



SMART WATER

Within the **SMART CONCEPT** by SICE, the control and management of water is an essential pillar, since it is a scarce resource in the world, yet it is essential for life. This results in the fact that all the efforts target the development and use of new technologies, which make it possible to innovate in water management and consumption through sensors, Machine Learning, Big Data and even drones and other advances.

SMART WATER is understood as advanced water management that benefits from new technologies, especially artificial intelligence applied to automated learning systems. These systems learn progressively and are capable of optimizing the use and management of water in the territories, with costs dropping as time goes by. The **SMART WATER** concept is destined to manage and improve the quality of the supply, sanitation and purification of drinking water through the implementation of a smart system that seeks to guarantee the quality of the water provided to citizens and its return to the natural environment with the minimal environmental damage and optimize costs in all the phases of the **Integral Water Cycle**. Only with an automated and smart management of an essential resource such as water could be promoted the sustainable development of the territories.

This advanced management is based on new technologies, automation and artificial intelligence, with a serious concern about environmental impact and resilience. It should perfect the control acquisition and processing of data, the improvement of water quality, the reduction of pollution and the commitment to minimize harmful waste. All of this leads to increase the efficiency of the use of water in all the sectors, improving its recycling and reuse.

All of these solutions are integrated in **KALIOPE**, the integrated management platform for all the smart systems of a territory designed by SICE, based on Quality of Service (QoS) indicators that are easily measured and support the decision-making process, which is capable of establishing active communication channels with the citizen and enables the improvement of the coordination and efficiency of the services rendered.

KALIOPE thus becomes the core and fundamental piece that integrates all the services and systems of each project.

SMART CONCEPT BY SICE

SICE's new **SMART CONCEPT** seeks to break down the barriers of smart cities and commit to a broader concept, providing this same intelligence to a group of municipalities, a region, a community or even, in the future, a country. In short, regions or territories sharing common characteristics, their own identity, or certain elements or ties that bring them together somehow. These ties could be tourism, a shared natural environment, the same social strategy or structure, etc.

Many of the proposals included in SICE's **Smart Concept** have been implemented and have been providing services to citizens for a long time. The current goal is to provide these services with more intelligence and, above all, interconnect them with the goal of achieving sustainable development.

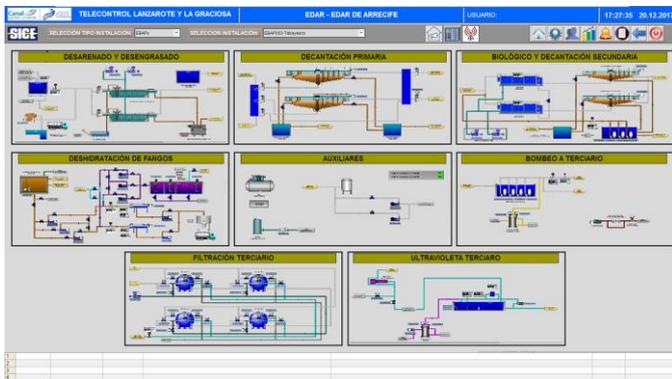
SICE has been developing an applying these technologies for years, thus becoming a benchmark pioneering company in the Smart concept.

SMART WATER MANAGEMENT SYSTEM

The SICE activity portfolio includes the execution of **Remote Control and Automation of all the processes of the Integral Water Cycle**. The company provides the knowledge and experience of their own staff, resulting from its over 25 years of experience in the market, applying from a comprehensive design of control architecture, to the supply and assembly of all the hardware, field probes, analyzers, meters, **PLCs**, programming of the **SCADA** control system and the communication networks. An extensive knowledge and experience in Hydraulic Infrastructures allow SICE to guarantee a comprehensive management of its automation projects with innovative and competitive solutions.

From the initial design and development to its installation and management, SICE provides **comprehensive automation solutions for hydraulic infrastructures** based on PLC's, PCS, SCADA and DCS (Distributed Control Systems) integrating any system of the main manufacturers within the sector.

- Analysis of the process and design of the most appropriate control solution of the client's needs.
- Development of the automation project (PLC & HMI).
- Machine-Human Interfaces based on SCADA.
- Assembly and start-up of the instrumentation for processes and analytics.
- FAT/SAT tests (Factory & Site Acceptance Test).

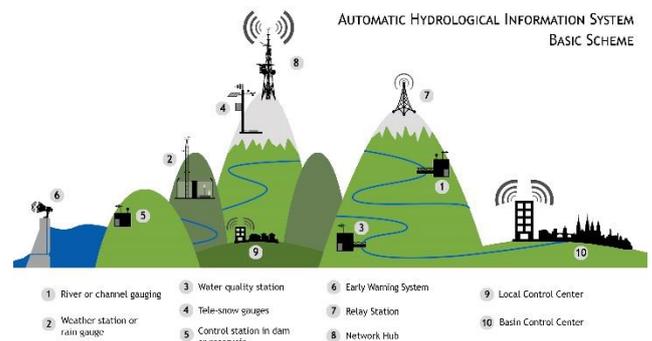


SICE provides **comprehensive solutions for automation and control of the treatment, storage and supply of drinking water and water purification processes**. This includes the comprehensive management of maintenance assets, integrated management of hydraulic models, energy optimization of the process to reduce electric consumption and CO₂ emissions, installation and maintenance of control stations of physical and chemical parameters in real time at ETAPs, supply networks and in STPs (with influent wastewater, to adapt the treatment process to the real nature of the incoming water; and with effluent wastewater, to verify the correct operation of the treatment process as well as its adaptation to spilling Regulations).

AUTOMATED INFORMATION SYSTEMS

SICE is specialized in the development of Automated Hydraulic Information Systems (SAIH) and Water Quality Systems (SAICA).

The **Automatic Hydrological Information System** captures, transmits in real time, processes and presents data describing the hydrological and hydraulic status of the basin, including knowledge of the hydric regime throughout its water network and the status of the main hydraulic works and control devices located there. The **Decision Support System** included in the Automatic Hydrological Information System provides a future hydrological response from the basin in the event of an expected adverse weather phenomenon.



On the other hand, the main goal of the **Automatic Water Quality Systems** is continuous systematic and real-time monitoring of the quality levels of inland surface water, making it a basic tool to help protect rivers and to manage tasks for the surveillance, control, authorization and sanction of landfills.

SMART METERING

SICE provides **Smart Management Systems for Domestic Water Consumption Meters** consisting of the implementation of meters, hubs for the communication network and a central management system that receives all the information from the connected equipment. The solution allows the evolution from the management of a static network to a dynamic network with real-time knowledge of the flows delivered at each point, automatic billing, incident management, etc.

ORNAMENTAL HYDRAULIC INSTALLATIONS

SICE designs different **Remote Control Systems for Ornamental Hydraulic Installations**, with automatic anemometric control of the operation of water features, regulation of pumps operation using variable frequency drives and monitoring of the main parameters of operation, events and alarms, programming the condition of the equipment and optimizing energy control of the pumps.

