How to Efficiently Manage Food Production Systems under Water and Land Constraints

Sponsored by the Government of Israel; moderated by Ms. Ronit Golovaty, Israel Export & International Cooperation Institute

Mr. Michael Zaide from the Ministry of Infrastructure discussed Israeli experience in dealing with drought and managing water in such environment. In Israel, a National Water Authority was established in 2007 to oversee the policy dialogue. Water levies and taxation were also introduced. Drought was seen in the country both as a crisis, but also as an opportunity for reform. Reclamation was explained as the best way to increase affordable water supply for agriculture. Desalination was another measure introduced, found to be cost effective when done on a large scale. The private sector has been an important partner for success, but the State needed to take the responsibility for certain risks.

Mr. Jorge Tarchitzky from the Israeli Ministry of Agriculture focused his instruction on the use of treated waste water (TWW). A first step in the process was to reduce eventual contaminants from the consumer water cycle. One advantage of using TWW was that some of the nutrients can be preserved, thereby reducing the quantity of fertilizers required. As the content of nitrogen, phosphorus and potassium nutrients in treated waste water could be comparable to those in fertilizers, TTW could be used as a medium to apply nutrients. As water scarcity was recognized as the main limiting factor in agriculture, the proper irrigation was crucial.

Mr. Natan Barak of Netafim Ltd. reviewed developments in drip irrigation and spoke about practical experiences in adopting this method in a desert kibutz. Unlike more traditional flood irrigation that often inhibits plants from access to oxygen, the drip irrigation never saturates the land with water, supplying water directly to the root zone while maintaining an optimal 3-phase (soil, water, air) balance needed for growth. Development of dripper technology led to an increased water efficiency and usage in general.

Mr. Alon Gadiel of Arava R&D illustrated how Drought Agriculture methods have transformed the very dry Arava Valley into arable land producing 250 million €in agricultural exports. The Valley had to overcome many constraints, such as harsh desert climate, drought, land salinity, labour shortages, distances to markets. The drought agriculture included a variety of innovative, but low tech. methods such as raised irrigation, hundreds of drilled wells, captured flood water, dripped irrigation. Some of these knowledge and resources have been shared with neighboring countries facing similar climate issues.