

# SYSTEMS REFERENCE DELIVERABLE



Smart city use case collection and analysis – Water systems in smart cities –  
Part 1: High-level analysis



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**Smart city use case collection and analysis – Water systems in smart cities –  
Part 1: High-level analysis**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## SMART CITY USE CASE COLLECTION AND ANALYSIS – WATER SYSTEMS IN SMART CITIES –

### Part 1: High-level analysis

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The text of this Systems Reference Deliverable is based on the following documents:

Draft	Report on voting
SyCSmartCities/351/DTS	SyCSmartCities/359/RVDTS

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Systems Reference Deliverable is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

A list of all parts in the IEC 63301 series, published under the general title *Smart city use case collection and analysis – Water systems in smart cities*, can be found on the IEC website.

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## INTRODUCTION

The construction of a smart city can create benefits for a society and its stakeholders. Water is a critical resource to support urban development and its sustainable use is recognized as a UN Sustainable Development Goal. Water infrastructure development, water management efficiency, water supply resilience, and the safe operation and use of water are important focal areas for IEC SyC Smart Cities.

This document focuses on water systems management, specifically water security whether directly from a natural source or via man-made infrastructure. Information and communications technologies (ICT) and electro-technologies can provide greater visibility and control, however their application does depend on the characteristics of individual water markets. Technology is not a panacea for resolving all issues and problems.

A gap exists in effective coordination and clear orientation and how industry and stakeholders are engaged within it.

Major stakeholders of water management and use include citizens, the water authority (government), and organizations (associations, business groups, utility companies). Each stakeholder has different and competing interests, market relationships and touch points to water system infrastructure, processes, operations, management and use.

Modelling these complex interactions into a systems architecture is a valuable exercise in understanding the issues, gaps and opportunities for sustainable water management.

This document focuses on use case collection and analysis to elicit requirements to support technical committees such as ISO/TC 224 and ISO/TC 147 in preparing sustainable water management standards for cities and communities.

This document also seeks to inform IEC technical committees to enable them to provide the technical standards needed.

# SMART CITY USE CASE COLLECTION AND ANALYSIS – WATER SYSTEMS IN SMART CITIES –

## Part 1: High-level analysis

### 1 Scope

This part of IEC 63301 provides an overview of water systems in smart cities, establishes a general approach for use case collection and analysis, and identifies major stakeholders and application areas for high-level analysis of water systems.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

#### 3.1

##### **water system**

open system that manages the capture, cleanliness, flow, storage, consumption, re-use and disposal of water resources

Note 1 to entry: A water system covers water environment, water supply, water consumption, water draining and water recycling, representing a multi-dimensional open system engaging nature, human behaviour, and socio-economics.

Note 2 to entry: A city is directly responsible for part of a water system, and coordinates with other agencies working on the water environment.

#### 3.2

##### **smart water system**

water system that uses information and communications technology to monitor and automate operations, deliver supply in response to demand and manage its re-use and disposal in efficient ways

Note 1 to entry: The data collection through the sensors allows near real-time management of a water service system.

Note 2 to entry: Data analytics support planning, predicting, accurate management and intelligent control and appropriate decision-making of a water service system.

Note 3 to entry: A smart water system supports safe and effective operation of a water system under all conditions.