

“DIGITAL MATTERS” SEMINAR SERIES

TITLE: *Digitalization and Official Statistics at UNESCWA and in the Arab Region*

SPEAKERS:



Wafa Aboul Hosn, Chief of Section of Economic and Environment Statistics at the United Nations Economic and Social Commission of Western Asia, detains a Ph.D. Applied Statistics and Environmental Sciences from McGill University, Canada. a M. Sc.in Ecology from Université de Montréal, Canada. Areas of expertise cover economic and environment statistics, and sustainable

development. Presently chief of section at the Economic and Social Commission for Western Asia (ESCWA), leading the work programme on economic and environment statistics, developing projects, providing capacity building to member countries in strengthening and modernizing their statistical systems, implementing international statistical standards, and monitoring the progress in the implementation of the 2030 agenda for sustainable development. Worked in academia and research in environmental sciences and applied statistics, from 1991 until 2004, in several universities and colleges in Canada. Led Statikron Consulting, from 1997 to 2004 on statistical analysis and environmental impact assessment. Member of several scientific committees on environment statistics.



Mohamad Hossary, Data Analyst at the United Nations Economic and Social Commission for Western Asia, holds an MS in Business Analytics and an undergraduate degree in Business from the American University of Beirut. Areas of expertise cover Machine Learning, Remote Sensing, and data management and analysis. Presently working at the Economic and Social Commission

for Western Asia (ESCWA), supporting work on novel data sources and tools, incorporating technologies and tools with official statistics. Worked as a research assistant and coauthored several papers on topics such as SDGs, innovation, and education. Also worked on projects covering machine learning and natural language processing as part of masters. Currently working on a remote sensing project using Google Earth Engine to monitor the impact of disasters in Egypt.



Mohammad Al Abdallah, Data Scientist Consultant working with the United Nations Economic and Social Commission for Western Asia. Fresh graduate with a double major in Mathematics and Music Theory from Brown University, United States. Area of expertise: data visualization, machine learning, remote sensing and Google cloud services. Currently working with UN ESCWA on two projects: the first leverages Google Earth Engine for remote sensing the impact of

natural disasters (specifically floods) on coastal areas in Egypt as well as areas along the Nile basin, and the second offers a platform that serves as a centralized data hub for the Arab Region for data dissemination and visualization covering main areas of statistics. Outside his work as a data scientist, he writes educational articles on Medium and trains as a classical pianist. Feel free to reach out and connect on LinkedIn!

ABSTRACT:

This paper is presented in three parts: 1) Official Statistics and Digital transformation; 2) Digitization of ESCWA Statistical products in the database, and data portal and 3) Google Earth and Data Science Project for Monitoring Disasters.

1) Official statistics provide an indispensable element in the information system of a democratic society, serving the government, the economy and the public with data about the economic, demographic, social and environmental situation. The goal is to improve lives, sustain growth, and save the planet. The ten Fundamental principles (UNFPOS) are considered the basic framework that National Statistical Systems (NSS) produce high quality, independent statistics in line with international standards to support informed policies and decision-making and public confidence in government.



Social Science Group

Digitalization Theme

“the complex interactions between digital technologies and society”

May 7th, 2021
Friday
12:00-13:00 CEST

The seminar series will take place online on the first Friday of every month.

With digital transformation and data revolution, data has emerged as a powerful driver in the digital economy and a basis of digital technologies, such as AI, enhancing productivity, innovation, and improved decision-making. But measuring the value of data, understanding its impact, and designing better mechanisms for data governance are critical to benefit from the digital transformation, while addressing data privacy, competition, and intellectual property rights. New revision of the economic statistics system takes into account the digital economy and the value of data is ongoing to provide new guidelines for 2025.

Modernization of NSSs requires improving infrastructure and skills to keep up with the speed of technological changes and exploring alternative data sources such as mobile phone data, scanner data, web scraping, geospatial data, while keeping the quality and the rigorous statistical methods. The COVID 19 pandemic stopped most statistical operations and traditional methods from conducting field surveys to population census needed to compile essential demographic, social and economic statistics although few countries opted for hybrid methods. Therefore, Big Data, and data science became essential, and a Data Strategy for the UN and a Quality Framework for Big Data were developed.

2) UN ESCWA recently invested in the digitization of its statistical products and automated its data processes, to provide improved database management systems, data dissemination portals, dashboard and data visualization tools. The Data Portal now centralizes data with 26 databases on: economic, social, and demographic, environmental, gender, and Sustainable Development Goals (SDGs) and containing more than 800,000 data points available for custom filtering, download and visualization for the 22 Arab States.

Using Data science practices and a data-driven platform, the platform provides Machine Learning solutions that allow for estimating various indicators using simple machine learning algorithms like linear regression and random forest and in the future more complex clustering algorithms.

3) Along with the mandate to support modernizing and digitalization of NSSs, ESCWA promotes the integration of geospatial information and big data in statistical production ESCWA won a Google Earth Engine (GEE) that aims at to monitor the impact of extreme events on agricultural areas and other types of land cover in the Northern coastal zone of Egypt and along the shores of the Nile by estimating damage based on remote sensing data and official statistics. The overall goal is to assess the usability of open medium resolution satellite data for extreme events monitoring and impact estimation. This would support the NSS and its counterparts with supplementary data that enables decision-makers to reduce disaster risk, assess damage, and strengthen resilience, particularly in developing countries.

To conduct this analysis, hazardous events data from UNDRR, the Emergency Events Database (EM-DAT) were acquired. Extreme events were selected based on their time of occurrence to allow for higher resolution analysis and based on their impacts. The final set of events amounted to 3 floods in 2015, 2016, and 2020. Synthetic aperture radar (SAR) images from Sentinel 1, multispectral images from Sentinel 2 Levels 1C and 2A were used for the impact detection. Initial results showed the effects on several areas either inundated by water or affected by the event.

ABOUT THE SERIES:

We, postdocs and researchers in the “Digitalization Theme” within the Social Sciences Group (SSG) investment program, would like to invite you to participate in our monthly lunch seminar series on “Digital matters”. For this seminar series, our aim is to bring together researchers and practitioners interested in the *complex interactions between digital technologies and society*.

This new seminar series will include talks focused not only the technological (i.e. digitisation, as the process of converting physical information into digital) but also sociological, ethical, political and legal aspects of digital technologies. Thus, the seminar will host a wide variety of scholars interested in questions regarding the interactions between digital technologies and the society.

The format of each seminar will include a presentation followed by a discussion. The seminar series will take place online on the first Friday of every month. The time, link to the Microsoft Teams meeting, and an abstract of each talk will be circulated in advance. Anyone interested in presenting in this seminar series, suggesting topics or any other questions can contact us at adina.nerghes@wur.nl. You can also follow us on [Intranet](#) to get the latest news and events.

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