecommunication ministry, Academics.
- With the Data4Now team, we are examining our existing IT infrastructure and exploring ways to enhance it to accommodate MPD, given its specific characteristics. We are also considering the prospect of establishing automated data reception channels with MNOs (after reaching an agreement with them), exploring the potential benefits this could offer.



Challenges

Nonetheless, we still face many challenges particularly:

- In our efforts to convince mobile network operators to supply us with the necessary data to fulfill our needs.
- Following that, in the proper and efficient processing of the data we receive to produce reliable and high-quality internal migration indicators.



Next Steps

- This webinar enabled us to encourage MNOs to join the upcoming in-person workshop in June, which focuses on operationalizing the use of MNO data for migration statistics.
- The aim of this workshop is that by its conclusion, we can establish a draft Memorandum of Understanding (MOU) with the MNOs for the implementation of the project.
- Next, assuming a successful outcome with the MNOs, we'll move forward with implementing the MOU and initiating the actual data analysis to compute the desired indicators for this project.





Thank you





Data Revolution: Navigating the Highs and Lows of Implementing Innovative Data Solutions for Informed Decision Making





Application of Small Area Estimation for measuring child poverty and food security in Viet Nam

Phong Nguyen



Agenda

- Three priority areas of Viet Nam under D4N
- Overview of SAE support to Viet Nam
- Challenges of previous training on SAE
- Support from UNSD on SAE

Three priority areas of Viet Nam Under Data For Now

1. Reduce poverty amongst children

More geographically disaggregated multidimensional poverty for children (SDG 1.2.2) was identified as the key data need to design targeted policies to reduce poverty among children.

2. Improve food security levels through targeted policy

Improved availability, disaggregation, and frequency of food security measure through the Food Insecurity Experience Scale (SDG 2.1.2) was identified as a key data need to improve food security in Viet Nam.

3. Informing policies for development of sustainable agriculture

Quality, and disaggregation of estimates of 11 component indicators of SDG 2.4.1 (proportion of agriculture area under productive area under productive and sustainable agriculture) was identified as the data need.

Previous SAE support to Viet Nam

2000s

WB
Elbers, Lanjouw and
Lanjouw method
(ELL); Stata and
Povmap

2019

SIAP
Fay Herriot method
(FH); R

2020

UNFPA
ELL method; Stata
and Povmap

2021

WB
Empirical Best
method (EB); Stata
sae package

Challenges of previous training on SAE

Training content

- difficult and complicated
- wide and overloaded

Limited staff capacity

The application in daily work is still very limited

Support on SAE to produce estimates for child poverty and food security at a more granular level

UNSD, under the Data For Now initiative, organized a **Training on the use of SAE methods** to produce provincial estimates of multidimensional child poverty and food security.

The training was designed into two classes:

- Class 1 for 5 days in March 2024, is basic for broader audience
- Class 2 for 5 days in April 2024, is advanced for less trainees selected from Class 1.

Post-training activities were designed to ensure GSO produces two estimates at the provincial level.

Trainings in 2024

Class 1

- Participants: 46 trainees, 30 from the GSO; 16 from other government organizations, universities, and research institutes; 25 female and 21 males.
- Content: Fundamentals of SAE unit-level and area-level methods (ELL, EB, FH); Use SAE methods to produce example SAE estimates
- Standard dofiles of Class1

Class 2: A follow-up of Class 1

- Participants: 22 participants selected from Class 1, 17 from the GSO; and 5 from other government organizations, universities, and research institutes; 15 female and 7 males.
- Content: use SAE Fay Herriot method to produce estimates of multidimensional child poverty and food insecurity indicators at the provincial level.
- Standard dofiles of Class 2

Data sources used: SURVEYS

2019 Viet Nam Population and Housing Census

File contains household-level variables which are created from the 3% sample of the

2020 Mid-Term Rural and Agricultural Survey

1. Individual-level data of the 20% sample of short-form questionnaires
2. Household-level data of the 20% sample of short-form questionnaires
3. 9,000 households randomly selected from the long-form questionnaire sample
4. Provincial-level data on the point estimates and the sampling variance (MSE) of the food insecurity index

Viet Nam Household Living Standards Survey

1. ½ sample of the 9,400 households of 2022 VHLSS with data on per capita expenditure and income of households, and basic characteristics of households
2. Household-level data on multidimensional child poverty (MDCP) in 2022
3. Child-level data on MDCP of 9,400 children
4. provincial-level data on the point estimates and the sampling variance (MSE) of the MDCP rates in 2022

Data sources used: PROVINCIAL DATA

1. Total product per capita (million VND)
2. Child death per 1000 (below 5)
3. Average life expectancy
4. Percentage of literate adults (aged from 15)
5. Percentage of informal workers
6. Population density (people/km²)
7. Percentage of people lacking jobs
8. Percentage of workers with training
9. Total male population (thousand)
10. Total female population (thousand)
11. Urban population (in thousand)
12. Rural population (in thousand)
13. Number of doctors
14. Percentage of population with improved latrine
15. Percentage of population with safe water
16. Per capita income
17. Number of firms
18. Number of lower-secondary classes
19. Number of upper-secondary classes
20. Number of primary classes
21. Number of teachers in primary school
22. Number of teachers in lower-secondary school
23. Number of teachers in upper-secondary school

Methodology used

- SAE methods: Unit level models (ELL, EB) and Area level model (FA)
- ELL and EB methods are better for continuous variables, EB is better than ELL; meanwhile FH is better for non-continuous variables
- Simulation of comparison of direct estimates with SAE estimates
 - o Use datasets from the 3% sample of 2019 VPHC as a full population.
 - o Construct an asset index for all households using variable dummies of 12 assets: car, motorbike, tv, radio, telephone, washing machine, fridge, air conditioner, computer, water heater. The asset ranges from 0 to 10.
 - o Estimate the average asset index for 63 provinces, and this estimate can be regarded as the true parameter (benchmark).
 - o Randomly select a sample of 5,000 household from the 3% sample of 2019 VPHC. This sample is considered as a survey in SAE methods.
 - o Estimate the provincial-level asset index using the FH method with the above sample of 5,000 households and provincial-level data.
 - o Use the unit-level methods (ELL and EB), combining the 3% sample of VPHC 2019 and the sample of 5,000 households, to estimate the provincial-level asset index.
 - o Compare estimates of the provincial asset index from the three methods with the benchmark.
- Estimate the 2022 MDCP using the FH method with 2022 VHLSS data and provincial-level statistics.
- Using the FH method to estimate the food insecurity index using provincial-level variable data from 2020 MRAS and provincial-level statistical data.

Challenges and Solutions during UNSD training on SAE

Access to survey databases is sensitive:

Solutions: Work with GSO to get sufficient sample of survey data for training purposes, and in follow-up produce estimates using full data with expert's support

Selection of qualified trainees:

Solutions:

- Work with GSO on a list of trainees covering all related departments of GSO; stakeholders such as MOLISA, MARD; universities with statistical departments; and related research institutions.
- Follow up the training registration and make relevant replacement for not registered agencies
- Work with GSO, instructor on trainee selection for Class 2, based on Class 1 results.

Stakeholder involvement:

Solutions:

- Conduct consultation meetings with FAO and UNICEF in Viet Nam on their possible contributions to the training preparation and training participation.
- Make sure MOLISA and MARD participate in two classes

Role of national stakeholders

- Three priority areas under Data For Now were selected by GSO from the list of areas proposed by GSO's subject matter departments and in consultation with relevant line ministries, including MOLISA (in charge of multidimensional child poverty) and MARD (in charge of food security).
- SAE estimates of these two indicators at provincial level will be consulted with these two agencies.



Outcome, Current status and Next steps

- Through the SAE training, the trainees from GSO and other institutions of Viet Nam strengthened their technical knowledge and practical capabilities in the use of SAE methodologies for producing SAE estimates.
- In May 2024, post training activities are conducted by the instructor to support the GSO to finalize the estimates for these indicators using full data. These estimates will be submitted to GSO leaders for publication purposes.
- In the future, SAE techniques will potentially be deployed in statistical departments of National Economic University, HCM City Economic University and other research institutions in Ha Noi and HCM City.





Thank you

