**Terms of Reference**

**ITU-T Focus Group on “Smart Water Management” (FG-SWM)**

The Focus Group is established in accordance with Recommendation ITU-T A.7

**1. Rationale and scope**

Economic growth, climate change and rising populations are all affecting the availability of water resources. According to UN estimates, 85 per cent of the world’s population lives in the driest half of the planet; 783 million people do not have access to clean water; almost 2.5 billion do not have access to adequate sanitation; and 6 to 8 million people die annually from the consequences of water-related disasters and diseases.

Water distribution issues are becoming the source of regional and international conflicts; thus the identification and dissemination of smart water management technologies are crucial on the local, regional and international levels. They are a necessity not only to solve this key humanitarian issue but also as a solution to current and latent regional conflicts revolving around water as a scarce resource.

ICTs can play a special role in this respect through a number of technologies that help in a better distribution, management, and allocation of water. Currently the role that ICTs play to help in measuring, monitoring, and distribution of water as a result of environmental issues has not been fully identified and compiled.

Some of the issues related to ICTs and water management identified are:

* Lack of information about methodologies on measuring water demand and supply for domestic and economic sectors as well as on the impacts of ICTs for water management;
* Inconsistency on the amount of water that could be saved from use of ICTs. Therefore, a common methodology for assessing the impact of ICTs on water consumption in agriculture and production of goods is necessary.
* Importance of using ICT to Improve the overall water use efficiency to minimize the losses in the system and distribute the available water for agriculture in an equitable way;
* For effective water management, a large amount of data is collected from various sources (e.g. rivers, utility networks, weather, etc.) this data is needed into one intelligent operations center;
* With the impact of climate change, looking at the adaptation technologies of the water sector to climate change becomes a necessity that needs to be share among countries for replication.
* Sharing best practices on the local, regional and international levels, whether in cities or in rural areas, as well as across boundaries where technologies such as semantic sensor web, geographical information systems, remote sensing, climate smart agriculture, smart pipes, smart metering, telemetry, geographic 3D modeling of geospatial data for the web and smart city ICT platforms are used to create better and cost effective opportunities for smart water management. ITU Study Groups and in particular ITU-T SG5 would have an important role to play in this area;

ITU-T Study Group 5 (ITU-T SG5) is working on environmental and climate change issues. Taking into consideration that the issue of smart water management affects various stakeholders this Focus Group would play a key role in providing a platform to share views, develop a series of deliverables and showcasing initiatives, projects, policies and standards activities that are taking place in the area of smart water management.

The FG – SWM will analyse ICT solutions and projects that promote smart water management that can be standardized by ITU-T SG5 and will identify best practices which could facilitate the implementation of such solutions in countries.

It will develop a standardization roadmap taking into consideration the activities currently undertaken by the various standards developing organizations (SDOs) and forums.

This “Focus Group on Smart Water Management (FG – SWM)” will also invite non ITU-T members and will leverage the role of the ICT sector to foster the rational distribution and management of water in irrigation and urban development.

**The Focus Group on Smart Water Management**

**2. Objectives**

The FG on SWM aims at fulfilling the following tasks:

* Collect and develop best practices on smart water management.
* Disseminate and share information and technologies used in smart water management especially in developing countries.
* Invite different stakeholders from administrations, academia, NGOs, multinationals to share their practices.
* Develop a set of methodologies for estimating the impact of ICTs on improving water conservation; the ICT applications and services for smart water management so as to ensure interoperability and benefit from economies of scale.
* Establish a roadmap of the ICT sector contribution to smart water management.
* Suggest future ITU-T study items and related actions within the scope of the ITU-T SG5 (see Appendix) on: Concepts, coverage, vision and use cases of smart water management, characteristics and requirements of smart water management.
* Identify or develop a set of key performance indicators (KPIs) to assess how the use of ICTs has an impact on smart water management in countries.
* Foster the development of strategies and best practices related to policies and standards to help cities and rural areas, as well as national government deliver smart water management services including the optimization of the use of scarce water and build resilience to climate change across national boundaries.
* Identify potential barriers in the use of ICTs to achieve water sustainability in countries.
* Create a global portal on ICTs contribution to smart water management.

**3. Structure**

The FG – SWM should establish sub-groups on the following three main areas taking into consideration the objectives listed above:

1) ICTs role and roadmap for Smart Water Management

2) Standardization gaps, KPIs, metrics and efficient ICT and Smart Water Management

3) Communications, liaisons and members' engagement

**4. Relationships**

This Focus Group will work in close collaboration with all ITU-T Study Groups, especially SG 11, SG13, SG15 and SG 16. Within ITU-T SG5, it will interact with the following questions: Q7/5, Q13/5, Q14/5, Q15/5, Q16/5, Q17/5, Q18/5, Q19/5 through collocated meetings where and when possible.

Collaboration with relevant SDOs, government/industry forums and consortia, companies, academic institutions, research institutions and subject matter experts is critical to the success of the Focus Group. FG Smart Water Management will determine other relevant entities to collaborate with, and the type of collaboration that should take place, in accordance with Recommendation ITU-T A.7.

**5. Specific tasks and deliverables**

* Collect and document information on local, global and regional initiatives on Smart Water Management initiatives on current activities and technical specifications.
* Develop a document which reflects the role of ICTs in Smart Water management.
* Develop a stakeholders' list that will include key stakeholders involved in the area of ICTs and smart water management.
* Develop a document of KPIs to assess the impact of the use of ICT in smart water management.
* Develop a set of methodologies for estimating the impact of ICTs on improving water conservation; the ICT applications and services for smart water management so as to ensure interoperability and benefit from economies of scale.
* Draft technical reports describing and addressing the gaps and identifying future standardization work for ITU-T SG5 in the field of ICT for smart water management.
* Send the final deliverables to the parent Study Group, other relevant Study Groups and other SDOs or organizations/consortia/forum as appropriate.

**6. Parent group**

The parent group is ITU-T SG5.

**7. Leadership**

See clause 2.3 of Recommendation ITU-T A.7.

**8. Participation**

See clause 3 of Recommendation ITU-T A.7. A list of participants will be maintained for reference purposes and reported to the parent group.

**9. Administrative support**

See clause 5 of Recommendation ITU-T A.7.

**10. General financing**

See clauses 4 and 10.2 of Recommendation ITU-T A.7.

**11. Meetings**

The frequency and location of meetings will be determined by the Focus Group and the overall meetings plan will be announced as soon as possible. The Focus Group will use remote collaboration tools to the maximum extent, and collocation with existing meetings to the maximum extent. The meetings will be announced by electronic means (e.g., e-mail and website, etc.) at least four weeks in advance.

This group will take advantage of other ITU-T events on ICT, Environment and Climate Change and those related to the parent Group SG5.

**12. Technical contributions**

Contributions are to be submitted at least ten calendar days before the meeting takes place.

**13. Working language**

The working language shall be English.

**14. Approval of deliverables**

Approval of deliverables shall be taken by consensus.

**15. Working guidelines**

Working procedures shall follow the procedures of Rapporteur meetings. No additional working guidelines are defined.

**16. Progress reports**

See clause 11 of Recommendation ITU-T A.7.

**17. Announcement of Focus Group formation**

The formation of the Focus Group will be announced via TSB Circular to all ITU membership, via the ITU-T Newslog and other means, including communication with the other involved organizations.

**18. Milestones and duration of the Focus Group**

The Focus Group lifetime is set to one year from the first meeting, but extensible if necessary.

A preliminary set of milestones includes:

* First Focus Group meeting: Parallel to forthcoming SG 5 meeting (Place and time TBC) or back to back with the Focus Group on Smart Sustainable Cities

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