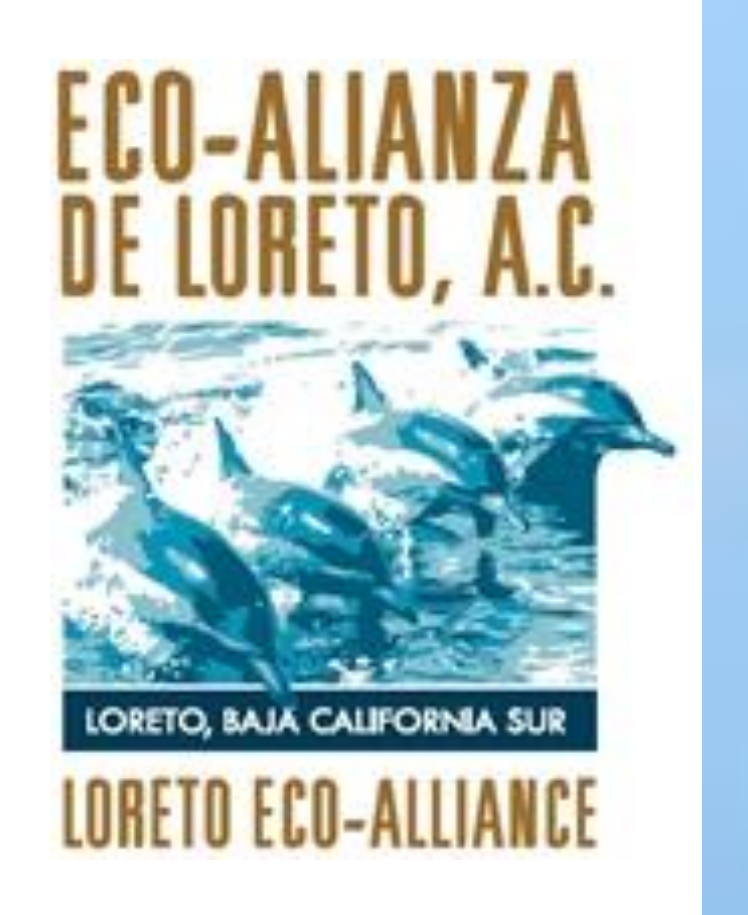




Is Desalination the Solution to Loreto's Water Problems?

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The Problem

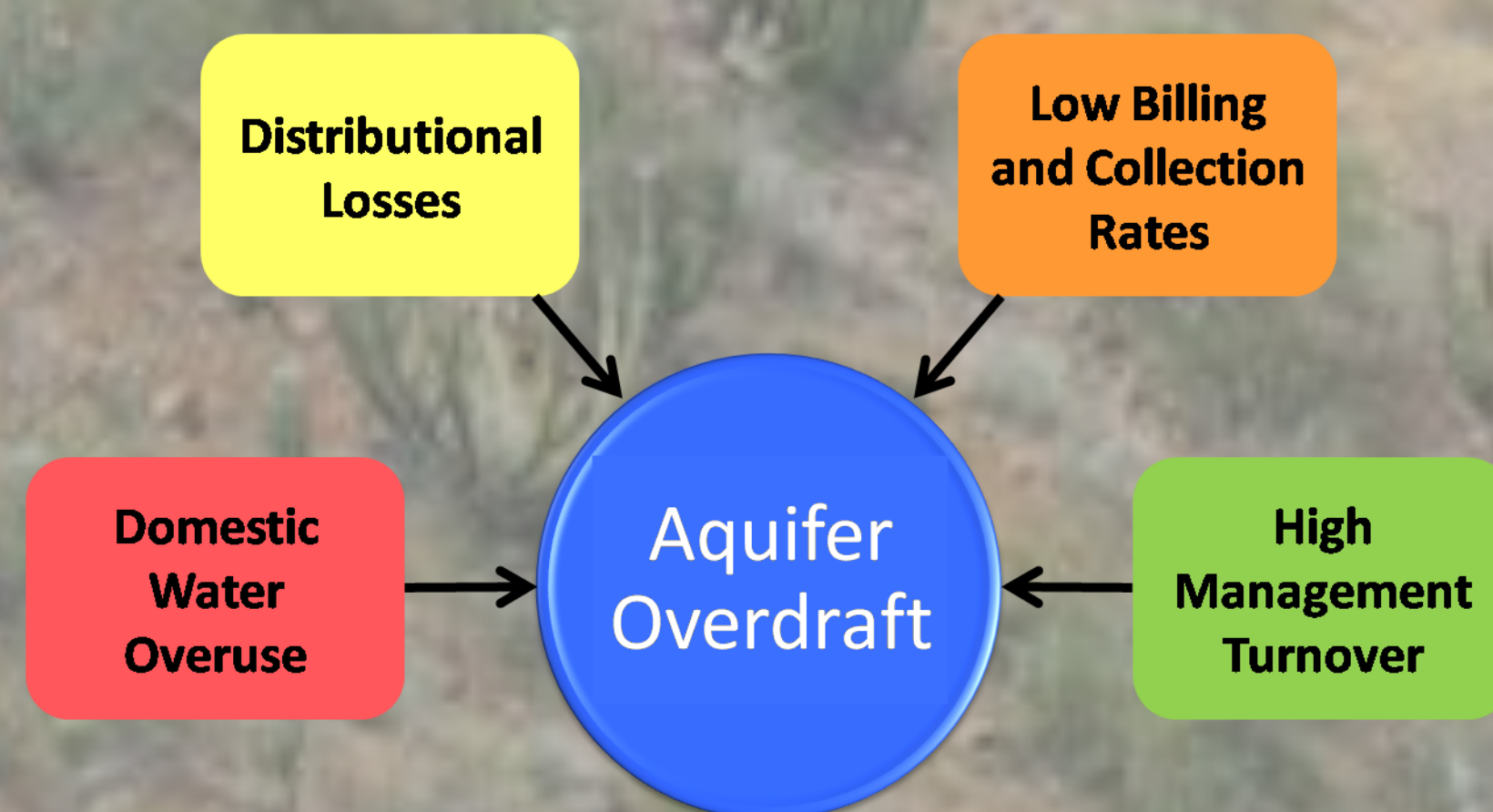
Loreto is situated adjacent to the Gulf of California amidst the rugged desert of Baja California Sur, México



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

Decision-Support Framework

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

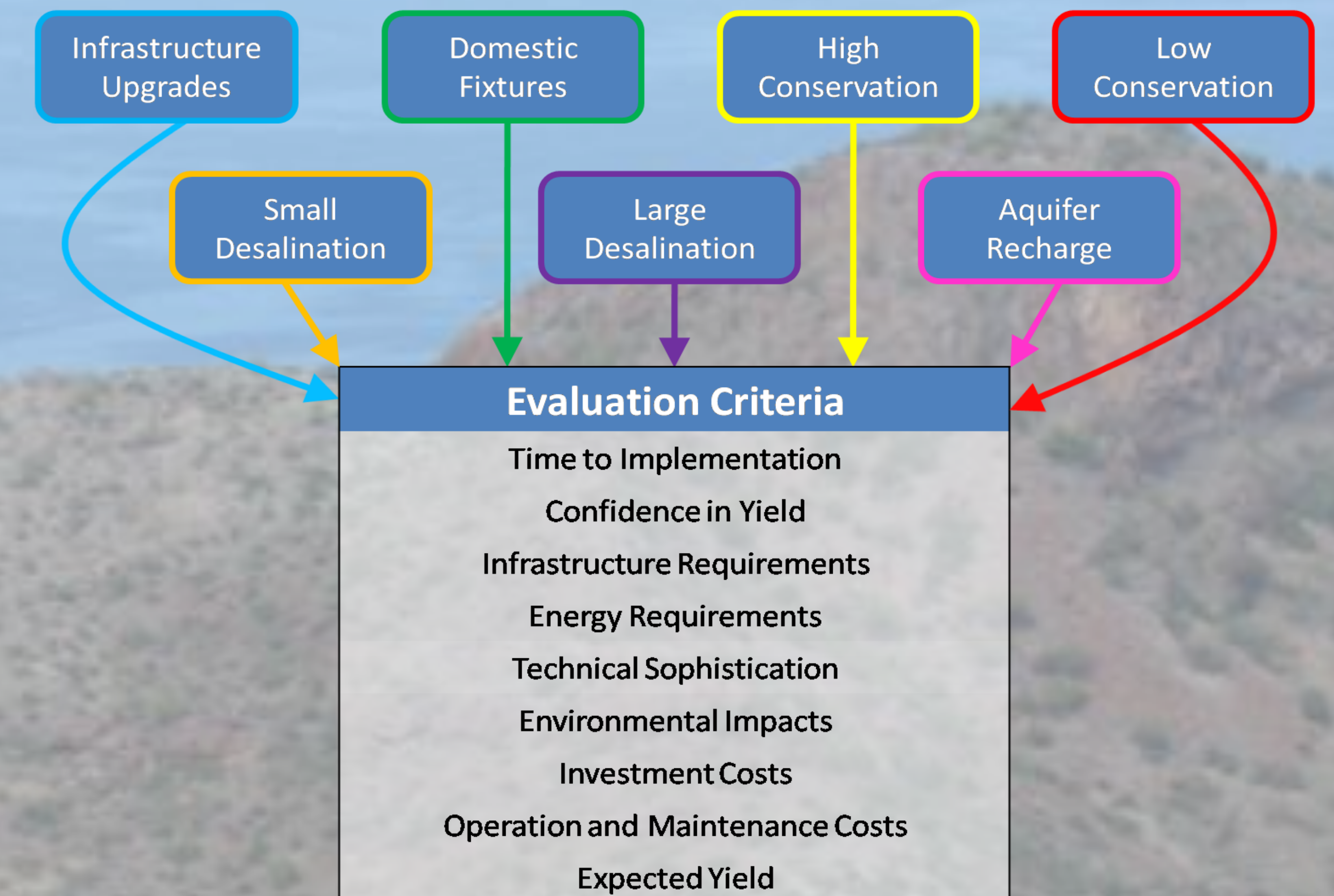
Community councils can influence water management

Optimize water management

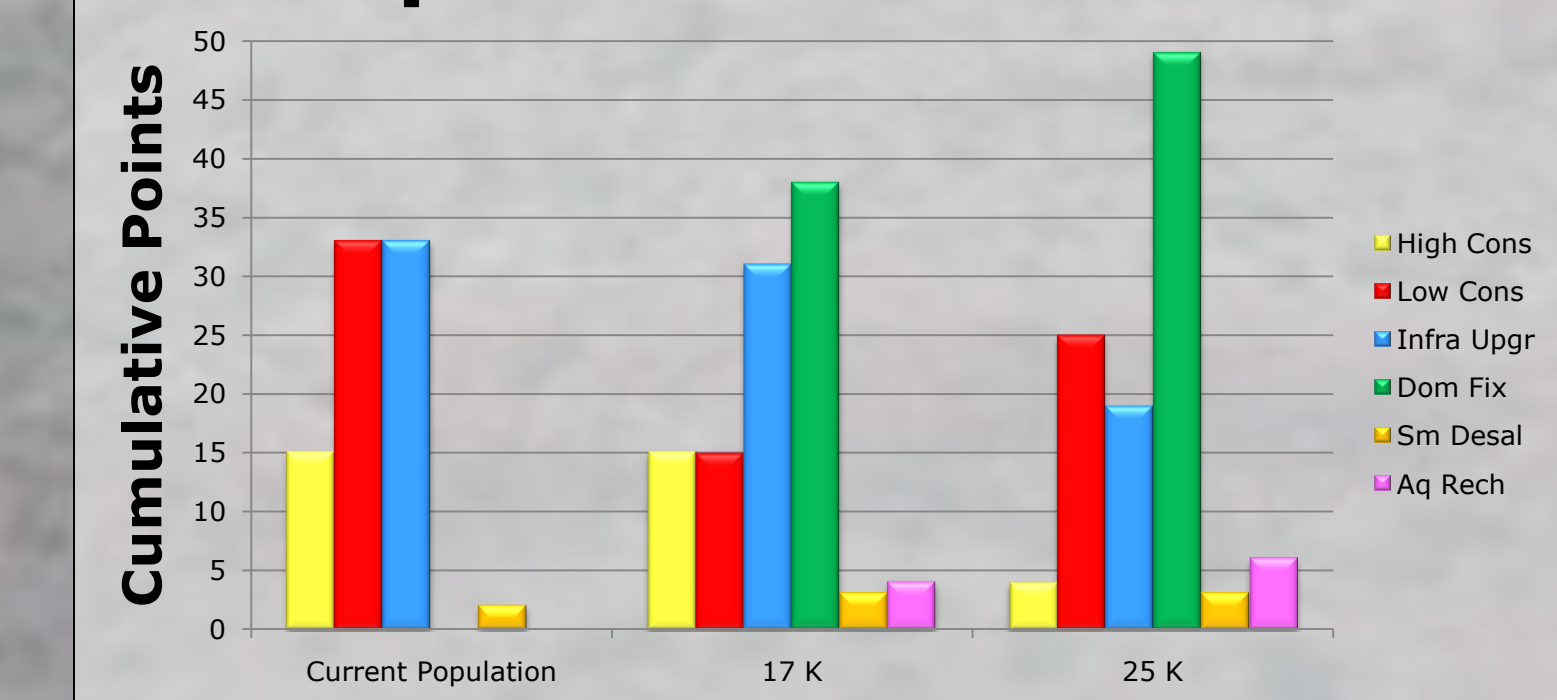
The dynamic and flexible analytical framework can be employed to guide local decision-making

Multi-Criteria Analysis

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



Optimal Alternatives



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- 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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