



## **Assessment of the risks from climate change and water scarcity on agriculture production in Jordan**

Saeb Khresat

Jordan University of Science & Technology, Irbid, Jordan (skhresat@just.edu.jo)

Global climate change will affect crop production worldwide, especially in arid areas with scarce water resources. In Jordan, the trends of decreased rainfall and increased temperature are expected to reduce crop yield and thus increase the vulnerability.

The overall aim of this study was to assess the risks from climate change and water scarcity on food productivity. Adaptation measures were proposed at farmer and decision-maker levels.

Based on the results of the three general circulation models and the trend analysis, climate change scenarios in 2030 and 2050 were suggested for the different basins in Jordan. The most probable scenario would be an increased air temperature of 1°C by year 2030 and 2 °C by 2050.

The anticipated increase in temperature and decrease in precipitation would adversely affect crops and water availability, critically influencing the patterns of future agricultural production. The anticipated increase in temperature and decrease in precipitation in 2030 and 2050 would result in yield reduction for major field crops and vegetable crops.

The trends of climate change showed that the average net irrigation requirements will increase by 6 and 12 % in 2030 and 2050, respectively. The 1°C increase in temperature and 10% decrease in precipitation will decrease the yield by 5% and decrease the planted area by 18%, while a 2°C increase in temperature and 20% decrease in precipitation will decrease the yield by 10% and decrease the planted area by 27%.

Based on the previous findings, planned and autonomous adaptation measures were proposed to mitigate the impacts of climate change on food production and future water resources.