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# ITU-T

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
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## Series L

### Supplement 14

(10/2015)

SERIES L: ENVIRONMENT AND ICTS, CLIMATE  
CHANGE, E-WASTE, ENERGY EFFICIENCY;  
CONSTRUCTION, INSTALLATION AND PROTECTION  
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## ITU-T L.1500 – Standardization gap analysis for smart water management

ITU-T L-series Recommendations – Supplement 14

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## Supplement 14 to ITU-T L-series Recommendations

### ITU-T L.1500 – Standardization gap analysis for smart water management

#### Summary

Supplement 14 to the ITU-T L-series Recommendations identifies gaps on standardization for smart water management (SWM), taking into consideration related information and communication technology (ICT) standardization activities currently undertaken by the various standards development organizations (SDOs) and forums.

The final objective of this Supplement is to suggest potential strategic SWM related standardization activities based on the investigation of the gaps, and to encourage other ITU Study Groups and other SDOs to get involved in the work for a wider standardization roadmap.

#### History

| Edition | Recommendation    | Approval   | Study Group | Unique ID*                                                                   |
|---------|-------------------|------------|-------------|------------------------------------------------------------------------------|
| 1.0     | ITU-T L Suppl. 14 | 2015-10-23 | 5           | <a href="http://handle.itu.int/11.1002/1000/11830-en">11.1002/1000/12690</a> |

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

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#### 1 Scope

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The final objective of this Supplement is to suggest potential strategic SWM related standardization activities based on the investigation of the gaps, and to encourage other ITU Study Groups and other SDOs to get involved in the work for a wider standardization roadmap.

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### 3 Abbreviations and acronyms

This Supplement uses the following abbreviations and acronyms:

|         |                                                                           |
|---------|---------------------------------------------------------------------------|
| AES     | Advanced Encryption Standard                                              |
| CEN     | European Committee for Standardisation                                    |
| CIP     | Critical Infrastructure Protection                                        |
| CSIRO   | Commonwealth Scientific and Industrial Research Organisation              |
| CUAHSI  | Consortium of Universities for the Advancement of Hydrologic Science Inc. |
| D2D     | Device to Device communication                                            |
| ERP     | Enterprise Resource Planning                                              |
| GCSE    | Group Communication System Enabler                                        |
| GEO     | Group on Earth Observation                                                |
| GEOPRIV | Geographic Location/Privacy                                               |
| GEOSS   | Global Earth Observation System of Systems                                |
| GIS     | Geographic Information System                                             |
| GML     | Geography Mark-up Language                                                |
| GRIDMAN | Greater Reliability in Disrupted MAN                                      |
| IOPS    | Isolated E-UTRAN Operation Public Safety                                  |
| MCPTT   | Mission Critical Push to Talk                                             |
| MMI     | Man Machine Interface                                                     |
| OGC     | Open Geospatial Consortium                                                |
| OMA     | Open Mobile Alliance                                                      |
| OWL     | Web Ontology Language                                                     |
| POC     | PTT Over Cellular                                                         |
| PPDR    | Public Protection and Disaster Relief                                     |
| ProSe   | Proximity based Service                                                   |
| PTT     | Push to Talk                                                              |
| RDF     | Resource Description Framework                                            |
| SCADA   | Supervisory Control and Data Acquisition                                  |
| SOA     | Service Oriented Architecture                                             |
| SWE     | Sensor Web Enablement                                                     |
| SWG     | Smart Water Grid                                                          |

|        |                                                     |
|--------|-----------------------------------------------------|
| SWM    | Smart Water Management                              |
| TETRA  | Terrestrial Trunked Radio Access                    |
| 3GPP   | 3G Partnership Project                              |
| URI    | Uniform Resource Identifiers                        |
| W3C    | World Wide Web Consortium                           |
| WIRADA | Water Information Research and Development Alliance |
| WMO    | World Meteorological Organization                   |
| XML    | Extensible Mark-up Language                         |

## 4 Framework of gap analysis for SWM standard technology

### 4.1 Procedure used in the development of this "gap analysis"

Gap analysis, in general, identifies gaps between the optimized allocation of the resources and the current allocation level. In standardization, gap analysis usually focuses on the activities currently undertaken by the various standards development groups to identify potential/required standardization activities, so as to provide suggestions for standards development group(s) [GapsforSSC].

In that sense, the first question to be asked is: "What kind of standardization activities are to be collected and reviewed for the study of gaps for SWM?". And as focus is being placed on the ICT aspect, ITU-T technology watch report "ICT as an enabler for smart water management" [TWR2010] should be taken into account. The report contains the following list of standardization domains identified in smart water management:

- weather forecasting and climate monitoring;
- emergency communications;
- consumer interface for smart grid;
- smart metering;
- GIS standards;
- semantic sensor Web;
- water ML2.0.

Although most of those categories share technology with other initiatives and are generally global issues covering wide areas of technical solutions and standards, obviously it could be the initial category from which standards are selected that would support SWM. However, there is an issue not yet very active in SWM, which is the "Consumer interface". Since the water system still has relatively low demand response and low need of home networking for prosumer's involvement in the operation, the consumer interface accordingly has no high value in water sector as yet.

Meanwhile, there are other issues not reflected in the list, such as the "interoperability model", which identifies the relationship and interworking aspect of players in the entire system or business ecosystem. Though this model is the architectural basis of developing most of the standards for the entire system, there is still not much activity dealing with this in SDOs. ITU-T report "Partnering for solutions: ICTs in Smart Water Management" [ITU-T 2014] provides related information to it, "the stakeholders involved in ICTs and SWM", which is useful to start developing the interoperability model.