

## ***Mini-Series: Efficient Use of Water Resources in Arid Land***

### **Part 3: Importance of rain-fed farming in Syria**

We have reported on the current situation of rain-fed farming in Syria already in AAINews Vol.10. In this issue, we would like to discuss the same topic from the viewpoint of efficient water use, with particular focus on the relationship between rain-fed farming and irrigation agricultural practice. Syria is hugely dependent on rain-fed farming, with approximately over 75% of its agricultural area engaged in rain-fed farming. The volume of harvest varies significantly every year, and agricultural production is highly unstable. By contrast, the productivity of irrigation farming is far above that of rain-fed farming. For instance, in the case of cereal crops the area of irrigation farming is merely 30% of the total cereal cultivation area, but over 80% of the total cereal production of the country comes from the irrigated area (10.6 times more in terms of per acre production than in rain-fed areas). Similarly, in the case of fruit cultivation, the irrigated land, which accounts for a mere 15% of the total fruit cultivation area, yields 60% of the total production (7.9 times more compared to rain-fed areas), and the irrigated vegetable farm land (75% of the total vegetable cultivation area) yields 90% of all vegetables (3.5 times more compared to the rain-fed area). Therefore, in order to secure increased food production to feed an increasing population, it is imperative to expand agricultural production by promoting more irrigation farming. In fact the irrigated farm area has been expanded from 652,000ha (irrigation rate 11.6%) in 1985 to 1,210,000ha (22.6%) in 2000. However, the increase rate in the past five years is rather low, and considering the current situation of water resources depletion, an immediate and drastic increase in irrigation land area cannot be expected. Moreover, another challenge to be considered from the viewpoint of poverty alleviation is to overcome the instability of rain-fed farming, on which a majority of farmers are currently dependent for their survival.

Rain-fed farming can be called an eco-friendly agricultural practice, with its advantage of secured sustainability and bringing with it none of the problems of salinization which often result from irrigation farming. Increasing productivity of rain-fed farming would prevent excessive reliance on irrigation farming for food production. In Syria, efforts to achieve efficient water use and stable productivity have been made in areas with relatively good annual rain fall, for instance by constructing terraced fields built in the traditional method using stones, or utilizing the micro-topographic characteristics of the area. However, in semi-arid areas there are concerns with regards to soil degradation and desertification due to the speculative agricultural practice of expecting rain with no assurance. Yields from rain-fed farming depend on seasonally and spatially inconsistent rainfalls, making it difficult to expect an overall increase in any single crop. The only positive expectation that can be made about rain-fed agricultural productivity is that there might be good rainfall somewhere where rain-fed farming is practiced, and that might contribute to an increased overall productivity of rain-fed farming in the whole country. That is to say, it is no use trying to achieve successful cultivation of one certain crop in one place, but it is necessary to have a number of options and thus diversity in cultivation in order to overcome the instability of rain-fed farming.

In fact, farmers in arid areas have survived severe environmental conditions by selectively resorting to different options according to the climatic conditions of each year, while also making use of available local resources. In years with relatively good rainfall they cultivate a variety of crops depending on water content in different soils of different topographical or land conditions. Also, in some regions in East Africa rain-fed farmers provide against drought years by planting crops with a long harvesting period, such as cassava. In drought years they would not conduct any forcible farming, in order to allow water to deposit in the soil. Therefore, in traditional agricultural systems evolved over centuries there is a very clever system of risk evasion. What this system aims at is not an increase in productivity, but stability. They seem to have overcome instability/insecurity in production by covering a larger area with dispersed and diverse cultivation. It should be kept in mind that there is a great danger in trying to introduce large-scale development activities aiming only at economic growth and efficiency in such areas with traditional agricultural practices.



**Damage by salinization (Syria)**



**Rain-fed farm (Zimbabwe)**



**Dam for water-harvesting (Pakistan)**