

Introduction

Decision Center for a Desert City (DCDC) is taking WaterSim, our system dynamics visualization tool, on the road and educating the general public and possible future water leaders about sustainability policy choices specific to Central Arizona. Through this education, DCDC is looking to teach people sustainable concepts, and inspire people to pursue careers in water management. Central Arizona faces a water crisis, not in the supply of water, but in the lack of leadership to plan future water policies, as our current leaders are retiring leaving vacancies in water leadership. Our goal is to educate people and get them interested in water in Arizona so that they can make a change for sustainability.

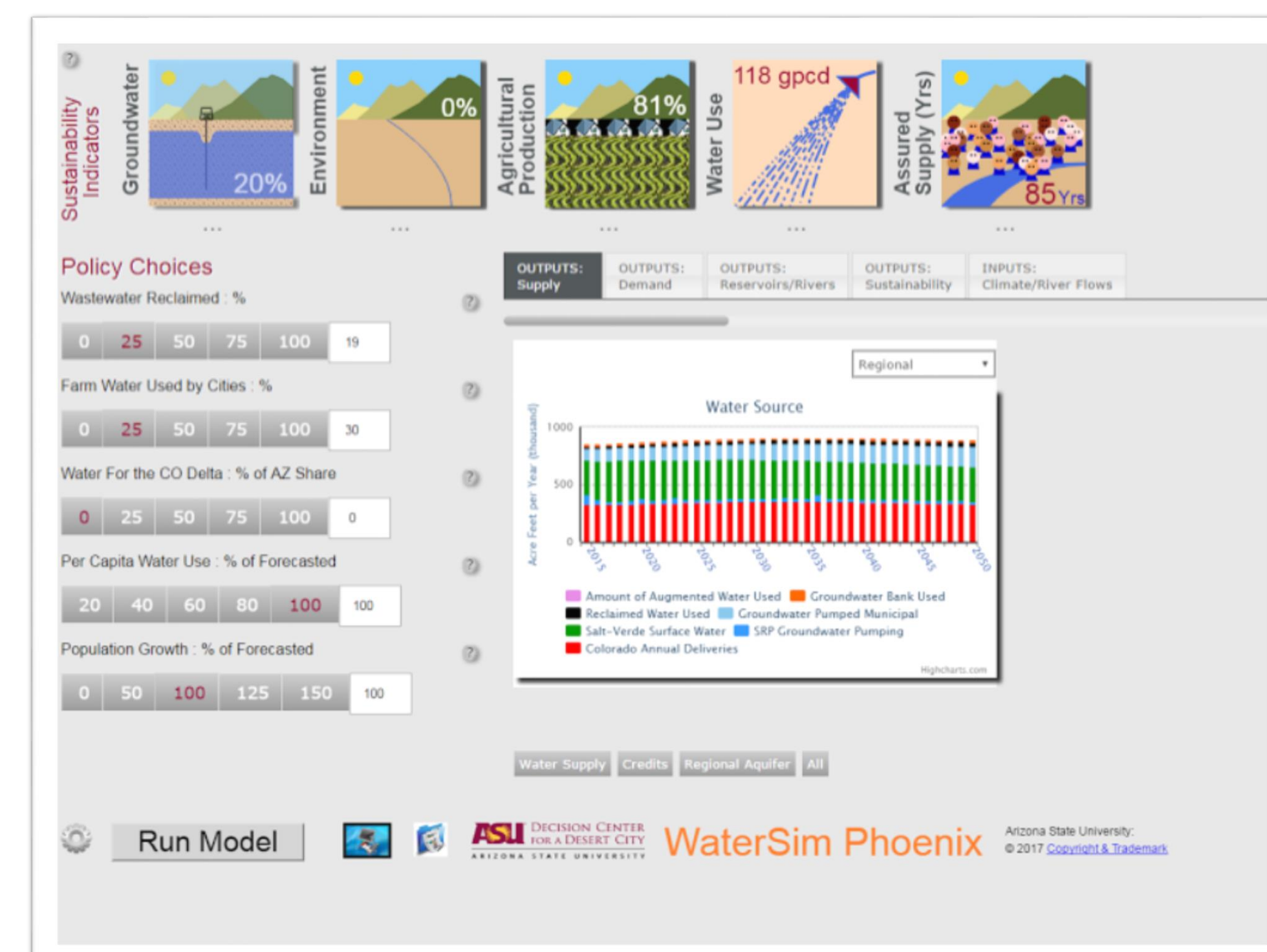
Figure 1: Lead WaterSim developer, David Sampson



WaterSim Tool

WaterSim has been under development over the last ten years and has gone through multiple iterations. The WaterSim model is a system dynamics visualization tool that allows the user to explore how water sustainability is influenced in various scenarios of regional growth, drought, climate change, and water management policies. The tool is designed to effectively create an easy viewing of important factors, while exploring different perspectives and values involved in decision making.

Figure 2: WaterSim User Interface



What We've Done

DCDC was chosen as one of only 30 National Science Foundation- funded projects to showcase WaterSim at the USA Science and Engineering Festival in Washington, D.C. from April 16-17, 2016.

The festival drew an estimated 350,000 visitors and is the largest STEM educational event in the country. Kids and adults learned about water in the West and used WaterSim to explore how various factors like regional growth, drought, climate change, and water management policies influence water sustainability.

Figure 3: DCDC members showcasing WaterSim in Washington, D.C. (from left – Katie Peige, Liz Marquez, Danielle Chipman)



Another branch of outreach is DCDC's partnership with the Smithsonian Project. In this partnership, DCDC created state-specific WaterSim models to travel to five states at a time, as a game booth in rural museums. This project is meant to reach members of the general public and teach them about sustainable water policies in their state and the difficulties of balancing water supply and demand. The general choices that people make are logged in the system for research into trends between water policy choices in certain states to see what the general public would do with their water in times of drought or population expansion. In future work, DCDC will explore the opportunity of visualizing how policy choices affect the inner-workings of the water model by showing how the changes in supply and demand are derived.

DCDC has reached out to community groups (Sonoran Institute, Arizona Hydrological Society, Valley Leadership), schools (Scottsdale Unified, Laveen), and cities (Gilbert, Goodyear, Tempe) to reach future water leaders and introduce our WaterSim curriculum to them. DCDC has also reached ASU university students in Sustainable Cities classes over the course of two semesters. At this point, DCDC has reached around 900 people of the general public that could be potential water leaders.

Figure 4: Ray Quay leading a workshop with Valley Leadership cohort



What We've Learned

A vast majority of the people we have had classes with so far had minimal knowledge about water in Arizona beforehand. Educating the populace and changing "water comes out of the faucet" mentality to more informed policy understanding is a major goal of our projects. People have shown interest after taking part in any of our WaterSim variants and hopefully this outreach will lead to an increase in water leaders in the future to combat the leadership crisis that Arizona will face very soon.

Learn More

DCDC is still looking to reach more audiences today. If you, your organization, or anyone you know may be interested in learning more about WaterSim outreach please feel free to contact DCDC at 480-727-9262 or email Katie Peige and Kyle Gibbs at Katie.Peige@asu.edu and Kyle.Gibbs@asu.edu respectively.

Future Steps

DCDC has two major future steps over the coming year. The first one is to continue updating and perfecting our curriculum from feedback from teachers, community groups, and water managers. Another major step is research about what policy choices different groups make and what that means for future water policy. WaterSim records the inputs and choices made by the user which we at DCDC will look at and see under what conditions people prefer to use certain policies. A detailed research article will be published so that everyone can see the results and policy-makers or general public alike could see what preferred policies are used.

Figure 5: Dave White demonstrating WaterSim in the Decision Theater



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