TITLE: "Unlocking New Water Frontiers: Exploring Opportunities and Risks of Alternative Sources for Agriculture and Urban Use"

Water scarcity is one of the most pressing global challenges, exacerbated by population growth, and increasing urbanization. The water demand is steadily increasing, particularly in agricultural and urban sectors, which are highly dependent on freshwater resources. However, the traditional sources of freshwater, including rivers, lakes, and groundwater, are facing increasing pressure, with many regions experiencing droughts, reduced rainfall, and pollution. This has led to an urgent need to explore alternative water sources that can alleviate pressure on traditional freshwater supplies. This session explores the potential of alternative water sources for agricultural and urban use, emphasizing both the opportunities and threats they present.
In the context of agriculture, alternative water sources include treated wastewater, rainwater harvesting, desalinated water, and the reuse of water from industrial processes and oil and gas extraction (produced water). Despite the opportunities these alternative sources present, several threats and challenges must be addressed. One of the primary concerns is the cost associated with the development and maintenance of infrastructure needed for alternative water systems. For instance, desalination plants are expensive to build and require significant energy resources, making them economically unfeasible in certain regions. Moreover, the environmental impact of desalination, such as brine disposal and energy consumption, can be detrimental to marine ecosystems. Similarly, the infrastructure required for wastewater treatment and greywater recycling can be costly and require ongoing maintenance, which may be prohibitive for low-income communities or developing countries.
Public perception and acceptance of alternative water sources, particularly in urban areas, can be another barrier to widespread adoption.
Researchers, policymakers, and industry stakeholders must collaborate to develop safe, sustainable, cost-effective, and socially acceptable solutions that can help secure water for future generations.

CONGRESS THEMATIC AREA: Water in a Changing World: Innovation and Adaptation.

THEMATIC AREA SUBTHEME 3: Water Security and Water-Related Risks.

LEAD ORGANIZATION: Texas A&M AgriLife, Texas Water Resources Institute

Speakers:

1) Dr. Giovanni Piccinni, Texas A&M AgriLife, Texas Water Resources Institute
   Session Introduction

2) Dr. Allen Berthold, Texas A&M AgriLife, Texas Water Resources Institute
   Securing Texas's Water Future: Exploring Alternative Water Sources through State Planning.

3) Dr. Katie Lewis, Texas A&M AgriLife, Research and Extension Center, Lubbock
   Alternative Water Resources, Soil Dynamics, and Their Role in the Future of Agricultural Production.

4) Dr. Joseph Burke, Texas A&M AgriLife, Research and Extension Center, Lubbock
   Opportunities for Sustainable Agronomic Production Through Strategic Partnerships Between the Agriculture and Energy Sectors.

5) Dr. Maria Michela Dell'Anna, Politecnico di Bari, DICATECh
   Assessment of microplastic pollution in South Adriatic Sea.

6) Dr. Vinay Nangia, International Center for Agricultural Research in the Dry Areas (ICARDA).
   Balancing Act: Strategies to Bridge Agricultural Water Demand and Supply Gap in Drylands