

**Dr Almoayied Assayed, Director, Water, Environment and Climate Change Centre, Royal Scientific Society, Jordan**

*Championing smart agriculture*

Dr Almoayied Assayed is a water expert who advocates for hydroponics and controlled-environment agriculture (CEA) as methods for reducing the amount of water needed for agriculture in water-scarce Middle East and North Africa (MENA) countries.

Moayied believes that the supply of both food and water needs to be examined in correlation with one another, rather than being examined in siloes.

**The challenge**

Water scarcity in Jordan is growing because of factors such as climate change and population growth, in addition to an already limited supply of drinking water. Conventional agriculture is adding a further strain, consuming [about 60% of Jordan's water resources](#).

Controlled-environment agriculture (CEA) is far less water-intensive and offers a solution for adapting to climate change. Through vertical farming, CEA can be accommodated in urban areas as little space is required. It can be an efficient tool for improving resilience, as it reduces the vulnerability of crops to changes in climatic conditions and can be useful for lockdown situations, as experienced during Covid-19.

Poorer urban communities increasingly shoulder the greatest economic burden in meeting their food needs, making their food supply extremely vulnerable to any changes in supply chains. A recent World Food Program (WFP) household expenditure survey in Jordan found that the average family spends almost 37% of its income on food. Improving resilience to shocks caused by climate change and fluctuations in food markets is crucial to a secure food supply for these communities.

**The ambition**

Moayied seeks to develop and scale a sustainable food system model that would provide nutrient rich and affordable food, contributing to the MENA region's efforts towards achieving zero hunger. The main purpose of his project is to provide a better understanding of the challenges and opportunities of integrating CEA into the food supply system across four selected MENA countries and regions - Jordan, Gaza/West Bank, Egypt, and Saudi Arabia.

Moayied plans to do this by hosting a knowledge exchange workshop that will target specific stakeholders from each of the target countries, including agricultural companies, government officials, academics, and civil society

organisations. A demonstration of CEA will also be installed at the Royal Scientific Society in Jordan for students and policymakers.

He will hold a series of virtual focus discussions targeting key stakeholders in the food supply systems in each country to understand their perception of plant factories and discover how to integrate them into food systems. Moayied also plans to initiate a long-term collaboration agreement with the University of Plymouth in the UK, with a site visit to Plant Factory Cornwall to promote plant factory implementation in Jordan and other MENA countries.

### **Relevant UN Sustainable Development Goals (SDGs)**

- Zero hunger (SDG 2)
- Sustainable cities and communities (SDG 11)
- Climate action (SDG 13)

### **Involvement with the Royal Academy of Engineering**

Moayied became involved with the Academy after attending a Frontiers Symposium in 2019 on global food systems. After partnering with Harper Adams University from the UK, he applied for Frontiers seed funding from the Academy to implement hydroponic systems in Jordan. Moayied decided to build on this success by turning his focus towards CEA.

Speaking about the Frontiers Champions programme, Moayied says, "It's a great opportunity to promote your ideas and to let others know what you're doing. It is a very important window to get in touch with other researchers that are working in an area that you're working in. It's a good opportunity to network with others. I would recommend that others apply."