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## Case Study: Uruguay Watershed Crisis

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Water is an essential resource for life. It nourishes all of Earth's creatures and provides a home for aquatic life. Each step of the food system, from growing, to processing, and distributing depends on water. For humans, the recreational, cultural, and aesthetic value of water is incalculable. 'Water Protectors' around the world chant, "Mni Wiconi!" (Water is life!) – in the native language of Lakota spoken by the Sioux tribes in the United States.

Historically, Uruguay has been unique among Latin American countries in having abundant, safe drinking water. About 98 percent of the population has access to drinkable water. Though 37 percent of the population is not connected to a sanitation system, plans are to expand sanitation across the country. Overall, Uruguay's water system is a point of national pride.



**Santa Lucia River in Uruguay**

Uruguay's water resources are located in six main watersheds: Río Uruguay, Rio Negro, Rio de la Plata, Rio Santa Lucía, Laguna Merin, and the Atlantic Ocean. The Rio Santa Lucía is the water source for the large metropolitan area surrounding and including Uruguay's capital, Montevideo. Almost 60 percent of Uruguay's population live in and around Montevideo. The majority of the

country's industries and large agricultural outlays are also located near the capital. As a result, the daily water draw from the Rio Santa Lucia watershed is enormous.

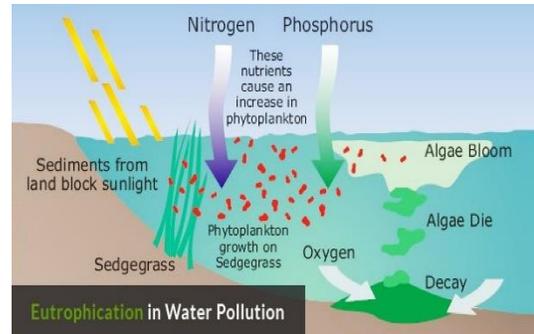
The natural resources, agribusinesses and industries in the Rio Santa Lucia watershed have been responsible for Uruguay's record-breaking, 16 year economic boom. As reported by the World Bank, moderate poverty in Uruguay went from 32.5 percent in 2006 to 8.1 percent in 2018. Data indicates that extreme poverty has practically disappeared, going from 2.5 percent to 0.1 percent over the same period. Another impressive 2018 statistic shows that the income level of the poorest 40% of the Uruguayan population has increased faster than the average growth rate of income levels of the entire population.<sup>i</sup>

Uruguay's economic growth has begun to threaten the country's prized water supply. Industrial and agricultural growth in the Rio Santa Lucia region has increased the draw on water, outpacing efforts to oversee and manage the watershed. Some areas are now experiencing a decline in water quality. Water quantity is also a concern as droughts have been increasing in occurrence and severity. Rising use of chemical fertilizers and pesticides have caused eutrophication, the oxygen depletion of water which induces excessive growth of algae and death to marine life. At the same time, the phosphorus level has risen dangerously. The National Environment Office of the Ministry of Environment (Dirección Nacional de Medio Ambiente – DINAMA) reported that from 2008 to 2012 the phosphorus level had risen to more than 150 micrograms per liter, 125 micrograms above the maximum level allowed.



**A farmer checks the crop on one of Uruguay's irrigated farmlands.**

Traditionally, the Rio Santa Lucia watershed was home to small-scale dairy farmers and cattle ranchers. The scale and techniques of their operations did not present an overall threat to the watershed. The rise of industry and agribusiness in the area, however, has created the environmental threats now faced by the watershed and everyone in the region.



Click [here](#) to learn about eutrophication in other parts of the world, including India.

Uruguay's Ministry of Livestock, Agriculture and Fisheries (Ministerio de Ganadería, Agricultura y Pesca (MGAP)) and Ministry of Housing, Territorial Planning and Environment (Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente



A cattle farmer gathers a herd on a small cattle farm in Uruguay. Click [here](#) to learn about Uruguay's meat industry.

(MVOTMA)) have stepped in to create and enforce new pollutant discharge regulations. Unfortunately, most small farmers and ranchers cannot afford the investment necessary to build the newly required effluent treatment system. This has forced them to abandon their farms and move to the city, thus aggravating the already existing social problems in Montevideo.

Could the Rio Santa Lucia watershed have been regulated without causing the social relocation of the local population? Is environmental deterioration an inevitable part of large-scale manufacturing and industrial agriculture?

What has been special about Uruguay's water system? What is the process that

🌿 increased algae in the Rio Santa Lucia watershed? Why is this a problem?



What ethical questions surface in this case study? Who has the moral responsibility to care for Uruguay's water system? Who is responsible for the threats facing the water system?



Is there a dimension to this story that communicates beauty and awe? Is there a sacred dimension to this story? Would a person need a particular kind of spirituality to empathize with the water situation in Uruguay?



What action is being taken to protect the Rio Santa Lucia watershed? What are the pros and cons of this action?

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<sup>1</sup> <https://www.worldbank.org/en/country/uruguay/overview>

**Image sources:**

<https://www.datuopinion.com/rio-santa-lucia-uruguay>.

Satellite map: image from <https://www.climatecolab.org/contests/2017/absorbing-climate-impacts/c/proposal/1334383>

<https://mudart.xyz/the-ecosystem-with-eutrophication/>

<https://www.bbc.com/news/world-latin-america-30210749>