

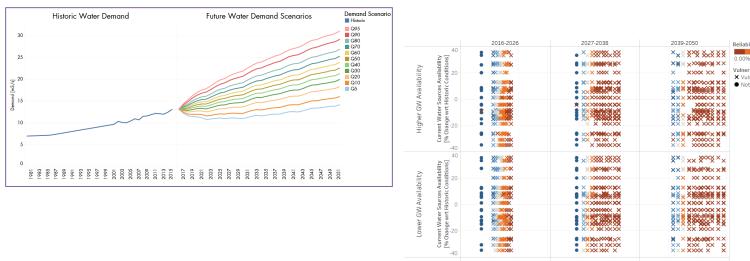
Developing a Robust and Adaptive Water Management Strategy for Monterrey, Mexico

David Groves, RAND Climate Resilience Center
 Edmundo Molina-Pérez, Tec of Monterrey
 Steven W. Popper, RAND Corporation
 Rodrigo Crespo, MTY Water Fund
 Aldo Ramirez, Tec of Monterrey



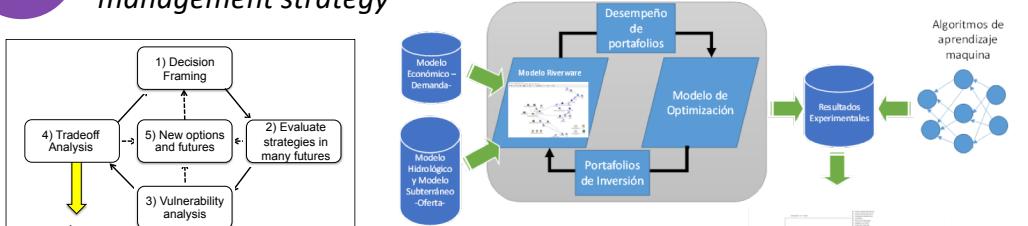
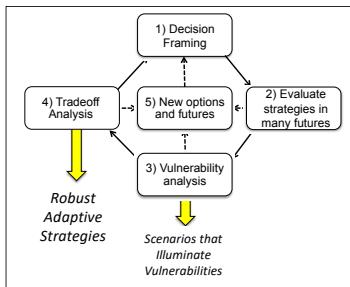
1

Monterrey, Mexico is a rapidly growing with uncertain future water demands and supplies – significant future vulnerability



2

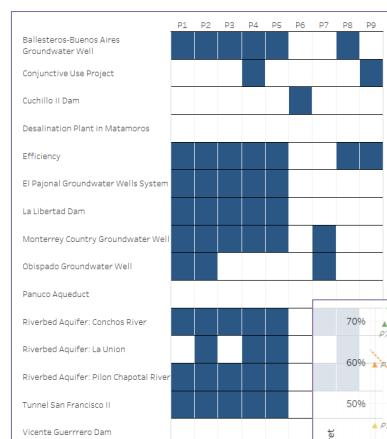
Robust Decision Making (RDM) used to define robust, adaptive water management strategy



- Project integrates several innovative, quantitative techniques

3

RDM first identifies robust near-term projects to meet growing demand

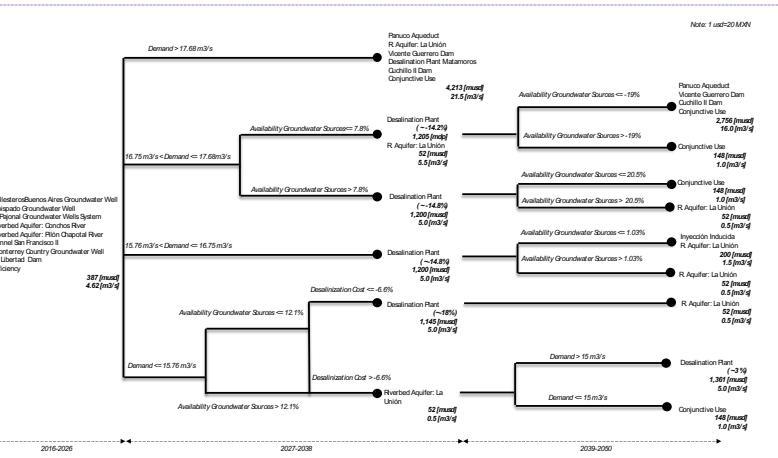


- Different “pareto optimal” portfolios with respect to “reliability” and “cost”
- Stakeholders identify acceptable trade-off

4

Next, RDM identifies optimal adaptation pathways for each plausible future

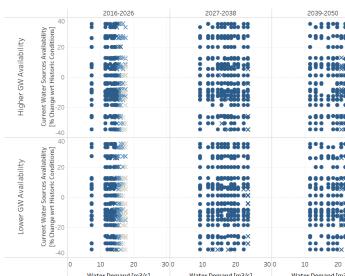
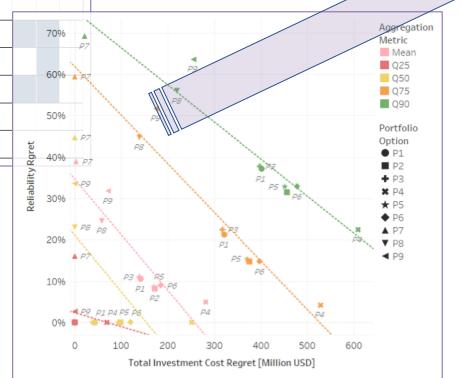
- Fixes robust near-term options
- Applies Quinlan's C5.0 decision rule classification algorithm to define decision trees for each plausible future
- Enables planners to be confident that today's investments will support needed adaptation



5

Study helped shape forthcoming Monterrey water strategy

- Monterrey opts out of cross-country water transfer project
- Focuses on diversification of supplies and demand management
- Forthcoming Water Plan <http://planhidriconl.mx/plan/highlights-research>



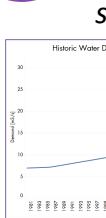
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Robust Decision Making (RDM) used to define robust, adaptive water management strategy



3

- ## Notable aspects:
1. Use of Robust Decision Making in Mexico water planning
 2. Integration of optimization tools to identify components of a robust strategy
 3. Development of robust, adaptive water resources strategy
 4. Demonstration of *DMDU impact!* Project has changed the trajectory of water management in Monterrey.

- Different optimization with respect to “reliability”

- Stakeholders identify acceptable trade-off



<http://planhidronl.mx/plan/>
highlights research

