October 29, 2020

This webinar was focused on understanding tools and technologies as well as limitations in data sensing and data mapping tools that can help the development and M&E practitioners collect needed data. In this webinar practitioners from Atlas AI, a private sector company, World Bank's Development Data Group (DEC) and the Independent Evaluation Group (IEG) shared both practical examples and challenges commonly experienced in the field of data sensing and remote data collection[1].

KEY LESSONS:

- Using satellite imagery for data collection is not a very new method, but data obtained through satellites are becoming increasingly more accurate and available. In the last 3-5 years, satellite data capacity has increased and now there are data available through the cloud free images and multiple satellites as frequently as every week at a country level and every day for the planet.
- Information from satellites can help capture data to measure key economic indicators. For example, Atlas AI has been able to capture data on asset wealth, consumption, agricultural production, population and infrastructure (some at the village scale) in places where data collection is challenging.
- Satellite data can help with collecting data in the geographic areas that are typically challenging to get access to or among groups of people who are not easily accessible.
- Satellite data also helps reduce time needed to collect data and complement data gathered through other means such as surveys, texts, social media, etc.
- The strength of geospatial data is in overlying various types of data to create a fuller dataset.
- Successful collection of geospatial data requires building partnerships between institutions and entities, including private companies, governments and academia. Some examples include:
  - Collaboration between World Bank and Atlas AI to collect poverty data in Ethiopia. Mapping poverty rates at a fine scale is not a simple task. Local level welfare estimates require census data that are expensive and collected infrequently. Therefore, local level poverty and inequality estimates are typically only produced once or twice a decade. Atlas AI worked with the World Bank to develop a machine learning approach that predicted poverty rates and welfare related indicators in Ethiopia from a combination of survey and satellite imagery data.
  - World Bank's work program for 2019-2022 on collecting micro-data and the 50X2030 Initiative, which aims to close the agricultural data gap, show that it is important to partner with leading earth observation experts, engage with NSOs to negotiate access to existing georeferenced data and build partnerships to collaborate on collecting micro-data.
  - The Food Security War Room in Kenya, which was established as an interim body to rapidly support Kenya's COVID19 response and ensure the availability, accessibility, and affordability of food and water. In response, Atlas AI developed sub-national maize yield estimates, including maize acreage and expected yield for 20 counties following the 2016-2019 long rain harvests.

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[1] Presenters: Marshall Burke, Co-Founder, Atlas AI, Karen Byrnes, Director of Partnerships, Atlas AI, Raghavan Narayanan, Senior Evaluation Officer, IEG; and Talip Kilic, Senior Economist, World Bank Development Data Group. Closing Remarks: Jos Vaessen, Methods Advisor, IEG. The moderator Bahar Salimova, Sr. Knowledge Management Officer, IEG.

- Researchers and evaluators have relied on surveys to collect data, but this method has also been criticized for self-reporting bias, specifically in agriculture. For more objective measurement methods that could be used on the ground, researchers turned to high resolution satellite data.
- Machine Learning is an integral part and tool for interpreting and using geo-spatial data.

CHALLENGES & FUTURE OPPORTUNITIES

- Satellite images do not yet accurately capture data at granular levels, for which there is a need to use additional tools such as surveys, etc.
- There is a need for better protocols of capturing geospatial data. For instance, World Bank currently only locates jurisdictional level investment data.
- There is also a need for greater access to and analysis of existing, georeferenced microdata.
- Development projects need to include geospatial data collection frameworks in their project design.
- There is a need to understand the required volume, methods and content georeferenced objective microdata that should be elicited in surveys to be able to train data models. For example, there is a gap in available georeferenced data on where the money is going, which means both the development institutions and governments need better tracking capability to know where public investments are going.
- It is challenging to assess causality and measure behavior through satellite data. This is an area of work where geospatial data needs to play a greater supplemental role to surveys and other methods aimed at soliciting data to understand associations between variables.
- M&E professionals need to have more informed geospatial data analysis incorporated into evaluations, provide incentives to increase staff capacity, address challenges in methods, and have a better idea of cost-benefits of geo-spatial data collection.

To view the full recording of the webinar, please click here.

Additional Resources

- Atlas AI's Learning Resources
- Blog from IEG: When evaluators cannot make it to the field, they can always observe from space
- IEG's Data Science and Evaluation page
- Every data point has a human story : The Crowd & The Cloud – A PBS Documentary on Citizen Data Science
- LSMS+: Improving the Availability and Quality of Individual-Disaggregated Survey Data
- https://www.50x2030.org/