Global Platform for Sustainable Cities (GPSC)

Summary report of Second Working Group Meeting

Indicators, Geospatial Tools and GPSC Urban Sustainability Framework

September 26 to 28, 2016

European Space Agency (ESA ESRIN), Frascati, Italy

Table of Contents

Overview of working group meeting

In order to ensure consistency and to bring global expertise to cities, a Working Group on Indicators for Sustainable Cities and Geospatial Tools has been established, consisting of key organizations in this field, experts from cities, and urban planners. Two working group meetings have been scheduled on an annual basis. The first meeting of the working group took place on March 7 to 8, 2016 in Singapore.

The second working group meeting took place in Frascati, Italy from the 26th – 28th of September. The aim of this second working group meeting was to:

- Present and gather feedback from partner agencies and participating cities regarding key components of the Urban Sustainability Framework (USF)
- Better understand the needs of cities and challenges they might face in implementing various components of the USF
- Showcase opportunities where geospatial data can be tapped on to better support sustainable urban planning

The meeting in Italy brought together more than forty-five participants from cities including Johannesburg, Recife, Brasilia, Lyon, Senegal, China, Malaysia; organisations including AfDB, IDB, EBRD, Development Bank of South Africa, UNEP, UNIDO, ICLEI (which represents the GPSC resource team), UN-Habitat as well as experts from think-tanks. The meeting was conducted through a combination of cities and expert presentations, panel and breakout group discussions.

In parallel to the meeting, bilateral consultations were conducted with all the cities/governments toegther with their respective agencies on the support GPSC can provide on geospatial data and implementation of the urban sustainability framework.

Photo credit: ESA / M. Valentini

Meeting agenda

Day 1 – September 26

I.	**Opening of Second Working Group Meeting**
9:00	**Opening remarks and meeting objectives** Mr. Mark Doherty (Division Head, ESA Science, Applications and Future Technologies Department, Directorate of Earth Observation Programmes) Ms. Xueman Wang, GPSC Coordinator, World Bank
9:15	**Overview of the proposed GPSC Urban Sustainability Framework** Ms. Xueman Wang, World Bank Q&A
II.	**Draft GPSC Indicators** ***Moderator: Ms. Xiaomei Tan, GEF Secretariat***
9:30	**GPSC Urban Sustainability Framework: Indicators** Key indicators, rationale and methodology o Overview (Mr. Serge Salat, President, Urban Morphology and Complex Systems Institute, France) o UN SDG Goal Indicators for Cities (Ms. Regina Orvañanos Murguia, UN-Habitat) o Lessons learned on application of indictors for cities (Ms. Olga Horn, ICLEI) Discussions
10:45	***Coffee break***
11:00	**Use of geospatial tools for data collection, indicators and planning process** Demonstration of geospatial tools in collecting data for indictors and urban analysis (Mr. Zoltan Bartalis, ESA and the EO4SD-Urban Project Consortium) Using open source data to establish indicators for transit oriented development in Chinese cities (Mr. Yang Jiang, China Sustainable Transportation Center) Discussions
12:30	***Lunch (ESRIN canteen)***
13:30	**Use of geospatial tools for data collection, indicators and planning process *(continued)*** Integrated Land Use Planning Information System (Mr. Muhammd Nasrul Hadi Bin Jukun Nain, Federal Department of Town and Country Planning, Malaysia) Supporting cities to integrate data/indicators into urban planning and management (Ms. Gayatri Singh, World Bank) Discussions
14:45	***Coffee break***

15:00	**Break out group discussions** Relevance of the proposed indicators to the GPSC participating cities Existing work and interest in using geospatial tools
16:30	**Report back and general discussions**
17:00	**End of Day 1**

Day 2 – September 27

III. From Indicators to Action Plan for Urban Sustainability ***Moderator: Mr. Mahamat Assouyouti, AfDB***	
9:00	**Urban Sustainability Action Plan** **Key Components,** Ms. Xueman Wang, World Bank Methodology and process for formulating the Action Plan ○ Modeling for urban growth scenarios (Mr. Yang Jiang, China Sustainable Transportation Center) Experience and lessons gained from other initiatives and challenges for Implementation ○ Mr. Ricardo De Vecchi (IDB – Emerging and Sustainable City Initiative) ○ Mr. Herman Pienaar, City of Johannesburg
10:45	***Coffee break***
11:15	Data, indicators and planning process (Mr. Marc Lauffer, Planning Agency City of Lyon) **Urban Sustainability Action Plan – Investment framework** Linking knowledge to urban investment – perspectives from development banks (Mr. Mahamat Assouyouti, AfDB, Mr. Tsakani Manyike, Development Bank of South Africa and Mr. Richardo Galindo, IDB)
12:30	***Lunch (ESRIN canteen)***
13:30	*Tour of the ESA CREOP (Control Room for Earth Observation Payloads)* *Tour of the ESA Virtual Reality Theatre*
14:45	**Break out group discussions** Feedback on the proposed urban sustainability framework Country implementation, timetable and budget
16:45	**Report back and general discussions**
17:30	**Wrap up Day 2 discussion**
18:00	**End of Day 2**

Day 3 – September 28

IV. GPSC Work Program

9:30	**GPSC Work Program:** Xueman Wang, World Bank Introducing GPSC – Resource Team: WRI, ICLEI and C40 - Presentation on the work plan by ICLEI on behalf of the Resource Team (Ms. Olga Horn, ICLEI) Long term vision of the GPSC and preparation for the new round of the sustainable city program (Xueman Wang, World Bank and Xiaomei Tan, GEF) **Discussions**
10:30	***Coffee Break***
11:00	**GPSC Work plan for 2016/2017 and next steps** (Ms. Adeline Choy, GPSC team, World Bank)
12:00	**Wrap of the GPSC second working group meeting**
12:30	**End of Day 3**

Opening remarks and meeting objectives

Mr. Mark Doherty, Division Head, ESA Science, Applications and Future Technologies Department, Directorate of Earth Observation Programmes, delivered the opening address where he highlighted the importance of geospatial data in supporting sustainable development and stressed the need in finding ways to use geospatial data more effectively in dealing with urbanization problems. He also hoped that participants will, by the end of the three-day meeting, gain a better understanding of the work that ESA does in terms of earth observations.

Ms. Xueman Wang, Coordinator of the GPSC Program, continued by laying out the key objectives of the meeting. The main focus of the second working group meeting was to provide a platform for exchanging views and gathering feedback on the GPSC Urban Sustainability Framework document. Subsequently, the meeting was broken down by main elements of the USF – geospatial tools and data, indicators, action plan and investment.

Key components of the Urban Sustainability Framework discussed

The three day meeting started off with an overview of the GPSC USF to pave the way for further in-depth discussions on the key components of the framework. Xueman Wang, the coordinator of the GPSC, introduced the key components of the USF. USF serves as an overarching guidance document for supporting cities in incorporating key dimensions of sustainability into their urban planning process.

Three key purposes of the USF:

- To be used by cities to facilitate the understanding on its urban sustainability status, formulate or enhance vision, strategy and implementation
- Facilitating the coherence of the output of the GPSC-IAP program
    - Linking the two tracks (GPSC and city level projects) as joint deliverables
    - Consolidating the GPSC three pillars (indicators, planning and finance) in a more coherent manner;
- Establishing common understanding and monitoring progress on urban sustainability over time

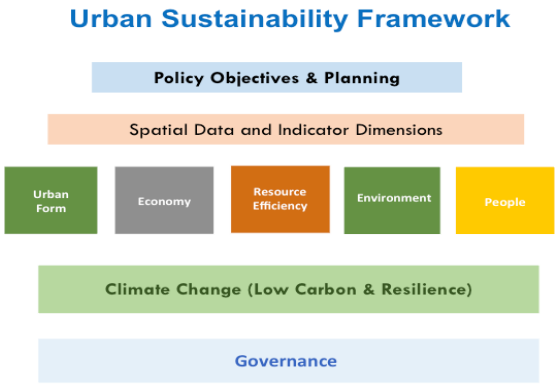


Figure 1: Urban Sustainability Framework

Currently, there are many existing urban sustainability frameworks, and new ones continue to be developed. It is clear that the GPSC will not reinvent the wheel but rather, consolidate and build off of the existing models. As such, there is a unique opportunity for the GPSC to unify the various frameworks and to include the newly adopted UNSDG 11 indicators for increased standardization among MDB frameworks. This consolidated framework is intended to be a joint product from the interested agencies and partner organizations in order to facilitate consistency across various initiatives, eventually linking the results to investment.

Key components of the USF include:

- Sustainability indicators
- Diagnostic process to help cities assess urban sustainability status
- Developing cities' sustainability action Plan
- Improving municipal finance, creditworthiness and identifying priority for investment
- Process for formulating and implementing the USF (USF must be led by leadership of the city)

Data is an essential part of evidence-based planning, and indicators are about the interface between policies and data, informing policymakers on how and where they should target their efforts. As such, data, sustainability indicators, and geospatial tools are the first component of the GPSC USF and focus of this working group meeting.

Group discussions on the USF revealed that the framework is generally well received. Participants understand the intent and use of the USF document and appreciated the fact that the USF is a broad document that allows for flexibility according to the needs and context of each city. However, there were still concerns over the degree of flexibility that would be allowed for cities in terms of implementing the USF as they would not be able to fulfil everything in the USF. Some feedback highlighted the fact that different cities are at different stages of development and hence, the framework needs to distinguish between the level of development between the cities. There were suggestions for a more innovative form of framework that included different pathways for developing an action plan according to the stage of development a city is currently at.
It is important to keep in mind that the GPSC USF is only a broad framework and that cities are not required to fulfil everything in the framework. Cities can choose to place their focus on implementing different sections of the framework depending on the stage of development they are at. However, there is also a need to establish some form of uniformity between cities under the overall GPSC program. Hence, the basic components of the USF should be fulfilled. For instance, cities should be able to establish long term vision, include integrated planning within their action plans and so on.

Data and Geospatial tools

"If you cannot measure it, you cannot improve it" – presentation from Yang Jiang, China Sustainable Transport Center

One of the primary objectives of GPSC is to encourage & help cities bring geospatial technology into part of their cities planning process. In order to do so, cities must first recognise the importance of geospatial data in supporting sustainable urban planning.

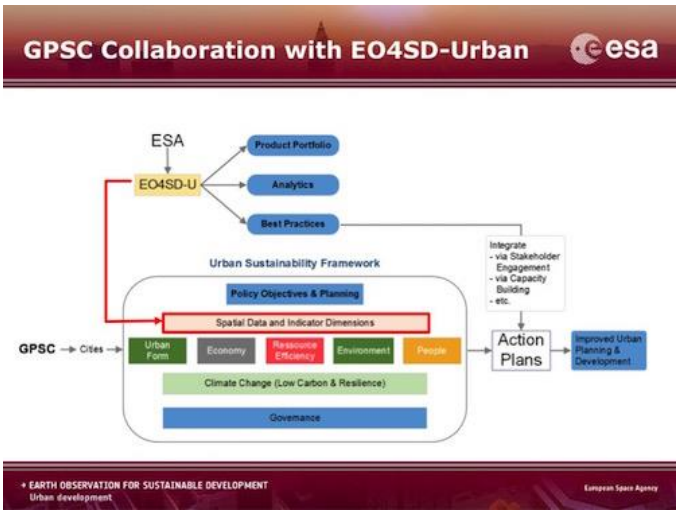


Figure 2: Presentation by EO4SD-Urban Collaboration

Geospatial experts Mr Zoltan Bartalis and Mr Thomas Häusler from the ESA EO4SD-Urban Collaboration demonstrated the benefits and utility of EO-based urban products and services for urban planning in developing countries through their presentation. In particular, they showed how specific SDG 11 indicators might be monitored through the use of geospatial data. For instance, information on a city's population density, extent and type of informal settlement can be derived from satellite images. The information can then be used to monitor the proportion of urban population living in slums, informal settlements or inadequate housing (which is one of the SDG 11 indicators). The consortium is able to provide both baseline products such as land use cover/change, urban green areas, population density, waste sites, and more complex secondary products including air quality, building footprint, flood risk etc, based on the individual needs of each city.

Figure 3: Presentation on Malaysia's I-PLAN

Moving on, the Federal Department of Town and Country Planning (JPBD), Peninsular Malaysia's showcased their country's first Integrated National Land Use Information System (I-Plan). The I-Plan project is a massive exercise to coordinate, standardize, collect, rectify topology errors, update land use data. The integrated platform allows for seamless use of geo-spatial data across national, regional and local governments, hence enabling states and local authorities to monitor, manage and control land use change more effectively. The I-Plan system covers 3 land use category namely zoning, committed and existing land use. Map updates are carried out bi-annually beginning 2015 on a district-sharing basis between JPBD departments at the federal and state level to help overcome technical manpower shortage at many local planning authorities and to ensure land use data will not be obsolete but always kept up-to-date.

Cities including Johannesburg have indicated interest in building their own integrated national geo-spatial/land use data platform. GPSC, in collaboration with relevant partners will support such endeavours. There is also an opportunity for cities to learn from the Singapore's One Map platform, an integrated online geospatial platform that provides reliable, timely and accurate location-based information and services to the public. It is a multi-agency collaboration with many government agencies currently participating and contributing information. Moving forward, GPSC will find an opportunity for the relevant Singaporean government agencies (SLA and LTA) to deliver sharing sessions on the One Map platform to interested cities.

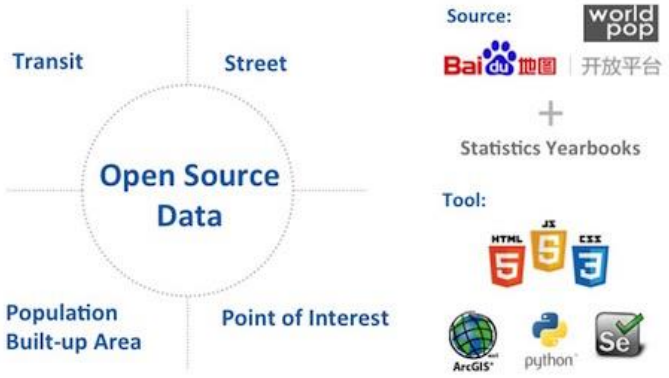


Figure 4: Presentation on open source data and indicators. Yang Jiang, China Transportation Centre

Besides satellite images, open-source platforms such as Baidu, published statics yearbooks can be coupled with geospatial/mapping tools such as ArcGIS to provide cities with a cheaper alternative to monitoring indicators. Mr Yang Jiang from the China Sustainable Transportation Centre elaborated on the use of open source data to monitor the extent of TOD in various Chinese cities. Particularly, openly sourced data on street network, bus routes, population census, urban rail networks etc can be used

to monitor several TOD indicators including rail network density, development compactness, number of bus lines and so on.

Figure 5: Presentation on land-use mapping. Mr Mark Lauffer, Lyon Town Planning Agency

Mr Marc Lauffer, a GIS analyst from the city of Lyon, gave a practical example of how land use mapping can support the monitoring of urban sprawl and evaluation of public policies. Artificialization of farm and forest land is a major sustainability issue in the country. By producing vector maps based on remote sensing data, they are able to continuously observe land use changes for the past 15 years. This long term monitoring program helps them to identify which land areas are under pressure, the cause of these pressures, mutation patterns. These information gives urban planners clues on how to deal with the various land issues and formulate policies accordingly.

Breakout group discussion for this topic was centred around understanding individual cities' experience with and needs for geospatial data. The session helped the participants to better understand what type of geospatial data cities already have and what they would like to further develop. Some of the key concerns highlighted by cities and agency representatives included the following:

- Some cities were concerned over the long term sustainability of these data as there is lack of expertise within their country to continue collecting, maintaining these data platforms. Concerns were also raised in cities with absolutely no basic data nor geospatial technology expertise. These cities were worried about whether or not they can effectively leverage on geospatial data.
- The issue of definitions was also raised. In particular, there is yet an universally accepted definition for cities and hence, there is a gap between data collected by specific administrative areas versus urban boundaries defined by urban planners/geographers that needs to be bridged.
- Issue of who owns the data and how the data can be used afterwards
- Validation and accuracy of geospatial data collected

Figure 6: Pictures of breakout group discussions

In general, cities recognised the value of geospatial data in supporting their efforts in pursuing sustainable urban planning. All cities were keen to further explore how they can benefit from the products and services that ESA and the consortium can provide.

Indicators

Sustainability indicators are an essential part for establishing an evidence-based approach to planning by informing policymakers on how and where they should target their efforts. Indicators can also allow cities to monitor the success and impact of sustainability interventions. In principle, the GPSC does not intend to create a new set of indicators, given that there are a variety of "sustainability," "urban," "green," or "livability" indicators already developed through various initiatives. Instead, the GPSC will streamline the existing indicators and provide comprehensive reference and guidance documents and tools for the participating cities. The GPSC indicator framework uses UN SDG Goal 11 indicators as core indicators while consolidating various other indicators developed into a reference list of indicators.

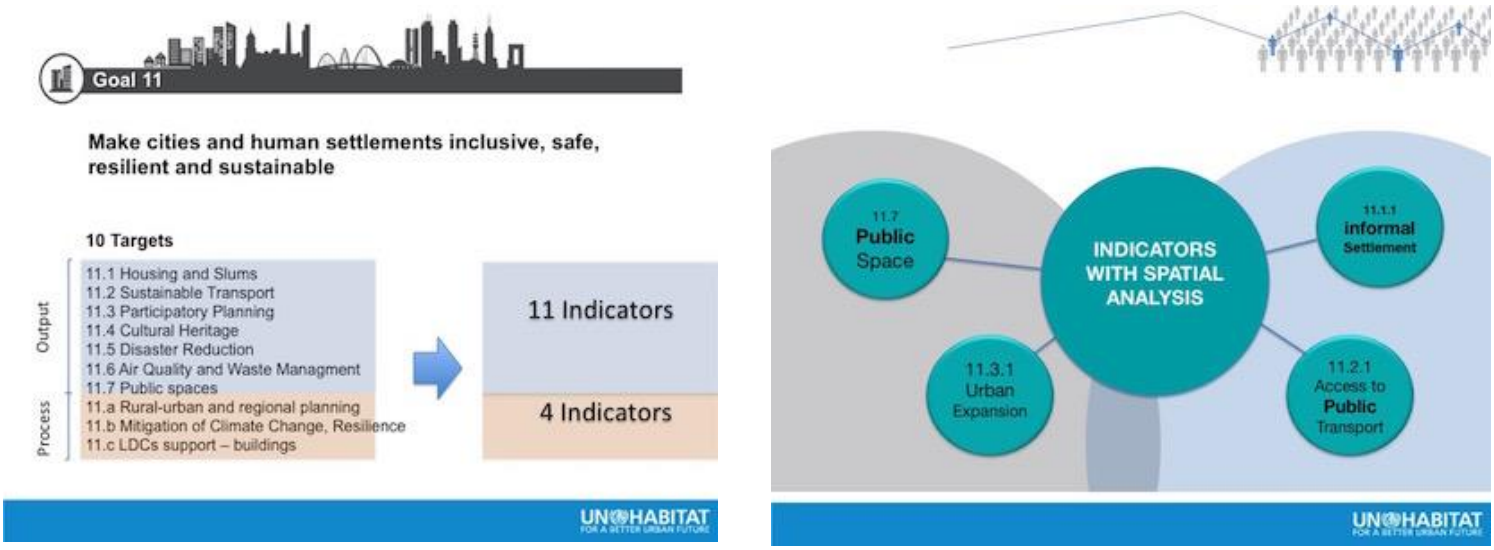


Figure 7: Presentation on UN-Habitat SDG 11 indicators

Representative from the UN-Habitat, Ms Regina Orvañanos Murguia, gave participants an in-depth explanation of the SDG 11 indicators. To put it simply, there are 15 main indicators under SDG 11 with eleven of them being outcome indicators and 4 of them being process indicators. Several of these indicators such as public space, urban expansion, access to public transport and so on include spatial elements. Here, the integration of geospatial information and statistical data will be particularly important for the production these indicators. Moving on, the UN-Habitat will continue to develop global reporting mechanisms and provide technical support to cities in implementing these indicators.

Next, a representative from ICLEI, Ms Olga Horn, shared valuable insights from working with cities in implementing and reporting sustainability indicators. With regards to indicators, ICLEI stressed the importance of including local and subnational governments in the process for developing indicator sets so that indicators will adequately address their needs instead of being too generic. Also, if cities were able to see added value in the data collected for the indicators, there will be more push for them to do so. Hence, support and opportunties to use data collated by cities should be given whenever possible.

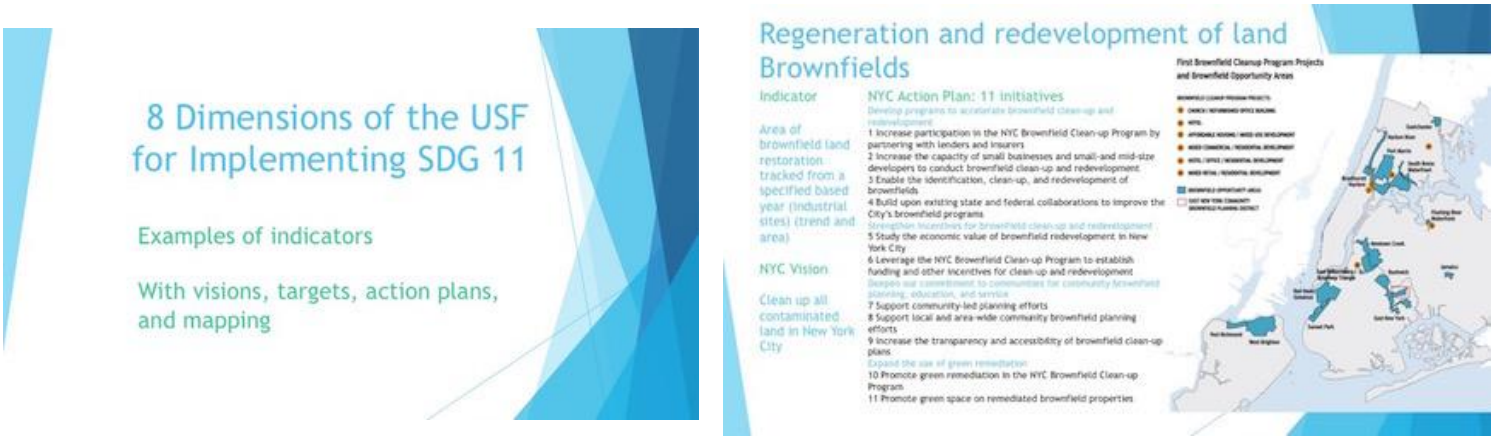


Figure 8: Presentation on OneNYC action plan and indicators

Using the OneNYC Plan as an example, Mr Serge Salat from the Urban Morphology and Complex Systems Institute demonstrated how indicators can help cities reach their visions. The OneNYC Plan consisted of several key visions which were then cascaded down into individual actionable plans. For instance, one of the city's goal was to clean up all contaminated land area within NYC and 11 initiatives were then developed to fulfil this aim. Specifically, the indicator - *area of brownfield land restoration tracked from a specified based year*, allowed for the tracking and monitoring of these initiatives, helping to ensure the city was on track to achieving its goal. This is just one of the many examples provided in the presentation and at the

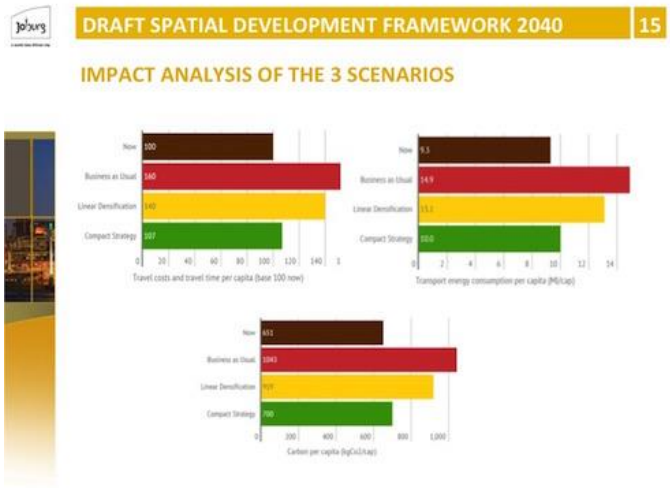
end, cities were able to gain a deeper appreciation and understanding of the importance of indicators in supporting sustainable urban development.

Some questions and concerns raised by participants with regards to indicators included:

1. As the SDG 11 indicators are being listed as mandatory within the larger GPSC USF, cities would have to include and report on them. Some cities were concerned that they might not have the resources/it might be too tedious to fulfil the multiple core indicators. Agencies and cities are of the opinion that more flexibility should be given for cities to choose the set of indicators that will best suit their needs.
2. Given the myriad of overlapping indicators being developed, some wondered if GPSC will be integrating these indicators into a single framework. From the GPSC point of view, to integrate the many indicators out there will take up to much effort. Instead, our approach is to consolidate the initiatives developed and use the SDG 11 indicators as core while the rest of the indicators can be provided as reference.

Developing action plans

An action plan serves as the roadmap for the city along its path to sustainability as it clarifies the visions, actions and resources available for the planned initiatives. However, before formulating an action plan, cities will need to assess their current status, develop a common understanding of where the city would like to head to and identify priority. Presentations at the working group meeting shed light on the many approaches and processes to go about formulating an action plan. In particular, the benefits and potential of using urban growth scenario modelling to help cities identify the best pathway forward was emphasised.



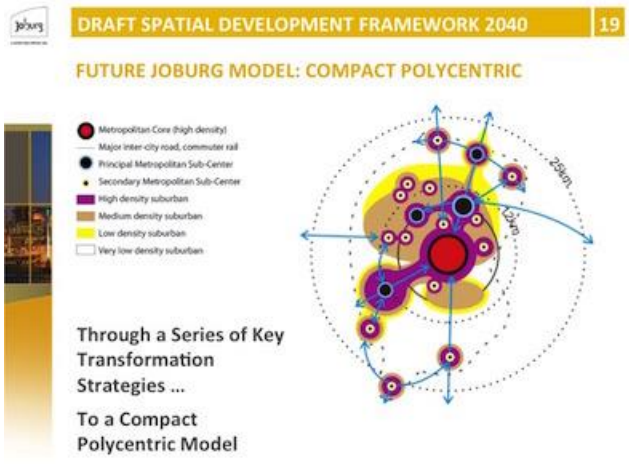


Figure 9: Presentation on Johannesburg city development framework

Mr. Herman Pienaar, Director of City Transformation and Spatial Planning, Johannesburg gave an enlightening delivery of their city's spatial development framework. Using spatial data, the city was able to identify key issues within Johannesburg. For instance, the most deprived areas were being mapped out, areas with limited walkability and connectivity were identified, areas with the problem of inefficient land use surfaced. Having identified these spatial problems, the city then used scenario modelling to identify the best course of action. Three different spatial growth scenarios were modelled, mainly BAU, linear and compact development. The impact of these three scenarios were then analysed which then led to a decision to pursue a compact polycentric development model for the future of Johannesburg. Once the development model has been decided, zoning and detailed master plans were then developed to guide the city's design and expansion. One of the unique points of the city's urban plan was to construct 'Corridors of Freedom' centred around transportation nodes where people of different income and social standing can come together to live, work and play. This integrated approach to urban planning will support Johannesburg in reaching its sustainability goals while also securing concrete infrastructure investments.

Yang Jiang, from the China Sustainable Transportation Center presented a five-step guide to using modelling for urban growth scenarios:

1. Creating a city data platform by *coordinating and integrating different data sources onto a common GIS platform*
2. Develop place typologies and corresponding indicators for each place type
3. Analyse data gathered using techniques such as Factor Analysis, Regression and create mathematical models to make predictions
4. Use the models developed to paint future scenarios based on different urban planning policies
5. Report outcome of painted scenarios and develop user-interface for the visualization of these scenarios

Essentially, Yang Jiang's presentation impressed upon participants the value of a systematic and data-driven approach to urban planning and management. This approach allows cities to effectively measure and predict the effectiveness of various development policies even before they are being implemented.

Figure 10: Presentation on IDB's ESC methodology

Mr. Richardo Galindo presented IDB's Emerging and Sustainable Cities Program (ESC) methodology. The methodology is basically a framework that provides a structured guide to cities for developing a sustainable action plan. ESC's Methodology is organized in a two-stage, five phase process.

Stage one begins by executing a rapid diagnostic tool to identify the sustainability challenges of a city. Afterwards, topics (i.e. water, air quality, transparency, etc.) are prioritized through the use multiple filters – environmental, economic, public opinion and sector specialist expertise – to identify issues that pose the greatest challenges in a city's pathway towards sustainability. Finally, an Action Plan is formulated, containing prioritized interventions and a set of strategies for their execution across the short-, medium- and long-term.

In stage two, the execution phase begins with the preparation of pre-investment studies for prioritized interventions and the implementation of a citizen monitoring system.

The ESC methodology has been implemented in many mid-size latin american cities including Asuncion, Tegucigalpa, Montego Bay and having been scaling up since it was first piloted in 2011. Mr Ricardo shared many valuable learning points from IDB's experiences working with cities in implementing this methodology. These included:

1. Indicators should be flexible
2. Data for indicators should not be taken at face value
3. Civil Society's participation is key for ESC's success
4. Coordination between national, state and local governments should be fostered

5. Working with local academic institutions provides an important source of information and increases local commitment to ESC
6. Innovative financing is needed for project development (bonds, blended finance, guarantees)

These takeaways are extremely useful especially for the GPSC and partner agencies when implementing the GPSC USF in cities.

Linking investments to plans

Mr Tsakani Manyike from the Development Bank of South Africa shared the bank's unique perspectives on from supporting cities in infrastructure development proejcts. In his sharing, urban infrastructure investments can qualify as sustainable if they fulfill the following criteria: socially inclusive, reduces carbon footprint, creates jobs and stimulates local economy and lastly, generates revenue. In order to overcome the constraints that impede investments and link knowledge to financing, the following suggestions were given based on DBSA's past experience supporting a successful renewal energy programme. First of all, banks or other relevant organisations should get involved early in the process, from preparing ToR to managing the project preparation process so as to ensure the bankability of the project. One important factor for the success of a project is political buy in from the country's or city's political leaders, hence, it was also suggested that banks can work with National Treasuries to ensure political buy in and support.

From some of the group discussions with the participants, several cities too echoed this view. They felt that political buy-in needs to be strengthened in order for their work with GPSC to be supported in the long run. In this aspect, they felt that they can leverage on the influence that World Bank has, to reach out to city mayors or top government officials within their cities to get their endorsement. This will help make the subsequent implementation of the action plans much easier.

Figure 11: Panel discussion on investments and bankable projects

In the panel discussion that followed, Mr. Mahamat Assouyouti from the African Development Bank, Mr. Tsakani Manyike from the Development Bank of South Africa and Mr. Richardo Galindo from Inter-American Development Bank offered their perspectives on the issue of project financing and shared suggestions for developments banks to better support cities in preparing for bankable projects.

In the past, projects were funded on an individual basis and there was no integration between different projects. However, we are moving towards an integrated approach and it was suggested that a multi-disciplinary team can be developed within banks to ensure project proposals to GEF are more integrated in design. This will also garner more support and interest from various units within the bank. In addition, project preparation unit can be established within the banks to look at projects and make sure they are ready for funding application. This will help them to create a pipeline of bankable projects. In terms of project preparation funding, it was suggested that since development banks are exempted from taxes or dividends, this money can be used for project preparation until project funding flows.

In terms of municipal financing, Mr. Ricardo shared that currently in Latin America, municipals have very limited capacity as national governments are reluctant to divert funds to individual municipals. As a result, some cities are taking the lead and finding innovative ways to finance development projects. In this aspect, the importance of a well-planned project that is primed for funding is key. Development banks and other relevant organisations have an important role to play here in supporting cities in preparing and identifying such projects. Here, it was highlighted that the GPSC USF can be a useful tool in helping cities develop action plans that can lead to better access to lending or investments. Besides finding innovative financing mechanisms, it is also paramount for cities to better manage their municipal finance. In this aspect, the municipal financing training developed by the World Bank can train cities to better manage their finances. Lastly, the topic of Public Private Partnership was being brought up and some participants wondered how the GPSC and other partner agencies can help cities better understand the risk and application of PPP.

Next steps and closing

On the last day of the meeting, the GPSC Resource Team consisting of C40, ICLEI and WRI was being introduced. The purpose of this resource team is to provide support and advice to cities on topics related to planning and sustainable development, governance, energy efficiency, financing, transport, waste management and so on. In collaboration with the GPSC, the resource team will hold learning events, webinars and serve as panels at global events so as to reach out to a wider range of audiences and heighten the profile of the GPSC. Lastly, the resource team will manage and document all knowledge products produced for inclusion on the GPSC website to allow for wider dissemination of knowledge and information.

The meeting concluded with the GPSC sharing its work plan and next steps for the coming year. In summary, there are several milestone events that will take place in the coming months. Just round the corner, from 5th -8th December, the first finance training for cities will be organised in Washington D.C. The GPSC Urban Sustainability Framework is scheduled to be launched at our second global GPSC meeting in May next year.

These events are being coupled with ongoing bilateral discussions with cities and implementing agencies, continual development of key knowledge products, support and advice given to cities through our global expert team, GPSC resource team or city-to-city mentoring.

Lastly, Ms Xiaomei Tan from GEF announced that the next round of cities application for the GPSC-IAP will be in 2018. New cities that come on board will be able to benefit from knowledge continuously accumulated by the GPSC on sustainable urban development, support in the preparation of GEF city proposals, access to global knowledge by various networks and institutions in areas related to urban sustainability, and also practical lessons of experience from the existing cities supported by the GPSC in this current round.

Site visit

Participants were given a tour of the ESA CREOP (Control Room for Earth Observation Payloads) and the ESA Virtual Reality Theatre where they were able to better understand the connection between satellite technology and earth observation.

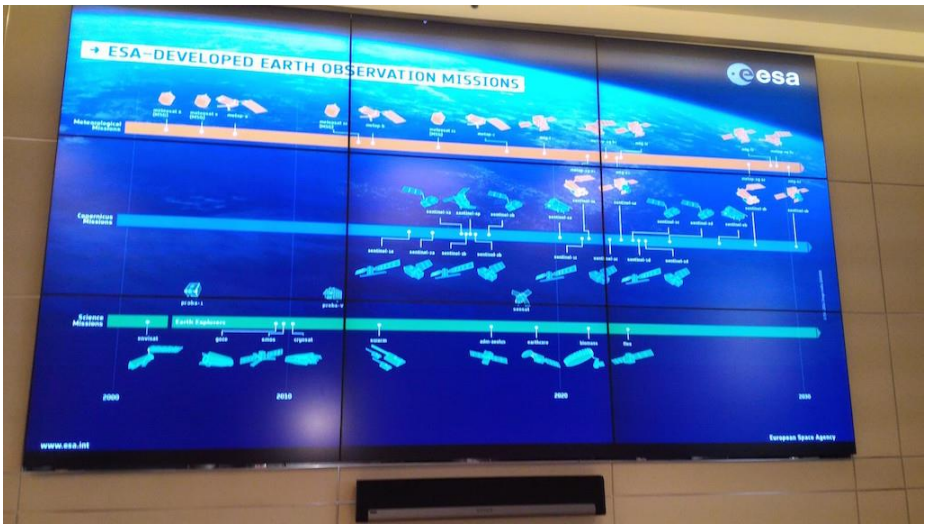


Figure 12: Overview of all ESA developed earth observation satellites

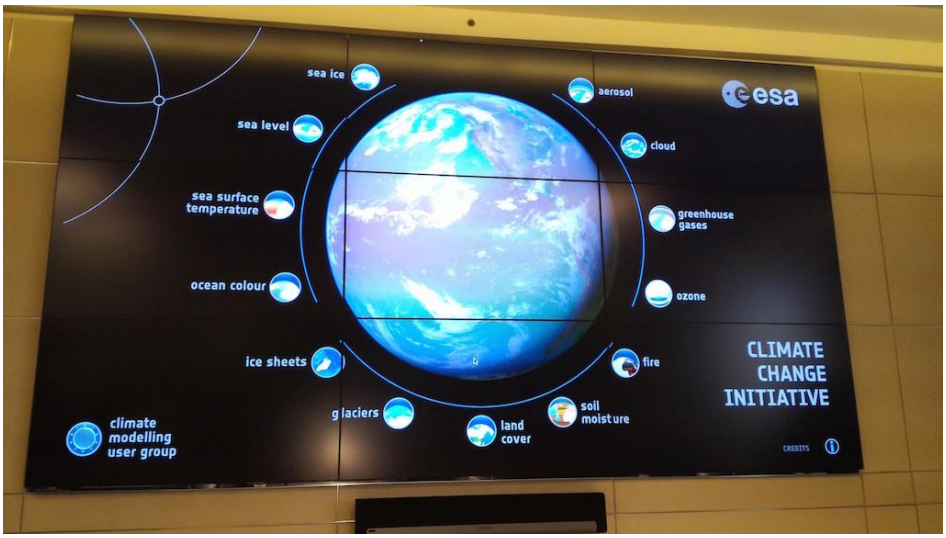


Figure 13: ESA's climate change initiative

Annex 1: Participant list

Global Platform for Sustainable Cities (GPSC)
2nd Working Group Meeting
on Indicators, Geospatial Tools and Urban Sustainability Framework

September 26-28, 2016, Frascati, ITALY

Country/City Representatives

Country	Name	Title
Brazil	Ms. Clara MEYER CABRAL	Coordinator of Indicators, Sustainable Cities Programme, Sao Paulo
	Mr. Cristiano CAGNIN	Center for Strategic Studies and Management (CGEE), Sao Paulo
	Mr. Rogerio Alves Da SILVA	City of Brasilia
	Ms. Isadora FREIRE	City of Recife
China	Mr. WANG Jianyan	China Sustainable Transportation Center
	Mr. JIANG Yang	China Sustainable Transportation Center
France	Mr. Mark LAUFFER	Urban Planner/ GIS Specialist, Lyon Town Planning Agency, City of Lyon
Malaysia	Mr. Muhammad Nasrul HADI	Senior Assistant Director, Ministry of Urban Wellbeing, Housing and Local Government
	Dr. Siti Fatimah NOODIN	Ministry of Industry – Government Group for High Technology (MIGHT)
Senegal	Ms. Mariline DIARA	Director, Department of Environment and Classified Establishments (DEEC), Ministry of Environment and Sustainable Development
	Mr. Cheikh FOFANA	Department of Environment and Classified Establishments (DEEC), Ministry of Environment and Sustainable Development
	Mr. Amadou Dioulde DIALLO	Chief, Urban Strategy and Development Division, Directorate of Urban Development and Architecture (DUA)
	Mr. Cheikhou BALDE	Urban Planner, Municipal Development Agency
	Ms. Marie NDAW	Technical Director, Municipal Development Agency

South Africa	Mr. Herman PIENAAR	Director of City Transformation and Spatial Planning, Johannesburg
	Mr. Salatial CHIKWEMA	Director of Monitoring & Evaluation, Johannesburg

Representatives from Institutions

Institution	Name	Title
AfDB	Mr. Mahamat ASSOUYOUTI	Senior Climate Change Expert/ GEF Coordinator
DBSA	Ms. Nomsa Tilly ZONDI	Policy Advisor/ GCF Coordinator
	Mr. Tsakani MANYIKE	Senior Investment Officer
	Mr. Brongani MSIMANGA	Environmental Analyst
EBRD	Mr. Nigel JOLLANDS	Associate Director
EGIS	Mr. Frederic JEHAN	ESA EO4SD-Urban Project, France
ESA	Mr. Zoltan BARTALIS	European Space Agency
	Ms. Anne-Lisa PICHLER	European Space Agency
	Lea CIVETTA	European Space Agency
	Pepita VERBEEK	European Space Agency
GAF AG	Dr. Sharon GOMEZ	ESA EO4SD-Urban Project, Germany
	Dr. Thomas HAEUSLER	ESA EO4SD-Urban Project, Germany
	Mr. Rainer FOCKELMANN	ESA EO4SD-Urban Project, Germany
	Ms. Amelie BROSZEIT	ESA EO4SD-Urban Project, Germany
GEF SEC	Ms. Xiaomei TAN	Senior Climate Change Specialist
GISAT	Mr. Tomas SOUKUP	ESA EO4SD-Urban Project, Czech Republic
IADB	Mr. Ricardo de Vecchi GALINDO	Coordinator, Emerging and Sustainable City Initiative
ICLEI	Mr. Olga HORN	Officer, Smart Cities Team

SIRS	Mr. Christophe SANNIER	ESA EO4SD-Urban Project Systemes d 'Information a Reference Spatiale
UNEP	Ms. Ruth COUTTO	Programme Officer
	Sharon GIL	Programme Officer, Cities and Buildings
UN Habitat	Ms. Regina ORVANANOS	Urban Planner, Cities Prosperity Initiative, Kenya
UNIDO	Ms. Katarina BARUNICA	UNIDO-GEF Coordination
Urban Morphology Institute (France)	Dr. Serge Salat	President
World Bank Group	Ms. Xueman WANG	Coordinator, Sustainable Cities
	Ms. Adeline Peirong CHOI	GPSC Coordination Focal Point
	Ms. Gayatri SINGH	Urban Development Specialist
	Ms. Wenyan DONG	Operations Analyst
	Ms. Zijing NIU	Senior Program Assistant