

# Chapter 41

## The Role of Irrigation in the Development of Agriculture: Srem District (Serbia)

**Vesna Ž. Popović**

*Institute of Agricultural Economics, Serbia*

**Jonel V. Subić**

*Institute of Agricultural Economics, Serbia*

**Nataša Ž. Kljajić**

*Institute of Agricultural Economics, Serbia*

### ABSTRACT

*The Srem district is home to producers of corn, oilseeds, sugar beet and tobacco, a leading region in the production of pome fruits (apples, pears) and drupes (plums, peaches, cherries) in the country and a perspective area for the development of organic plant and livestock production in protected areas. The current irrigation policy in the Republic of Serbia was not directed at systematic water use with the goal of forming an optimal structure of a market propulsive and a highly profitable agricultural production. The authors in the paper analyse the structure of agricultural production in the Srem district in Serbia and its market potentials as well as the economic effects of irrigation in light of the planned integral irrigation system construction in the Srem district in order to reflect economic benefits of irrigation and its role in the development of agriculture.*

### 1. INTRODUCTION

Irrigation will remain a critical factor in ensuring the production of high quality food in sufficient quantities for a growing world population. The share of irrigated in total world food production will rise from 40% today to more than 45% by 2030 (Faurès et al., 2007). According to International Commission on Irrigation and Drainage [ICID] data for the years 2013-14, the area equipped for irrigation at the world level is about 318 million ha, while the actual irrigated area is about 300 million ha. Most of the irrigated area lies in Asia (72%) followed by America (15%), Europe (8%) and Africa (5%) (ICID, 2014).

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According to the 2010 EU Survey on agricultural production methods [SAPM] data, the irrigated area in EU-27 (excluding figures for Belgium, France, Luxembourg, Austria and Slovenia) accounts for 8.4 million ha (5% of the UAA). Almost the full amount of water used for irrigation was used in Spain (45%), Italy (31%), Greece (10.5%) and Portugal (9%), which together account for 96% of the water used for irrigation (European Commission [EC], 2012a).

In the climatic conditions, prevailing in the northwest of the Republic of Serbia irrigation is applied as a supplement to precipitation and is a favourable influence on yields stabilisation. The effect of irrigation is different by years, depending on the amount of precipitation and their distribution in the vegetation period. In favourable years this effect is lacking or is very modest, while in years with serious draught, irrigation increases the yields of agricultural plants by two or more times (Maksimović & Dragović, 2004; Pejić, Maksimović, Milić, & Rajić, 2010).

The agricultural sector is highlighted in national planning and development documents as one of the pillars of the Serbian economy. In 2014, the value of exports in the agriculture and food industries accounted for one-fifth (20.7%) of the total exports of the Serbian economy (Statistical Office of the Republic of Serbia [SORS], 2015a).

There are real opportunities for further growth in exports, especially to the Russian market, as well as to return to the markets of the Middle East, the Maghreb and the United States. Cereals and cereal preparations, vegetables and fruit, then beverages and tobacco, and sugar and sugar preparations hold the biggest share in export value.

The Srem district is a traditional producer of cereals, oilseeds, sugar beet and tobacco, the leading region of intensive fruit production in the country and promising area for the development of organic plant and livestock production in protected areas.

The irrigation policy in the previous period did not aim at systematic use of water in order to form an optimal structure of a market propulsive and highly profitable agricultural production. The entire agricultural and food value chain must be transformed and developed in accordance with the new structure of costs and yields provided by irrigated agriculture.

Agricultural policy must accompany this transformation by focusing support to intensive and stable irrigated agricultural production, adapted to market demands.

Irrigation systems in the Republic of Serbia have mainly been built on the most productive land classified into classes I and II according to suitability for irrigation, which cover over 1.36 million ha and are located mainly in the province of Vojvodina (in Srem only, it comprises nearly 50% of the soil suitable for irrigation) (Official Gazette of the Republic of Serbia [OG RS], no 11/2002).

The hydrosystem Srem is designed to irrigate 185 thousand ha with water, supplied to the main channels from the Danube, Sava and the Bosut rivers, and 15 thousand ha with water from its own catchment (31 accumulations on the Fruška gora mountain) (Official Gazette of the Autonomous Province of Vojvodina [OG APV], no 22/2011). The currently built parts of hydrosystem Srem cover only 3,254 ha of which it is in working order on 1,134 ha (Ministry of Agriculture, Trade, Forestry and Water Management of the Republic of Serbia [MATFWM], 2011).

The Ministry of Agriculture has begun activities on the project of rehabilitation and construction of new irrigation systems in 2012. Strategy of development of water infrastructure is directed towards integrated systems, which allow resolving interdependent issues of use and protection of water, including irrigation, regulation of water regime and flood protection, with respect to environmental and social demands of the surroundings. The new project of integrated irrigation system of the Srem district provides

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