



ICID Young Professionals e-Forum (IYPeF)

The Role of Irrigation in Food Security

Background Note for Discussion

21 August – 8 September 2017

Introduction

The Food and Agriculture Organization for the United Nations (FAO) and World Water Council (WWC) predict that the world needs to produce an estimated 60 percent more food by 2050 to ensure global food security, and it must do so while conserving and enhancing the natural resource base (FAO and WWC, 2015)¹. There is a common understanding that 80-90% of increased food production will have to come from existing cultivated land and the remaining from land reclamation. This poses a significant and complex set of challenges for the agricultural industry, particularly in terms of water management. It is understood that achieving food security through increased food production will require significant improvement in water infrastructure their operation, maintenance and management (ICID, 2014)².

The 6th World Water Forum, held in Marseille in 2012, outlined the experience, potential and challenges of agricultural water management's contribution to food security. The principal question being, how do we feed 9 billion people in 2050 without additional water? Firstly, we need to understand the nature of the challenges faced which go beyond the increased demand for food from a growing population with improved life expectancy. Climate change, extreme weather events, drought, urban development, ever growing competition for land and water use, reduced supply chain reliability and environmental degradation all contribute to the complexity of this issue. Increased standard of living also increases the demand in value-added food products that require more water to be produced. The increased demand for meat intensive diets place more pressure on the water resources available for food production (FAO and WWC, 2015)¹.

We know that irrigation is responsible for more water consumption than any other human activity; an estimated 70% of freshwater withdrawals for human use are dedicated to irrigation. Hence the challenge of sustainable water resource management is intrinsically linked to that of increasing food security. Crop productivity has a vital role in achieving both food security and water sustainability which are in ever increasing demand around the world. In order to explore the role of irrigation in food security, we must also consider environmental issues resulting from over overexploitation and poor management of water resources as food production depends on the sustainable use of such land and water resources. The need for sustainable food security for our global population and the need for preserving the environment, namely natural and man-made ecosystems and landscapes, have created an increased need for integrated, participative and scalable solutions focusing the various levels of irrigation and nature water management, from the field crop to the catchment and basin scales (Pereira, 2017)³.

This discussion aims to bring together young professionals with experts in the field of irrigation and drainage to explore the role of irrigation in food security. Taking into account the challenges, opportunities and extensive research undertaken in this area, participants are invited to discuss the role of irrigation in food security, challenges and potential solutions. Further discussions should include the promising long-term role of irrigation and drainage young professionals in achieving food security.



Expected outcomes

1. What are the potential solutions for irrigators facing limited water resources and growing food demand? Does this challenge differ for small and large scale irrigators?
2. Are there examples of programs or policies in place that demonstrate sustainable irrigation practices leading to improved crop productivity?
3. How can irrigation management for food production be developed without the loss of vital ecosystems?
4. What are the opportunities or proven practical examples of technology or scientific research being used to develop irrigation for improved food security?
5. What role do Irrigation and Drainage Young Professionals have in helping achieve food security?

References

- 1 Food and Agriculture Organization of the United Nations and World Water Council, 2015. Towards a Water and Food Secure Future – critical perspectives for policy makers. Rome, Italy: FAO and WWC. Available at: <http://www.fao.org/3/a-i4560e.pdf>.
- 2 International Commission on Irrigation and Drainage (ICID), 2014. Synthesis of Theme 2.2 of the 6th World Water Forum. Food Security by Optimal Use of Water. New Delhi, India: ICID. Available at: http://www.icid.org/wwf6_synrep.pdf.
- 3 Pereira, L.S., 2017. Water, Agriculture and Food: Challenges and Issues. Water Resource Management. European Water Resources Association.31:10. 2985-2999.

