Is Desalination the Solution to Loreto’s Water Problems?

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**The Problem**

Loreto is situated adjacent to the Gulf of California amidst the rugged desert of Baja California Sur, México

Freshwater shortages
- The region's arid climate severely limits freshwater supplies
- The San Juan Bautista Londó aquifer provides the sole source of freshwater for the population
- The aquifer is already overdrawn and showing indications of water quality degradation
- This problem would be exacerbated by population growth inspired by development projects to increase tourism

Water Management Issues

Frequent turnover in water management and high water use in Loreto contribute to freshwater scarcity and system inefficiencies

Desalination is considered the primary solution to meet growing water needs

**Objectives and Goals**

**Project Goal**
Identify and propose optimal strategies to sustainably meet freshwater needs of current and future populations without limiting economic opportunities

**Project Objectives**
1. Create a dynamic analytical framework to structure and inform water management decision-making
2. Propose an approach to successfully implement solutions, given the political and institutional situation in Loreto

**Recommendations**

Prioritize demand-side measures
- Distribution system upgrades
  - Conservation programs
  - Education programs
- Community outreach
- Low-flow domestic fixtures

Establish a COTAS to advocate community's best interests
Community councils can influence water management

Optimize water management
The dynamic and flexible analytical framework can be employed to guide local decision-making

**Multi-Criteria Analysis**

In our analysis, we evaluated 7 water management alternatives based on 9 criteria relevant to Loreto

**Is Desalination the Solution to Loreto’s Water Problems?**

- Domestic fixtures, conservation programs, and infrastructure upgrades rank highest in all population scenarios
- Large desalination is a suboptimal short-term solution
- Desalination would only be optimal to overcome aquifer overdraft if the current population doubled without interim improvements in efficiency or conservation

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