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IALC Researchers Warn Current Policy Trends Spell Global Water Shortage

July 30, 2003 – Phoenix, AZ – If current trends in water and food policy management and investment remain as they are, the global water situation could reach crisis levels BY 2025, according to Ken Foster, president of the International Arid Lands Consortium (IALC). To avert a worldwide water shortage, the IALC is supporting water-related research projects through partnerships and shared research by leading scientific investigators.

According to researcher's predictions, household water use could increase by 71 percent by 2025, 90 percent of that would be in developing countries, although many households would remain unconnected to piped water. The water scarcity could cause annual global losses of 350 million metric tons of food production (slightly more than the entire current U.S. grain crop). Consumption of water for all non-irrigation uses could rise by 62 percent. Industrial water demand could increase significantly in developing countries and the water demand in the developing world could exceed the demand in developed countries, causing substantial shifts in where the world's food is grown. (Source: Global Water Outlook to 2025: Averting an Impending Crisis: http://www.ifpri.org/media/water_summaries.htm)

Research funded by the IALC through partnerships include:

1. **The U.S. Forest Service's Rocky Mountain Research Station and the University of Arizona's Office of Arid Lands Studies and Cooperative Extension** are building a comprehensive World Wide Web resource, including research-based learning and decision-making tools, on the management of semi-arid watersheds. The project provides state-of-the-art geospatial and temporal data analysis and visualization tools using data collected over a 40-year period as part of the U.S. Forest Service's Arizona Water Research Program (AWRP). This includes GIS interface and graphing capabilities, watershed visualization applications, and data representing mixed conifer vegetation as well as pinyon-juniper, ponderosa pine, and chaparral. *Support for this project came from the USDA Forest Service.*
2. **The University of Arizona and Hebrew University of Jerusalem** are investigating the long term effects of organic contaminants in soils irrigated with treated wastewater, an important source of irrigation water in semiarid and arid zones, such as the southwestern U.S. and Israel. Results from this international, collaborative study will provide a foundation for understanding and predicting the overall fate and transport of organic contaminants that are incapable of dissolving in water under wastewater irrigation conditions. *Supported by a grant from the USDA Cooperative State Research, Education, and Extension Service.*
3. Investigators from **The University of Illinois** are researching the global effects of water use and concentrations of atmospheric carbon dioxide (CO₂) and tropospheric ozone

(O₃) concentrations under increasingly arid climates. Both gases have the potential to reduce evapotranspiration (loss of water by evaporation from the soil and transpiration from plants) as they can directly and indirectly affect the part of a leaf or stem through which gases and water vapor pass. *Supported by a grant from the USDA Cooperative State Research, Education, and Extension Service.*

4. Investigators from The **University of Illinois and Ben-Gurion University of the Negev**, in Beer Sheva, Israel, are researching Flash Flood Runoff from Arid-land Watersheds. Flash floods occur occasionally in arid-land watersheds and impose significant hazards to the lives and properties in the watershed but can be an important source of water if properly managed. The expected result of this research is an arid-land runoff simulation model that is theoretically sound and accurate and practically simple, fast and efficient for arid land storm runoff prediction, without demanding sophisticated computer software or hardware, nor detailed watershed data in field application. *Supported by a grant from the USDA Cooperative State Research, Education, and Extension Service.*

5. **The University of Arizona, Ben-Gurion University of the Negev (Israel), and Hebron University (West Bank, Palestinian Authority)** are studying Subsurface Drip Irrigation for Vegetables Using Effluent in Arid Lands. Subsurface Drip Irrigation systems are known to be very efficient in comparison with conventional Furrow Irrigation because the subsurface drip irrigation system provides water directly to the root zone, thereby minimizing evaporative loss, especially in arid and semi-arid regions. The research focuses on evaluating water use efficiency of subsurface drip irrigation for vegetables like iceberg lettuce and assessing the health risks of effluent use. The project will examine the technical feasibility and management strategies of subsurface drip irrigation for vegetables, using effluent in arid and semi-arid lands. *Supported by a grant from the USDA Cooperative State Research, Education, and Extension Service.*

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The International Arid Lands Consortium (IALC) is an independent nonprofit organization dedicated to exploring the problems and solutions unique to arid and semiarid regions. IALC promotes cooperative research and practical application of new knowledge to develop sustainable ecological practices. The member institutions share a mission to enable people of arid lands to improve the quality of life for future generations. IALC members include the University of Arizona, Desert Research Institute – Nevada, Higher Council for Science & Technology – Jordan, The University of Illinois, Jewish National Fund, Ministry of Agriculture and Land Reclamation – Egypt, New Mexico State University, South Dakota State University, and Texas A&M University-Kingsville.