AQUARIUS
Time-Series

AQUARIUS Environmental Policy & Modernization Case Study

The Ministry of Environment and Natural Resources of El Salvador Modernizes Real-Time Water Data Management with AQUARIUS

"Outstanding! A word that explains how our office has excelled in providing quality data to our users. For us, AQUARIUS Time-Series is more than software, it is a complex platform that makes our daily operations easier and more efficient."

Roberto A. Cerón, Hydrologist of Dirección General del Observatorio Ambiental, Ministerio de Medio Ambiente y Recursos Naturales, El Salvador

About the El Salvador Ministry of Environment & Natural Resources

According to the Constitution of the Republic of El Salvador (in Article 117), protection of natural resources and diversity of the environment to ensure sustainable development and social welfare is a duty of the state. In 1997, the Ministry of Environment and Natural Resources (MARN) was created and given responsibility for formulating, planning, and implementing government policies and environmental legislation consistent with these principles of sustainable economic and social development.

Nearly two decades later, its role has expanded to include the proactive development of relationships with the rest of the state agencies, local governments, and other local actors, civil societies, entrepreneurs, universities, and the general public. Today, the El Salvador MARN is a cohesive and respected institution committed to contributing to reverse environmental degradation and reduce risks through energetic, articulated, inclusive, accountable, and transparent public environmental management.

Challenge: Spreadsheet Limitations for Continuous Data Management

In 2010, El Salvador modernized and expanded its environmental monitoring network from 14 to 35 stations, collecting data every 10 to 15 minutes.

Today, the country maintains over 100 multi-parameter gauging stations generating real-time data. The resulting information supports the Flooding Early Warning Systems and National Water Management Plans, which outline the goals, strategies, actions, and programs required today and in the long-term to achieve the sustainable use of water and to meet the demands of water quality, quantity, and timeliness.

"Historically, we processed our environmental data using basic office spreadsheets. Three technicians were permanently assigned to this job, processing data from only 14 stations," said Roberto A. Cerón, Hydrologist of Dirección General del Observatorio Ambiental, El Salvador MARN. "When we modernized to 35 continuous monitoring stations in 2010, the expression from the three technicians was 'Now what!?' The volume of data had increased exponentially, and spreadsheets could no longer be used to efficiently process our time series water data. There had to be a better way … so we started looking for a solution that could simplify and optimize water data management."

Solution: AQUARIUS Time-Series

Within a year of learning about AQUARIUS Time-Series at an international industry conference, MARN purchased the platform. "Our dream of finding the perfect solution to help us efficiently process data had come true," shared Roberto Cerón. "Today, we use AQUARIUS Time-Series to manage data from more than a hundred stations in real-time, not only for stream flow data, but also for soil moisture, temperature, solar radiation, precipitation, and ten more meteorological parameters. Only two technicians are doing this job and we have time to do more in the office and in the field!"

El Salvador is a small country, but has a highly diverse and tropical climate, resulting in severe weather conditions. The country features over 300 rivers and several lakes enclosed by volcanic craters. El Salvador is also the most densely populated country in Central America. MARN must make effective and efficient use of materials, financial, and information resources to achieve its vision and institutional mission.

Today AQUARIUS is used to efficiently store, process, record, analyze, and provide the information needed by MARN to manage and

protect El Salvador's precious environmental resources. "AQUARIUS has improved both the quality and quantity of the data we needed to better manage our natural water resources," said Roberto Cerón. The information produced serves as the basis for the preparation of environmental plans and programs, to assess the environmental impacts of sectorial policies, and to evaluate the performance of various environmental management initiatives.

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Results

AQUARIUS has enabled the El Salvador Ministry of Environment & Natural Resources to:

- Centralize all stream flow, water quality & meteorological data for 100 stations
- Drive data management efficiencies by increasing the number of stations managed per technician from 4.7 to 50
- Improve the timeliness & accuracy of environmental information
- Track the history of all modifications to data & metadata for full transparency
- Produce data with the highest degree of integrity, quality, & usefulness
- Provide timely insight to better manage the country's natural resources

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