School of Sustainability
Arizona State University

In partial fulfillment of the requirements for the degree of

Doctor of Philosophy

Muhammad Adnan Hanif

will defend his prospectus

Supporting Conservation of Food, Energy, and Water Resources at Households: A Role-Playing Game Approach

Wednesday, May 6, 2020
11:00 am
Zoom Meeting ID: 524 300 1377

Faculty, students, and the public are invited.

Supervisory Committee:
Dr. Datu Buyung Agusdinata, Chair
Dr. Kathleen E. Halvorsen, Member
Dr. Marco Janssen, Member

Abstract

In the United States, greenhouse gas (GHG) emissions associated with household consumption have been estimated to account for over 80% of total U.S. emissions. Whereas the demands for food, energy and water are estimated to increase by 40%, 50%, and 35% respectively by 2030. It is the need of the hour to reduce emissions by conserving food, energy, water (FEW) resources at a household level. The proposed research is to develop a role-playing game (RPG) and use it to better understand households' consumption behaviors and support conservation measures. Main hypothesis is that RPG reveals preferences and action intentions, suggesting what individuals may do given certain conditions. This research will contribute to: (1) design and implementation of a novel RPG for

supporting FEW resources conservation, (2) evaluation of intervention messages and their impacts on GHG emission reduction, (3) quantification of cognitive and experimental learning based on debriefing and surveys, and (4) development of a built-in climate impact information model in the RPG to understand perceptions about climate change risks and the effects on household mitigation and adaptation actions. Analytic hierarchy process (AHP), values, beliefs and norms (VBN) theory, demographic analysis and hierarchical linear regression model will be used analyze data collected through the gaming sessions.