



Project D1-1: Modeling present and future values for sustainable water management blueprint indicators

DATA

This project is closely linked with Project D1-2 which assesses tradeoffs associated with sustainable urban water solutions under climatic, land use, population, economic development, planning, and policy uncertainty.

INPUTS

Data used for the project include:

- Regionally downscaled climate projections
- Population projections
- Geospatial land, water, and demographic data
- Pipe networks for the cities of Portland and Eugene

OUTPUTS

This project will produce both map-based visualizations and indicator-based metrics that highlight potential tradeoffs between different urban water management approaches.

This project will provide insight into how different urban water management strategies may mitigate risks and create resilience to pressures from climate and socioeconomic change.

The project will develop transferable modeling and stakeholder engagement approaches, a set of future scenarios for the Willamette River Basin in Oregon, and model outputs representing landscape dynamics and water innovation impacts under alternative future scenarios.

It will develop a tool for modeling future conditions of urban water systems, and regionally pilot the use of urban water sustainability indicators (developed by project D1-2) to measure the vulnerability, reliability and resiliency of current and future water management strategies and technological innovations.

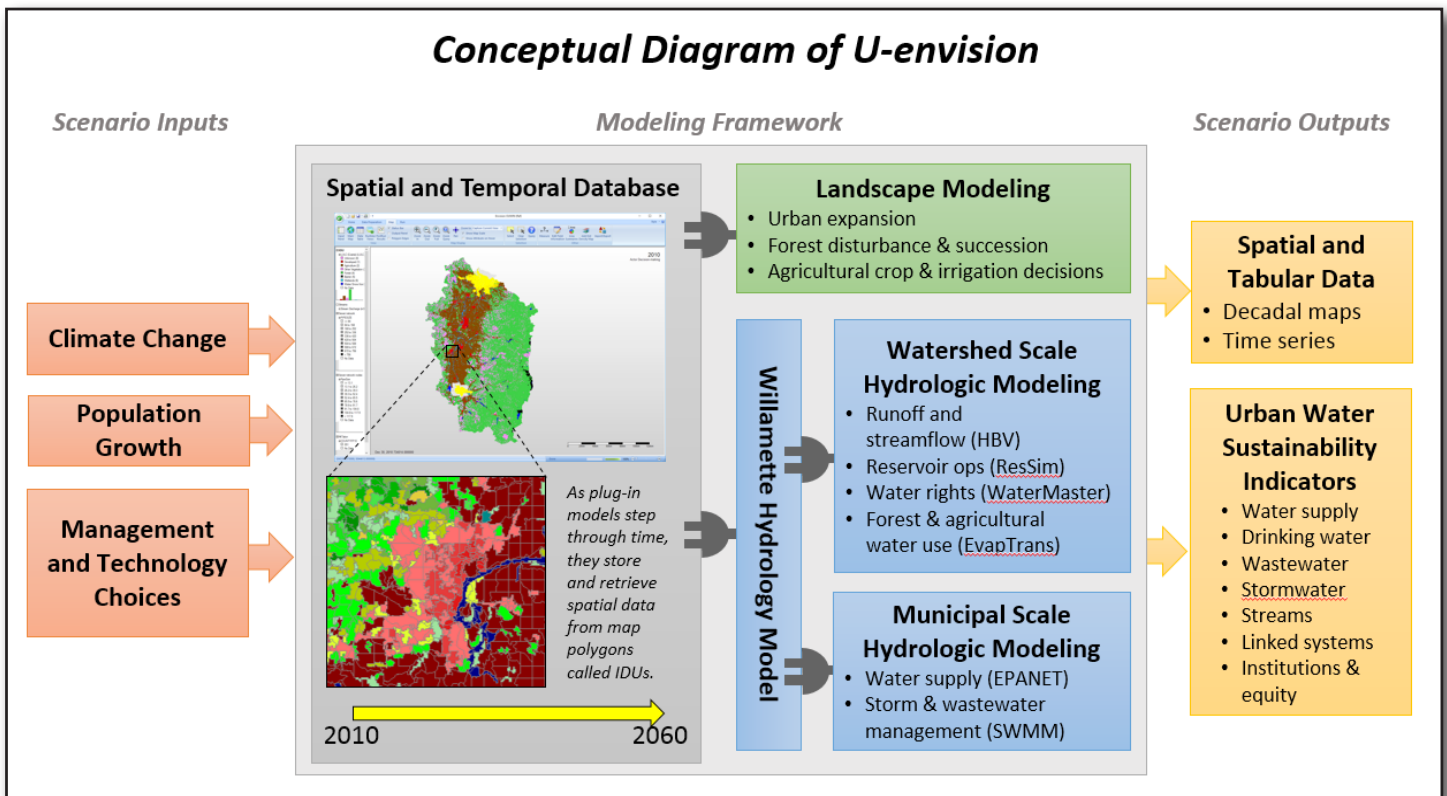
The project will work with regional stakeholders from the Willamette Valley, Oregon to identify realistic assumptions for futures scenarios and identify regionally-relevant water management solutions.

A decision innovation dashboard is being developed under Thrust D activities that tracks and rates options for both top-down and bottom-up optimization of urban water systems via stakeholder engagement.



Bioswales”, an example of site-level green infrastructure

Conceptual Diagram of U-envision



U-Envision Tool

The project is developing U-envision, a tool to visualize and explore tradeoffs between different urban water management strategies and responses to the 21st century challenges of population growth and climate change.

The model builds on Willamette Envision, a whole watershed model that represents natural and human influences on water supply, demand and hydrology.

Envision has been widely used to conduct model based scenario assessments incorporating both biophysical and sociocultural dimensions of landscape change

As part of this project, researchers will increase the resolution of municipal scale modeling for the cities of Eugene and Portland, while maintaining the perspective of a whole watershed model.

PROJECT KEYWORDS

- Urban Water Management
- Population Growth
- Climate Change
- Water Supply & Demand
- Green Infrastructure
- Sustainability Indicators
- Reliability & Resiliency

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