**ABSTRACT SUBMISSION TEMPLATE**

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| Title of the abstract | Leveraging Earth Observation and Image Analysis in Evaluations: Innovative Methodological Approaches for Geographically Disaggregated Insights |
| Conference session  | □ Stream A. Responsive National Evaluation Systems □ Stream B. Inclusive National Evaluation SystemsX Stream C. Future Driven Systems and Approaches  |
| Name(s), title(s) and institutional affiliation(s) of all other authors/contributors (if applicable) |  |
| Preferred format:  | X Formal presentation (maximum 10 minutes)□ Participation in a panel discussion where the experience can be shared□ Participation in an interactive session where the example can be shared, without a formal presentation□ Other (please specify) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  |
| I will need to apply for bursary support, if selected. | □ YesX No |
| Language to be used for presentation | X English □ French □ Spanish □ Chinese |

**Abstract Text (max. 500 words)**

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| The availability of geospatial data can be vital to better understand development issues and to ensure development efforts are directed to the places where they are most needed. Geospatial data refer to any data containing information about a specific location on the Earth's surface. Earth Observation (EO) data, such as satellite imagery and radar data, have traditionally been used for geospatial analysis. Recent advances in machine learning and increased computational capabilities have made EO data more accessible. Satellite data are particularly relevant for geospatial analysis because they are often publicly available globally, can be used to understand a broad range of phenomena, and have high temporal coverage suitable for time-series analysis. Digital photos, such as streetscape images of urban scenes, are also becoming important for geospatial analysis, especially when combined with Artificial Intelligence (AI) techniques that can assign meaning to features from these images. These AI techniques enable the extraction of valuable insights from large datasets, making it possible to analyze patterns and trends that would be difficult to detect manually.The Independent Evaluation Group (IEG) of the World Bank Group has been exploring new geospatial analysis techniques, including the use of EO and digital images, to understand changes in spatial phenomena over time and to evaluate the relevance and effectiveness of development interventions. These methodologies are transferable to other applications, such as tracking progress towards the Sustainable Development Goals (SDGs), where data gaps and limited availability over multiple time periods present significant challenges.The presentation will focus on three specific examples developed by IEG to illustrate the use of various types of image data and techniques for geospatial analysis.**Example 1: Understanding Relevance**IEG's approach in Country Program Evaluations (CPEs) assesses whether development efforts target high-need areas. By using a customized dataset with multiple geocoded variables, including EO data, the analysis creates subnational estimates. This approach is flexible in terms of data requirements and can be customized based on the specific aspect of the analysis. **Example 2: Assessing Effectiveness**IEG conducted a geospatial impact assessment of a large-scale energy efficiency project in Malawi. The primary data sources included project design and site geolocations, household outcomes and characteristics from the Living Standards Measurement Study (LSMS), and nighttime lights data. By integrating these diverse data sources, the analysis provided a detailed understanding of the project's impact on energy consumption and economic activity.**Example 3: Evaluating Change Over Time**IEG evaluated an urban development project in Bathore, Albania, to ascertain urban growth in upgraded neighborhoods. The analysis relied on publicly available satellite images, processed using a supervised classification algorithm to build time-series data. This data helped understand changes across four land cover classes: built-up environment, forest, water, and agricultural land. The results highlighted the extent of urban expansion and its implications for infrastructure and service delivery, underscoring the value of long-term geospatial data in monitoring urban development. |