Preliminary Impact Insights: EO4SD-Urban Evaluation
Niamh Barry, David Taverner, Caribou Space
“City leaders are beginning to understand that data, and the infrastructure to analyse them, will become as important to the well-being of their citizens as the power grid and the transportation system.”

World Bank. 2018.” Urban Sustainability Framework
Emerging Impact Themes

* Use of EO derived analysis in publications
* Guide IFI and city planning and investment
* Solving data scarcity in urban environments
* Contribute to improving resilience to disasters
* Enable time and cost savings
EO Analysis in Publications

Translating Plans to Development
Impact and Effectiveness of Urban Planning in Tanzania Secondary Cities

Predicting Deprivations in Housing and Basic Services from Space
A Pilot Study in Slums of Dhaka, Bangladesh

Transforming Karachi into a Livable and Competitive Megacity
A City Diagnostic and Transformation Strategy

October 2018
Chou-Tun Huang
Eli Borrow
Merryrose W. Laggingwe
Isabel U. Camacho

World Bank Group
Guiding IFI and City Planning and Investment

“The datasets were very helpful in demonstrating urban expansion for the city in space and time at level of details and at the same time for the whole city, something what is hardly achievable in other means.”

World Bank - Urban Development in Phnom Penh
Tanzania Case: New Insights-> Dialogue

World Bank Urban Planning study in Tanzania

**Challenge:** How to assess the impact of city plans?

**Research question:** What is the effectiveness and impact of urban planning on city spatial development?

“Interviews alone are not a very effective way to demonstrate whether plans are or aren’t effective. Having land usage [data] as the basis for that argument, gave it the evidence-base it needed.”
Tanzania Case: New Insights → Dialogue

Tanzania Case: Impact

- **Dialogue** on need to decentralize development control and enforcement at Tanzania Annual Town Planners Meeting

- Informing future World Bank programming in Tanzania – Service tax collection using EO

- Changes in Ardhi University Course curriculum

- Raising the profile of EO application in urban planning
Data on land use is scarce in many World Bank client countries... The EO4SD products are considered as extremely helpful for any rapid urban planning / spatial planning analysis providing solution where a lack of decent city planning data or even back in time information needed. That is considered as the real benefit of having remote sensing data based products.”

World Bank Urban Spaces for City Transformation Dhaka and Karachi
Contribute to Improving Urban Resilience to Disasters

“Two years ago, I had no idea what some of these things could do. I’m slowly learning the potential of it. I mean, the fact that without being there, we could look at past flood events, current flood events and then use that to provide early warnings.

ADB Kolkata environmental improvement investment programme
Kolkata Case: Resilient Cities

ADB Kolkata environmental improvement investment programme

**Challenges:** Prioritisation of city investment | Flood forecasting and early warning system

**Solutions:** Land use maps | EO data on past flood water movement
Kolkata Case: Resilient Cities
Kolkata Case: Impact

• EO integrated into Kolkata Municipal Council [KMC] flood forecasting and early warning system [FFEWS]
• KMC has appointed a senior technician as head of the GIS department

“The local client [KMC] appreciated the work too. The project director was keen on GIS and has started a new GIS Department and is using drones.”

• ADB continued investment in training on risk mapping and modelling – enabling KMC to plan investment and policy to improve resilience
“In the context of the regular funding, savings on expert travelling and on-site visits are mentioned as potential regular source of funding for regular geospatial support of diagnostic preparatory work.”

World Bank Urban Spaces for City Transformation Dhaka and Karachi
Challenge: Property taxes are one of the largest source of untapped municipal revenue

Research: Pilot using existing land transaction data, land cadastral map and building height data [EO], to simulate different property values and related tax rates to assist with improving the total revenues captured
Kigali Case: Local Revenue Collection

Building Height in Meter
- 0.0 - 3.0 m
- 3.0 - 5.0 m
- 5.0 - 10.0 m
- 10.0 - 15.0 m
- 15.0 - 20.0 m
- 20.0 - 25.0 m
Kigali Case: Impact

• The pilot yielded numerous insights:
  – Found that 40% of the potential yield of US$4.9 million from current lease fees is collected -> suggesting more efficient collection could heighten returns
  – A 1% value-based tax would not only spread the tax burden more equally but could also increase revenue to about US$19.3 million—almost 10 times what was collected
• Highlighted that this approach will save time and money on property data collection

“Using information derived from building heights and footprints substantially improves the predictive power of the hedonic property price function that is employed to assess the property tax potential in Kigali city. This approach has a potential to be replicated in other contexts.”
What would it take to mainstream EO in urban programming?

- Longer and deeper engagements
- Format and modalities of sharing EO outputs
- City trainings | city to city learning
- Integration with existing programming
- Time…
- Continue demonstrations | Awareness building | technical support → owning, leading, financing
Thank you for your attention

Contact: info@gaf.de