Questions & Answers Part 1

Please type your questions in the Question Box. We will try our best to get to all your questions. If we don't, feel free to Argyro Kavvada (argyro.kavvada@nasa.gov) or Dennis Mwaniki (dennis.mwaniki@un.org).

Question 1: Are future trainings about other SDGs planned?
Answer 1: ARSET continues to develop trainings centered on SDGs. Please refer to previous SDG related trainings here:
https://appliedsciences.nasa.gov/join-mission/training?title=sustainable&program_area=All&languages=All&source=All
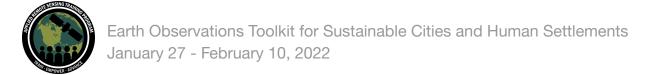You can also read more about Earth observations and SDGs (including projects, use cases from cities and countries around the globe, related handbooks, guides, etc.) at the EO4SDG website: https://eo4sdg.org

Question 2: How can we execute developmental projects for our urban cities without affecting commoners' means of livelihoods ?
Answer 2: Understanding different urban components (and those surrounding them) is key to protecting the commoners and their means of livelihoods. For example, one main impact of urban growth is conversion of fertile agricultural land or even encroachment into fragile environments. By analyzing how cities/urban areas have grown can help understand which land uses have been replaced, and even help project where future growth is likely to happen. This information can then be used to guide development and formulate policies which protect the interests of all.

The EO Toolkit provides a list of salient resources which can help you undertake this kind of analysis - Earth observation data products and related data processing and visualization tools, as well as use cases you can leverage to see what other countries/cities are doing. See: https://eotoolkit.unhabitat.org.

An important thing to note is that most of the resources in the Toolkit rely on free and open data sources (imagery), that might not be sufficient for very detailed local analysis.

Question 3: Can we calculate SDG11 for a specific part of an urban area? For example, if we are interested to know how sustainable a university campus is, is this toolkit still useful?

Answer 3: Yes SDG indicators can be produced also for specific parts within a city - eg, you can evaluate the provision and access to open public spaces in a neighbourhood, air quality within the university, etc. However, this requires a sufficient spatial resolution of the data sets needed for the calculation of the indicators. For example, for SDG11.3.1 you need change of building surface and change in population. To calculate this for your campus, you would need the finest resolution of population census (e.g. enumeration areas / campus population) and very high-resolution satellite images (better than 1 m spatial resolution to identify outlines of individual buildings). Most of this data is available only commercially and/or from the statistical offices or the city directly. So there are some limitations. The EO Toolkit relies on free & open data and tools.
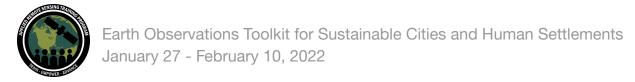
Question 4: How is Urban liveability related to SDG 11? And if we wanted to work within any developing countries' specific state which is developing in nature, then what indicators represent the best research outcome which will be implemented at the Central level?

Answer 4: Urban liveability has a number of components that are already within the SDG 11 indicator framework. For example, it has to do with matters of housing, (lack of) congestion, access to services, quality of environment, proximity to spaces that enhance urban liveability etc, which also represent SDG 11 indicators.

Improving 'liveable' cities includes improving populations' health and access to basic services and reducing inequalities. A lot of the data sets or tools in the Toolkit can serve as strong socio-economic proxies – for example to identify and visualize built-up areas with missing streetlights that highly correlate with slum locations or informal settlements. The Toolkit also provides data on mean levels of fine particulate matter in cities provided by SEDAC, alongside several datasets responding to the population of cities (including different city definitions) that are necessary to compute population weighted development indicators.

Question 5: I am very much interested in knowing what problems the developing and underdeveloped countries face and how they are dealing with these challenges. Please if possible give us some specific examples

Answer 5: With regard to measurement of SDG 11 and access to data, some of the the major issues that UN-Habitat has noted are those of technology, access to baseline

data and technical capacity. These are critical challenges that the Toolkit aims to continuously address through its various components on data, tools, use cases and learn. For example, the diverse datasets compiled through the toolkit address one of the most significant challenges on lack of baseline data (eg built up areas at the country level, population disaggregation at high resolution, etc). Issues of capacity are addressed partly through webinars, but also use cases which showcase what others are doing. The technological issues are more localized (including demands for high processing power for large areas), although the baseline datasets and connections to tools and available digital platforms are contributing to addressing this gap in some ways. The toolkit thus provides a good starting point to address these challenges. Take a look at the Use cases within the toolkit: some are where we utilized EO to map and inform road networks (Indonesia example) for disaster management, where the populations are and access to roads.

Question 6: Will EO4SDG be able to provide any technical assistance and/or consulting on scoping a project for our city?
Answer 6: EO4SDG is an international initiative of space agencies, local governments, etc, of which NASA is a part. Other global initiatives are involved. Many cities contribute and provide feedback on how EO data and tools can be improved for local needs. Please feel free to contact us to be a part of the initiative.

Question 7: Are the Indicators 11.(a,b,c) contributed by EO/Geospatial Information? Is there a direct or indirect use case of EO on the indicators 11.(a,b,c)?
Answer 7: 11 a, b, c: Not directly, but EO has a role on these indicators. While these are means of implementation related indicators, they are informed by prevailing quantitative/qualitative issues to which EO can contribute. For example, indicator 11.a focuses on the presence of national urban policies or regional development policies that respond to population dynamics and enhance balanced development. For the policies to respond to these requirements, they should be based on clear understanding of spatial patterns that rely on EO and geospatial information.

Question 8: Have you considered incorporating data from open-source air quality sensors? OpenAQ is a potent data source of local air measurements.
Answer 8: There are some datasets on AQ in 11.6.2. Look at the data section to see the datasets used in the toolkit. Data-> Indicators -> air quality.

Question 9: Are the methodologies available and can they be adapted to suit the peculiarities of specific locations?

Answer 9: Most methods used for deriving the data in the EO Tollkit are published in the scientific literature and hence can be adapted to the local conditions. Moreover, there are a number of tools that can be used also with local data and provide the user to combine with your datasets.

Question 10: Is the list of countries that adopted the 2030 agenda available online?
Answer 10: Yes, please see the UN Member States list here:
https://www.un.org/en/about-us/member-states .

Question 11: I think Microsoft just launched urban building footprint data (open). How can these datasets be implemented in the SDG initiative?
Answer 11: Initiatives like the one of Microsoft are very relevant since they come from commercial very high resolution data and therefore provide very detailed information. However, there might be questions related to the update of such data in the future (availability as open). They are also very useful when creating global data on settlements as training data. If microsoft data already covers your smaller region of interest you should be good to go. For example mMicrosoft just released data on Latin America.

Question 12: How can we downscale the data from the toolkit to a finer local scale?
Answer 12: See the discussion on leveraging local commercial higher resolution datasets. We are working with cities to test and validate.

Question 13: In case of India the central govt provided some vertical sectors, indicators, etc. to measure Liveability at grassroots levels as Municipality Performance Index, but they are for Million plus cities and million cities. But what method we can apply to measure Liveability for Local level for less than million cities and small towns which are the growing phase and face more problems related to their governance?
Answer 13: It is often a problem for smaller cities. Refer to use cases in the toolkit that focus on smaller cities. EO data combined with locally produced data.