

Institute for Water and Watersheds – 11 June 2007
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Introduction

Society now faces critical choices about water: how do we ensure water for development and ecosystem maintenance in the face of burgeoning population, growing economic disparities between rich and poor, increased environmental degradation, potential conflict over water, and the specter of global hydroclimatic change? These challenges are on an unprecedented scale and require solutions which incorporate a wide range of knowledge. Resources must be dedicated to finding and implementing these solutions. Teams of researchers from a variety of disciplines are needed to address these problems. New and more effective educational and outreach models are required to communicate the latest science and policy options to stakeholders so that society can make informed, intelligent decisions.

Our vision is to focus and harness OSU's diverse water expertise – teaching, outreach, and research – to address and solve water and related problems faced by Oregon, the nation, and the world, and move OSU into the ranks of top-tier USA water schools.

A Model for the OSU Water Vision

The OSU Water Vision supports interdisciplinary research of a scope, scale, and complexity beyond the resources of any individual investigator or small group. As such it reflects the very best national initiatives such as the NSF Centers (e.g., Science and Technology Centers, Engineering Research Centers, Science of Learning Centers). These centers also provide rich environments for the multidisciplinary training and mentoring of undergraduate and graduate students and postdoctoral fellows, as well as “K-gray” educational partnerships and public outreach. The NSF Center model promotes opportunities for cross-fertilizations of ideas between and among theoretical and experimental physical and social scientists and students, as well as between the physical and social scientists and students and the educators and technologists who communicate and implement the results.

The OSU Water Vision will be distinguished, however, by building upon OSU's heritage as a land grant, sea grant, space grant, and sun grant university to connect OSU to the people of Oregon and the world. OSU's expertise will be brought to bear in addressing Oregon's, the nation's, and the world's water problems. The vision will create a unified approach to research, teaching, and outreach across academic disciplines and audiences.

Innovative Place-Based Education

Our goal is to dramatically improve the quality of our students' educational experience by creating a learning environment characterized by an interdisciplinary, place-based approach focused on engaging students of all ages in solving real-world problems. Education will be integrated with research through interactive, data- and experience-rich learning opportunities. The heart of the initiative will be a “Water Place” on campus in Corvallis, described below. The Oak Creek watershed, which encompasses the OSU campus, will be a focal point for experiential learning. The “Water Place” will be connected to and supported by extant statewide programs and include a new **Center for Water in Landscapes** at the OSU-Cascades campus in Bend, devoted to education and experiential learning. Existing extension and research operations will link students and faculty who conduct water research, education, and outreach at various sites throughout Oregon.

Both the Bend center and the OSU “Water Place” will involve instrumentation and data collection, science synthesis, policy integration, and outreach activities, all designed to give students a sequential learning experience where successive activities build upon, reinforce, and integrate key watershed concepts. We will emphasize and reward innovation in implementation of learning models that engage students across multiple disciplines in efforts that promote diversity and team-oriented approaches. Undergraduate and graduate students, K-12 teachers and their students, and other stakeholders will become involved in the study of water and watersheds across Oregon's diverse hydrologic regions.

A Home for Interdisciplinary Research, Teaching, and Outreach

OSU Water and Watershed faculty have been successful in traditional funding arenas (approximately \$15M in external funds annually). OSU Water and Watershed faculty and students are located in six colleges and multiple departments, with teaching and research labs spread across campus. While OSU has succeeded in creating collaborative relationships for learning, teaching, and outreach, we lack a central coordinating place and concept that brings people and their work together, limiting our ability to pursue large, multi-disciplinary, and long-term projects. Such a place is vital for sustained interdisciplinary communications and collaborations.

To advance its vision, OSU needs a “Water Place”, the **Water Nexus Building**, where faculty, students, and others can gather to work, converse, and engage. The **Water Nexus Building** will include laboratories, classrooms, studios, meeting rooms, a water decision theater, and faculty offices, and will house the IWW and INR. It could also

house federal agencies, creating increased synergy and harnessing the talents of federal researchers as collaborators and mentors.

The **Water Nexus Building (\$20M)** will provide a “home” for each of the following:

- 1) **Water Collaboratory**, an open analytical chemistry facility for research and teaching.
- 2) **Water Resources Graduate Program (WRGP)** and the **Hydrophiles** student organization.
- 3) **Watershed Extension**
- 4) **Hydrologic Measurement Facility**, providing the tools to understand water.
- 5) **Pacific Northwest Hydrologic Observatory**, an outdoor laboratory where researchers probe the “ridge to reef” interactions among the biosphere, hydrosphere, geosphere, noosphere, and atmosphere, and communicate the results to stakeholders.
- 6) **Program in Water Conflict Management and Transformation**, an innovative program designed to provide the necessary resources and skills so water professionals can address conflicts.
- 7) **Water And Sanitation In Development (WASID)** Program, which focuses OSU's water and related health and sanitation expertise on problems of water, sanitation, and related issues in the developing world.
- 8) **Joint Northwest Water Institute (JONWI)**, a consortium of OSU, Idaho National Laboratory, and Pacific Northwest National Laboratory, established to address intractable regional PNW issues at the water-energy nexus.
- 9) **Water Decision Theater**, a sophisticated, multi-media policy visualization facility where water policy options can be explored and plans developed and tested.

Outreach

Watershed Extension is an OSU Extension Service effort that combines human and financial resources from Sea Grant, Forestry, Agriculture, 4-H, Family and Community Development, with other partnerships both inside and outside of OSU. Watershed Extension lacks ongoing core funding support needed to provide the services demanded by Oregonians. Even with limited resources, however, Watershed Extension faculty deliver watershed stewardship education and materials both on the OSU campus and statewide to a variety of audiences and experience levels.

With stable financial support and clear state legislative direction, the Watershed Extension program could provide needed, significant support to watershed councils and soil and water conservation districts. It already collaborates with these organizations, federal and state agencies, and non-profit groups to meet the watershed education needs of Oregon citizens.

Other Essential Elements of the OSU Water Vision

The following elements are critical to the success of the OSU Water Vision (amounts shown represent the value of the endowment needed to provide a fixed annual income):

- 1) Support for visiting senior and junior faculty, both short-term (1-2 months or less) and long-term (6-12 months – sabbatical leaves) appointments. **(\$4M)**
- 2) Fellowships and scholarships to attract the “best and the brightest” students. **(\$4M)**
- 3) Seminar series support, to expose our students and faculty to top talent, and vice-versa. **(\$1M)**
- 4) Support for the Office of the Director of the Water Resources Graduate Program. OSU needs a full-time Director and administrative assistant to advance the WRGP to the top, as befits the excellent OSU faculty. **(\$3M)**
- 5) Exploratory outreach, teaching, and research fund **(\$4M)**
- 6) Eight faculty lines **(\$20M)**
- 7) Institute for Water and Watersheds permanent support **(\$10M)**
- 8) Endowed Chair in Water Law and Policy **(\$4M)**

With these additional elements, OSU will be well-positioned to rise to elite status among academic water programs. The total cost, including **\$20M** for the Water Nexus Building, is **\$70M**.

Current OSU Water Investment

Externally funded water research: **\$15 M per year**

Water faculty salaries: **\$10 M per year**

Provost's Water and Watershed Initiative: **\$1.5 M**

Infrastructure (equipment): **\$4 M**

Total: \$30.5 M