



## Topic 2

### **Conjunctive use of ground and surface water: which integrated solutions to combine agricultural dynamics and sustainability?**

In many regions of the world, irrigated schemes were established in alluvial plains characterized by the availability of groundwater, which was mainly recharged by irrigation water losses. Groundwater resources thus play an important role in many surface irrigation schemes both because of their availability and the regularity of the supply compared to surface water. Besides, several other drivers explain the increased use of groundwater for irrigation in large-scale irrigation schemes including the scarcity of surface water due to reduced rainfall, coordination problems in delivering water to thousands of farmers, increasing water demand due to population growth and to the intensification and diversification of farming systems. Furthermore, groundwater favours agricultural dynamics as farmers are able to intensify and diversify their cropping systems due to its flexible use. As a consequence, wells and boreholes have proliferated in irrigated areas that were initially intended for surface water irrigation.

However, when there are no functional rules to manage the groundwater resources, increased use leads to overexploitation and to a drop in the water level, to degradation of water and soil quality, and to further inequality between farmers.

This topic of the Conference is dedicated to integrated solutions dealing with conjunctive management of groundwater and surface water as well as equitable access to groundwater through collective tube wells, artificial groundwater recharge, reallocation of surface water to account for inequitable access to groundwater, and strategies to deal with environmental issues concerning irrigation water quality.