

Question 13/5 – Building circular and sustainable cities and communities

(Continuation of Q13/5)

1 Motivation

Until now, the circular economy concept has primarily been applied only to the economic sphere. Yet, the circular economy principles hold great potential in improving sustainability in cities and communities. Sharing, recycling, refurbishing, reusing, replacing, and digitizing are identified as some of the circular actions that can be applied to a wide range of city assets. In addition, any practices that enables more sustainable environmental style of life are essential. City assets in this case may refer to city infrastructure - such as buildings, public spaces, water, energy, and mobility infrastructure, city resources - such as natural resources and private sector assets, and city goods and services - such as economic goods and services consume in a city.

By embedding circular and sustainable actions into different city assets, city leaders will be able to unlock a wide range of economic, environmental, and social benefits that would greatly improve the sustainability of a city or community and building climate resilience at the same time. Circular actions increase city assets' and products' efficiency and effectiveness by extending their utilization and lifetimes. As a result, fewer material is needed to produce the same products with less waste being generated.

Digital technologies play a crucial role in the transition to a circular city. They optimize the utilization of city assets and enable energy and resource efficiency.

In a circular and sustainable city or community, materials and resources stay in use for as long as possible. Buildings and public infrastructure (i.e., city assets) are designed to be more energy efficient, durable, adaptable and easy-to-maintain. Natural rainfalls and liquid waste would be recovered as much as possible by green roofs or other urban spaces while smart meters reduce water wastage and optimise water distribution. Green spaces may be used for different social activities at different time. Extra electric vehicle charging stations are added along with an effective and efficient public transport system to promote smart mobility. Renewable energy would also be primarily form of energy supply that power a circular city.

In view of the above, Question 13/5 aims to develop Recommendations, Supplements and/or Technical Reports identifying requirements and providing guidance, innovative frameworks and tools that support the transition to a circular city.

This Question is also in line with the following Sustainable Development Goals: SDG 7 "Ensure access to affordable, reliable, sustainable and modern energy for all"; SDG 9 "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation"; SDG 11 "Make cities and human settlement inclusive, safe, resilient and sustainable"; SDG 12 "Ensure sustainable consumption and production patterns" and SDG 13 "Take urgent action to combat climate change and its impact".

The following Supplement, in force at the time of approval of this Question, fall under its responsibility:

- L series Supplement 46.

2 Question

Study items to be considered include, but are not limited to:

- What are the guidelines, frameworks and best practices required to improve sustainability of cities and communities?
- How does circularity in city improve sustainability?

- What are the guidelines, frameworks and best practices required to apply circular economy principles into different city assets (i.e., buildings, transport, water, energy, digital and public infrastructures, waste management, natural resource management etc.)?
- What Recommendations, Supplements and technical reports should be developed for supporting the transition to a circular city?
- What Recommendations, Supplements and technical reports should be developed for supporting the transition to a net-zero city?

3 Tasks

Tasks include, but are not limited to:

- Develop Recommendations, Supplements and/or Technical Reports that contain requirements, technical specifications, and effective frameworks to improve sustainability of cities and communities;
- Develop Recommendations, Supplements and/or Technical Reports that contain requirements, technical specifications and effective frameworks for the use and operation of digital technologies (i.e., AI, 5G, etc.) in cities and communities;
- Develop Recommendations, Supplements and/or Technical Reports that contain requirements, technical specifications, and effective frameworks for applying circular economy principles in cities and communities;
- Develop Recommendations, Supplements and/or Technical Reports that provide guidance on applying circular economy principles in the following areas: buildings, transport, water, energy, digital and public infrastructures, waste management, natural resource management, and more;
- Develop metrics and key performance indicators that establish baseline scenario of a circular cities and communities.

An up-to-date status of work under this Question is contained in the ITU-T SG5 work programme (https://www.itu.int/ITU-T/workprog/wp_search.aspx?sp=17&q=13/5).

4 Relationships

WSIS Action Lines:

- C2, C6, C7

Sustainable Development Goals:

- 11, 12, 13

Recommendations:

- ITU-T K-series
- ITU-T L-series
- ITU-T Y-series

Questions:

- Q6/5, Q7/5, Q9/5, Q11/5, Q12/5

Study Groups:

- ITU-T SGs
- ITU-D SGs
- ITU-R SGs

Other bodies:

- CEN
- CENELEC
- ETSI
- IEC
- ISO
- IEEE