**Asia-Pacific Stats Café Series**

**Using Big Data to Measure the Nexus Between Environment and Gender in Asia and the Pacific**

***Date and Time: 12:00 – 13:00 (Bangkok time), 10th April 2023***

***Venue: MS Teams***

## Concept

In 2015, countries pledged their commitment to advancing the ambitious 2030 Agenda for Sustainable Development. With its visions and Sustainable Development Goals (SDGs) of the Agenda comes more 232 unique indicators that countries need to produce regularly in order to measure progress. Countries have made significant strides in generating the SDG indicators but environment and gender indicators in particular still require additional attention.

In recognizing this important task, in 2019, UNESCAP, UN Environment Programme, UN Women, and the International Union for the Conservation of Nature (IUCN) jointly developed a list of 46 environment-gender indicators drawing from the SDGs and Sendai Framework among others. The group presented the findings to ESCAP's Committee on Statistics at their seventh session in 2020, and the Committee welcomed the initiative as well as encouraged additional efforts in the future.

The granularity of these indicators highlights the needs for NSOs to consider exploring innovative methods to add to their existing suites of tools for official statistics production. Big data is becoming increasingly available and accessible to both public and private institutions. NSOs can derive multitudes of benefits from leveraging the speed, volume, and granularity of big data to produce official statistics. While the potential is clear, applying big data to official statistics production workflow is a complex endeavor.

In 2022, ESCAP developed a pilot project specifically targeted at supporting NSOs in Asia and the Pacific to address this complexity. The project aims to work with NSOs in the region to pilot the use of big data for producing a sample of the 46 environment-gender indicators. Cambodia and Mongolia submitted their expressions of interest in participating in the pilot to produce one indicator per country. For Cambodia, the indicator is the proportion of population with access to electricity by sex, while Mongolia focuses on measuring the proportion of population in Ulaanbaatar living in Gers by sex.

More specifically, the project team utilized Google Earth Engine to derive nighttime light data for all communes in Cambodia and combined the results with average household size and female ratio to estimate the indicator. In the case of Mongolia, the team designed an object-based image analysis model on QGIS using the Orfeo Toolbox and a random forest classifier to detect Gers. In both cases, the team conducted sensitivity analyses and compared the results against indicators produced from censuses and/or surveys. The two pilots produced promising results and lessons learned.

The project team recently conducted an Expert Group Meeting to present findings, lessons learned and challenges from implementing the pilots to experts in the field and seek their feedback on how the models can be improved. Insights from the meeting has been integrated into the guidance documents which record processes throughout the entire pilot and recommend next steps for the two NSOs to improve their usage of big data in official statistics production. This Stats Cafe session

will enable the two NSOs to share their experience experimenting with big data to produce environment-gender indicators

**Agenda**

| Time | Program |
|---|---|
| 12:00 – 12:10<br>(10 mins) | Introduction and opening remarks<br>• Ms. Rachael Beaven, Director, Statistics Division, ESCAP<br>• H.E. Lay Chhan, Deputy Director General, National Institute of Statistics, Ministry of Planning, Cambodia<br>• Mr. Ariunbold Shagdar, Director of the Census and Data Analysis Department, National Statistics Office of Mongolia |
| 12:10 – 12:24<br>(14 mins) | Presentation on big data in official statistics, project overview, training details, and strategic outlook – Mr. Matthew Shearing and Ms. Titi Kanti Lestari, International Consultants |
| 12:24 – 12:37<br>(13 mins) | Presentation on Using Nighttime Light Data to Measure the Proportion of Population with Access to Electricity by Sex – Mr. Somethea Buoy, Director of the Department of Statistical Information Services, National Institute of Statistics of Cambodia |
| 12:37 – 12:50<br>(13 mins) | Presentation on Using Satellite Imagery to Measure the Population in Ulaanbaatar living in Gers by Sex – Mr. Nyambayar Zorigt, Statistician, Research and Sampling Division, Census and Data Analysis Department, National Statistics Office of Mongolia |
| 12:50 – 13:00<br>(10 mins) | Q&A |