CONCEPT PAPER BRIEFING SHEET

Originated by:	Edward A. Hiler Vice Chancellor and Dean, Agriculture and Life Sciences and Director, Texas Agricultural Experiment Station and Texas Cooperative Extension
Subject:	Authorization to proceed with the concept to establish an Irrigation Technology Center within the Texas Agricultural Experiment Station and Texas Cooperative Extension
Reviewed by:	Dr. Leo Sayavedra Vice Chancellor for Academic and Student Affairs
Proposed Board Action:	Review of a concept paper to establish an Irrigation Technology Center as an organizational unit of the Texas Agricultural Experiment Station and Texas Cooperative Extension.
Background Information:	In Texas, agricultural irrigation uses about 65% of the total freshwater consumed annually, while landscape irrigation accounts for 20 - 40% of total municipal water use. As much as half of this irrigation water can be wasted because of inadequate equipment, systems, and management. Texas' rapidly growing population and industries are putting an increased demand on existing water supplies and conveyance systems; regional water shortages are expected to become prevalent in the next decade. To ensure adequate water supplies, we must realize the full benefits of existing technologies; develop more efficient irrigation products, management, and reuse practices; and educate both agricultural and landscape irrigators on their use. The establishment of an Irrigation Technology Center will provide for coordinated statewide irrigation programs and associated facilities for education, testing and applied research, efficient water use and conservation, profitable irrigated crop production, and quality urban landscapes.
Funding Implications:	Funding for the Center will be solicited from local organizations, state and federal sources, industry, municipalities, and groups and individuals. Resources and personnel within the Experiment Station and Texas Cooperative Extension will be redirected to support the Center's programs. To complement existing resources, activities under consideration include expanded contracts and grants, congressional and state initiatives, as well as a capital campaign effort.

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January 30, 2002

AGENDA ITEM NO. 26

MEMORANDUM

TO: Mr. Howard Graves
Chancellor

THROUGH: Dr. Jerry Gaston
Deputy Chancellor

THROUGH: Dr. Leo Sayavedra
Vice Chancellor for Academic and Student Affairs

SUBJECT: Concept paper to establish an Irrigation Technology Center within the Texas Agricultural Experiment Station and Texas Cooperative Extension

The attached concept paper is provided for consideration by the Board of Regents in establishing an Irrigation Technology Center as an organizational unit within the Texas Agricultural Experiment Station and Texas Cooperative Extension. Assuming that the concept paper is acceptable, a full proposal will be submitted for consideration at the May, 2002 meeting of the Board of Regents.

This concept paper for an Irrigation Technology Center has the full support of Deputy Directors Chester Fehlis and Charles Scifres. Should you have any questions, please do not hesitate to call me.

Edward A. Hiler
Vice Chancellor and Dean
Agriculture and Life Sciences
Director, Texas Agricultural Experiment Station and
Texas Cooperative Extension

Attachment

Approved for legal sufficiency:

Delmar L. Cain, General Counsel

xc: Chester Fehlis, Charles Scifres, Fuller Bazer, Patricia Gerling, Dick Creger, Allan Jones

CONCEPT PAPER

IRRIGATION TECHNOLOGY CENTER

Texas Agricultural Experiment Station
Texas Cooperative Extension
January 30, 2002

PROPOSAL

This proposal is to establish a world class, state-of-the-art Irrigation Technology Center (ITC) to provide for coordinated statewide irrigation programs and associated facilities for education, testing and applied research, efficient water use and conservation, profitable irrigated crop production, and quality urban landscapes.

JUSTIFICATION

The Texas Water Resources Institute (TWRI), designated to guide the ITC, is a research and public information unit of the Texas Agricultural Experiment Station with strong ties to Texas Cooperative Extension. Headquartered in College Station, the TWRI serves as a focal point for water-related research and outreach at Texas universities. A strength of the Institute is that, by working with components within the Texas A&M University System Agriculture Program and other entities, it is able to reach out and partner with water resources organizations and agencies throughout Texas.

In Texas, agricultural irrigation uses about 65% of the total freshwater consumed annually, while landscape irrigation accounts for 20 - 40% of total municipal water use. As much as half of this irrigation water can be wasted because of inadequate equipment, systems, and management. Texas' rapidly growing population and industries are putting an increased demand on existing water supplies and conveyance systems; regional water shortages are expected to become prevalent in the next decade. To ensure adequate water supplies, we must realize the full benefits of existing technologies; develop more efficient irrigation products, management, and reuse practices; educate both agricultural and landscape irrigators on their use; and identify policies that encourage conservation.

Agricultural and urban irrigation industries are largely unregulated. Equipment manufacturers and retailers often make claims regarding the efficiency and performance of their equipment without adequate testing. No independent design standards exist for irrigation systems, and most consumers do not have the expertise to determine if the system they are purchasing will perform as claimed. Only one small, independent sprinkler irrigation testing facility exists in the United States. Industry and professional groups have expressed a desire to work with the ITC to develop design and performance standards for irrigation equipment components and whole systems, to test equipment and systems, and to certify their performance.

MISSION AND GOALS

The mission of the Irrigation Technology Center (ITC) is to:

- Develop new and improved agricultural and landscape irrigation technologies, management, and reuse practices.
- Provide training and educational services for irrigators, agency and industry personnel, and the public.
- Establish an equipment testing and certification program.
- Develop design and performance standards for agricultural and landscape irrigation systems.
- Promote opportunities for linkages with undergraduate and graduate academic programs.

The ITC will also support regional programs and services including evapotranspiration networks, pumping plant efficiency testing, and specialized training and educational programs.

PROPOSED ACTIVITIES

The Irrigation Technology Center will perform its mission through five (5) programmatic divisions. These divisions will include the following:

Urban Programs Division

The Urban Programs Division will provide hands-on instruction, testing and performance evaluations, and applied research for residential and commercial landscape irrigation systems. Systems will include fully automated and manually controlled drip, sprinkler and microspray irrigation of various plant materials. Facilities will allow for the evaluation of remote sensing technologies, precision technologies and estimation of potential evapotranspiration in urban irrigation scheduling and water budgeting. The testing and applied research programs will lead to improved methods and products for landscape irrigation.

Agricultural Crops Division

The Agricultural Crops Division will focus on improving the efficiency and effectiveness of irrigation in the regions of Texas with large irrigated acreages, with particular emphasis on the High Plains, Rio Grande Valley, Far West Texas, Winter Garden and the Coastal Plains regions. This division will utilize true-scale, operating agricultural irrigation systems of all major technologies including drip, sprinkler, furrow and flood irrigation. These facilities will allow for hands-on instruction, testing, performance evaluations, and applied research to optimize irrigation amounts for major and minor crops. Emerging technologies including remote sensing, feed-back control, variable rate applicators, and "intelligent" or "precision" irrigation systems will be evaluated and further developed.

Equipment Testing and Certification Division

This division will test and certify the performance of both landscape and agricultural irrigation equipment, including laboratory testing of components and field testing of complete systems. The certification program will provide assurance to consumers, irrigators, lenders and regulators that systems and components purchased will perform as advertised. Effects of wind, soils, landscape area, plant types, and other environmental factors will be determined in detail, thereby allowing for the development of design standards to improve efficiency.

Wastewater Reuse Division

Wastewater reuse is needed to help meet the water needs of both urban landscapes and production agriculture. The Wastewater Reuse Division will conduct training and applied research on the special nature of wastewater reuse, including salinity and other water quality issues, plant response, system design requirements, corrosion, environmental quality, and recommended management practices.

International Division

The International Division will be self-supporting through funding provided from industry, international organizations, and foreign governments. This funding will also help enhance the ITC's programs and reputation and support other divisions of the center. The International Division will provide training of individuals, industry and governmental personnel, and will support international irrigation education and technology transfer programs.

GOVERNANCE AND ADVISORY STRUCTURE

The ITC will be a Center administered through the Texas Water Resources Institute (TWRI) within the Texas Agricultural Experiment Station, in close coordination with associated programs in Texas Cooperative Extension. A Director will be appointed to administer activities and programs within the ITC; directors will be appointed to manage activities within the five divisions. Division Directors will report to the Director of ITC for related program activities and to their respective unit administrator (e.g., department head, resident director or district director) for direct supervision.

An advisory committee composed of internal and external experts will be formed to provide input programs and activities of the ITC. The ITC will undergo a comprehensive programmatic review after three years and each five years, thereafter. Programmatic reviews will be conducted within each division, as appropriate.

Texas Cooperative Extension and the Texas Agricultural Experiment Station will seek funding support for the ITC from local organizations, state and federal sources, industry, municipalities, and groups and individuals. A major facility for irrigation equipment testing and certification and urban irrigation programs will be established in San Antonio.

Local entities in the San Antonio area (the city government, San Antonio Water Systems, San Antonio River Authority, BexarMet and Medina County Groundwater District) have provided about $150,000 in cash support to assist in initial planning and it is anticipated that land and associated utilities will also be provided by the local entities. In addition, the San Antonio City Council and Edwards Aquifer Authority have provided statements or resolutions of support for the ITC.

Existing resources and personnel within Texas Cooperative Extension and the Texas Agricultural Experiment Station will be redirected to manage programs and activities for the ITC. To complement these existing resources, a comprehensive ITC strategic plan is under development with future financial support to include:

- Expanded efforts to obtain grants and contracts.
- Continued coordination and plans for local support in the San Antonio area.
- A state legislative initiative to fund operations and maintenance.
- A federal initiative for equipment and associated facilities.
- A proposal for federal agency support for facilities construction.
- A capital campaign for funding enhancement for facilities and operations.

COOPERATORS AND COLLABORATORS

Irrigation programs of the ITC will be closely coordinated with complementary programs of other agencies, universities, commodity groups, industry, municipalities, river authorities, groundwater districts, regulators, producers, homeowners, and the private sector. Principal scientific and technical collaboration will include USDA Natural Resources Conservation Service, USDA Agricultural Research Service, scientists and engineers at other universities and with industry, consultants, and personnel with river authorities and municipalities. The ITC will also collaborate with state and federal regulatory and resource agencies such as the Environmental Protection Agency, U.S. Geological Service, U.S. Bureau of Reclamation, Texas Water Development Board, Texas Natural Resource Conservation Commission, Texas State Soil and Water Conservation Board, Texas Department of Agriculture, and irrigation districts.