Part 3: Expansion of Irrigation Agriculture and Water Saving Irrigation

In the last two issues of this series we introduced the state of irrigation on farming plots and the results of irrigation experimentation research in Syria. In this issue we will look at irrigation agriculture in Syria as a whole, leaving a little bit of distance from individual plots. In an arid country like Syria, irrigation is essential to ensure stable agricultural production and to increase production. As indicated in Table 1, during the 15 years from 1985 to 2000, the irrigation area has doubled in size. It is worth noting that the increase was very sharp between 1990 and 1995. During this period, the area under well irrigation increased rapidly. The increase in the irrigation area in Syria is largely dependent on the expansion of well irrigation. Therefore, the expansion of irrigation area has been putting increasing pressure on precious underground water resources.

Table 1 Increase in Irrigation Area in Syria (ha)

Year	River Irrigation	Well Irrigation	Total Irrigated Area	rigation ratio
1985	333,597	318,306	651,903	11.6%
1990	351,026	341,951	692,977	12.3%
1995	403,394	685,497	1,88,891	19.8%
2000	512,499	698,151	1,210,650	22.6%
2001	512,607	754,282	1,266,889	23.2%
2002	515,510	817,271	1,332,781	24.6%
2003	505,981	853,675	1,359,656	29.2%

Table 2 Area with Water Saving Irrigation System in Syria (ha)

Year	Drip	Sprinkler	Total	Increase in Area	W.S.I.R
1998	4,339	75,053	79,392	-	6.5%
1999	8,553	80,480	89,033	9,641	7.5%
2000	17,700	101,634	119,334	30,301	9.9%
2001	33,214	109,415	142,629	23,295	11.3%
2002	46,368	137,412	183,780	41,151	15.3%
2003	56,622	160,310	216,932	12,459	16.0%

W.S.I.R: Water saving irrigation ratio

As the irrigation area increases, the ground water table is lowering, which has been calling for the necessity of water saving. In order to utilize limited water resources effectively, water saving irrigation methods using drip and sprinkler systems are generally more effective than the more commonly used basin and furrow irrigation methods. Table 2 indicates increase in water saving irrigation in Syria since 1998. Although water saving is spreading by an average of around 20,000 ha per year, the ratio of the area against the total irrigation areas accounted for only 16% by 2003. There are several reasons for the slow introduction of water saving irrigation systems, in spite of the fact that water saving in the agricultural field is becoming an important issue given the alarming rate of water resource depletion. The main reasons are the high price of materials for irrigation systems, complicated procedures to obtain loans for materials purchase, as well as insufficient understanding of the merits of water saving irrigation on the part of the farmers.

Incidentally, why are the farmers, who currently use drip or sprinkler irrigation, doing it? The textbook answer should of course be “to save water”, however, what is the reality? According to our survey of farmers, the majority of answers were it had been deployed to decrease labour need, due to, for example, the easier operation and maintenance of irrigation systems, and to increase harvests. Only a small number of farmers stated water saving as their motivation. Surely, some farmers using water saving irrigation, in particular vegetable farmers, have increased their per ha harvest dramatically, by combining use of liquid fertilizer mixing devices and plastic mulching. However, in this case, there is a hidden increased cost behind the apparent growth in harvest, which may not actually increase their net profits. Despite this, many farmers seem to be striving only for an increase in rough profits. Furthermore, as we introduced a case in part 1 of this series, farmers are not really saving water even when using drip or sprinkler systems. Hence, it is increasingly critical to emphasize awareness raising activities targeting farmers using water saving irrigation systems about the importance of consistently using appropriate amounts of irrigation water and informing them about the adverse effects of the use of fertilizer and other chemicals on the environment. At the same time, it is critical to ensure that farmers understand methods to analyse the economics of crop production, including investigation into production costs.