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PhD Dissertation Defense

Entitled

ASSESSMENT OF THE IMPACT OF CLIMATE CHANGE ON LAND USE IN THE EMIRATE OF ABU DHABI - AN ENVIRONMENTAL AND SOCIO-ECONOMIC PERSPECTIVE

by

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Abstract

This work focuses on the impact of climate change on land use in the Emirate of Abu Dhabi – UAE. Climate change is a significant challenge resulting from natural and anthropogenic causes. Land use can stimulate changes in communities under climate change. The main objective of this dissertation was to assess the impact of climate change from an environmental and socio-economic perspective. In 2001, coastal sabkhas, mixed class and urbanized areas experienced an increase in temperature by (0.67, 1.14 and 1.16 °C) respectively. Urban areas are generally warmer than neighboring rural areas. Unexpectedly, urbanization in desert areas in UAE led to a decrease by 3–5 °C in the overall LST. The maximum air temperatures are going to increase in the coming years based on the predictions according to the different scenarios in 2095 using MarksimgCM by more than 4 °C in UAE. Urban expansion and changing lifestyles have led to an increase in energy consumption. Data was gathered from (321) residents in Abu Dhabi Emirate. More than 50% of the participants agreed that climate change is controlling their energy and water consumption. About 94% of participants believe that their energy consumption is increasing. About 50% of participants consider moving to another city if energy prices increased due to energy consumption and the effects of climate change. Changes in the global environmental conditions affect agricultural activities. Three hundred and one surveys were collected throughout Abu Dhabi Emirate. Approximately 68% of the respondents in Al-Ain agreed that it is currently much easier and more profitable to manage a farm than it was 20 years ago. Thirty-nine percent of the farmers agreed that both production quality and quantity have improved over the past 20 years. Farmers aged between 51-60 years agreed more that the groundwater levels and quality had changed over the past 20 years. The research covered past, present and future periods of time that represented a firm timeline of the study. The study reflects on the importance of awareness among people to overcome and cope with the effects of climate change.

Keywords: Climate Change, Dryland, Land Use, LST, UAE.