

Case study

Implementing ITU-T International Standards to Shape Smart Sustainable Cities: The Case of Moscow

Country: Russian Federation

Level: Local

SDG Addressed: SDG 11 – Sustainable Cities and Communities

Summary

In 2018, Moscow initiated a partnership with ITU to implement the United for Smart Sustainable Cities (U4SSC) Key Performance Indicators (KPIs) on smart sustainable cities. These KPIs are based on the Recommendation ITU-T Y.4903/L.1603 on “Key performance indicators for smart sustainable cities to assess the achievement of sustainable development goals”. Moscow utilized these standards to address the three key dimensions of Economy, Environment, and Society and Culture, in compliance with existing international city KPIs. This initiative aims to assist in measuring Moscow’s progress towards its “Smart Moscow 2030” strategy and help other cities achieve the UN Sustainable Development Goals.

Due to its great importance to the state of Russia and in order to respond to the challenges set by rapid urbanization and climate change, Moscow has undergone major restructuring in its urban infrastructure and dissemination of its government services. This initiative has resulted in major developments for Moscow to become a global, smart and sustainable city.

Background

Moscow is one of the largest economies relating to global metropolitan area – the tenth largest based upon 2017 GDP. It is also one of 30 megacities around the world as defined by the UN as a metropolitan area with a total population of more than 10 million. Research has shown that megacities are at great risk of being vulnerable to the impacts of climate and social change due urbanization. However, they also have the best chances of creating a sustainable future given their technologic, social, and economic means, which empowered Moscow to begin its initiative for Smart Moscow 2030.

Strategy

Efforts made by Moscow to reach “Sustainable Moscow 2030” are in accordance with the U4SSC

KPIs contained in Recommendation ITU-T Y.4903/L.1603. Regarding economic development, these standards are criteria for constructing technological infrastructure (T1.1.1CT), directions for supporting innovation (T1.2), and requirements for building and maintaining infrastructure for electrical and transportation systems specifically related to ICTs (T1.6). For environmental development the standards that were utilized are benchmarks for GHG emissions to support better air quality (T2.1), regulations for the planning and construction of green spaces to promote environmental quality (T2.4), and specifications for energy consumption and the percentage that comes from renewable energy sources (T2.6). Lastly, the standards related to society and culture are criteria for student access to ICT educational tools (T3.1), guidelines for electronic health records, extending life expectancy, and increasing the amount of doctor’s per capita (T3.2), measures for connecting libraries (T3.5) and models about promoting residents’ participation in public affairs (T3.6).

Results and Impact

Economy:

- Massive development of wired and 4G wireless internet connection, which now covers 98.9% of the city
- Public transportation expansion and street restructuring have significantly decreased the amount of private vehicle usage as well as provide accurate, real-time transportation data to both private and local municipalities
- All Moscow households now have access to clean water, wastewater, solid waste collection services, and sanitation facilities
- Development of the ICT sector has lowered overall and youth unemployment by promoting business education for SMEs
- Major expansion of Public Services and their full convergence to the online procurement of public data

Environment:

- The reconstruction of a vast amount of urban buildings with the aim to apply new sustainable and efficient building processes
- Substantial improvement and creation of bike lanes linking residences with commercial buildings as well as the creation of bike sharing programs
- Construction of thousands of hectares of Green Space with an increased percentage of residents within proximity
- Developments in wastewater treatment plants that now treat 100% of waste water
- Beginning stages of the installation of smart electricity meters throughout residential and commercial centres

Social and Cultural:

- Healthcare initiatives have increased healthcare coverage to 98% of residents, created ICT applications that contain 77% of health records, and have increased life expectancy to age 78, above the Russian national average of age 71
- One of the largest blockchain networks of CCTV cameras in the world has dramatically decreased incidents of crime and traffic as well as fatalities related to these issues
- Creation of the most extensive e-learning project in the world with ICT technology reaching 100% of classrooms, which has led to notable increases in the percentage of higher education attainment
- Improvements in local resources has improved emergency response times and food security through developments in food localization

Challenges and lessons learned

The numerous undertakings that the city of Moscow made progress on for “Smart Moscow 2030”, was no simple task. The immense amount of resources, innovations, infrastructure, and influence that were needed to implement the standards necessary to achieve these goals, required meticulous planning and collaboration between the public and private sectors as well as the ITU. If it were not for the efficient and effective partnerships between the private sector, public sector, and the ITU, Moscow would have been incapable of making such significant gains toward its sustainable goals.

The promotion of multilateral cooperation is essential for any other city to replicate Moscow’s progress. Using ICT technologies, the public sector was able to promote public engagement to ensure that private sector investment is attracted to the corresponding projects. Following Moscow’s example, the private sector engagement should be led to significantly invest in SMEs, which will further strengthen the local economy as well as provide support for various other standards. However, to ensure that these standards are followed

appropriately, the ITU must provide some form of oversight as to ensure their correct and efficient implementation.

In cooperation with the ITU, the investment and consolidation of Moscow’s ICT technologies allowed these multilateral relationships to create and develop every initiative in accordance with the U4SSC KPIs. ICT technologies established a sound foundation for a smart and sustainable Moscow by producing an immense amount of data and public participation, which helped guide the initiatives in accordance with standards set by Recommendation ITU-T Y.4903/L.1603. For this to occur, however, a city must be able to provide free or affordable internet access to all residents as to accumulate all the data necessary for their projects. In addition, all their user data and ICT infrastructure must be adequately protected from any external threats that could undermine the system.

Per the example of Moscow, the goals of ICTs should be aimed at initiatives such as: improving both public and private transportation around the city, creating active participation between citizens and local municipalities, establishing more efficient monitoring and distribution of energy and water, and building a comprehensive e-learning curriculum for children and adults. In addition, the city should collaborate with private interests and invest in projects to improve its standard of living by providing more green spaces, bike lanes, and adequate sidewalks, while following the standards set by the ITU in relation to the Sustainable Development Goals

Potential for Replication

The developments of “Smart Moscow 2030” are entirely replicable under certain conditions that a city or municipality must initially meet. For if any city is to undertake such a substantial commitment for sustainability, it will require already established and reliable public institutions and infrastructure as well as a significant amount of financial resources and investment. These underlying foundations require a cohesive relationship with public sector law makers and the relevant private sector stakeholders as to procure the resources necessary for their development. Moreover, cooperation with the ITU is the next feasible step in the process towards sustainability, however, these preliminary conditions for the project must be set up in a way that is both accessible and efficient for all parties involved. If these circumstances are met, then a city will be able to achieve its sustainable goals in accordance with the standards of U4SSC and Recommendation ITU-T Y.4903/L.1603

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