Chapter 7
Current Situation in Irrigation in the Republic of Serbia

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ABSTRACT
The current situation in irrigation in Serbia, observed through total number of irrigation systems, in other words through areas where those systems were constructed, is not satisfactory—neither according to range, nor according to technical equipment and the level of their use. The level of development that has been reached does not satisfy the requirements of stable and efficient agricultural production. Irrigation has not been applied properly in our agriculture because every time when a bumper crop year happens, irrigation is delayed. Irrigation is applied to less than 1% of cultivable soil in the Republic of Serbia. A few very successful results in agricultural production where irrigation was applied point out the perspective on irrigation in Serbia. In the development of irrigation, the priority should be given to renovation of old and construction of new small and big systems, to making changes in structures of production in agriculture, to modernization of mechanization and creation of economic conditions necessary for the use of old and construction of new production capacity aiming to increase employment. Because of the fact that Serbia is poor in water resources of its own, as well as that transit water becomes more and more uncertain in the future regarding its quality and quantity, planned rationalization of water consumption must be one of strategic points for future development in Serbia, as well as obligatory reduction in specific water consumption in all spheres of its use.

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INTRODUCTION

Irrigation is a process of supplying water to dry land aiming to improve its water regime during vegetation. It enables optimal conditions for achieving highest, economically justified income. Climate, with its energetic and aerodynamic characteristics in lower atmosphere, greatly affects the quantity of water that is being lost through evapotranspiration from planted soil, while the quantity of water that is being supplied to soil through rainfall depends first of all on the quantity, intensity and periods of rainfall during vegetation. Therefore, climate affects irrigation regime on cultivated soil, as well as an increase and income per unit area.

However, droughts that appear more and more often and last longer because reduced rainfall and therefore reduced humidity and reduced water resources capacity. On the other side, prolongation of vegetation period, increased solar radiation, temperature and evaporation caused by global climate changes on the Earth, apart from causing problems in waterpower engineering and energetics, cause serious damage to agriculture and plant production.

Considering global climate change trends and various meteorological and hydrological phenomena during the last decades on national it is obvious that global climate changes caused significant changes regarding climate characteristics of the Republic of Serbia.

That is the reason to discuss and focus on irrigation systems construction, because obviously there can be no stable agricultural production without irrigation. Therefore, the problem of supplying cultivated soil with water through irrigation became extremely important in practice.

Importance of this problem becomes fully expressed when we take into consideration the fact that how wide area under irrigation system will be depends on the required water quantity and the capacity of the source of irrigation, while dimension and size of irrigation system, as well as an amount of the whole investment in irrigation system depend on the regime by which cultivated soil is supplied with water, known as “project irrigation regime.”

Current situation in irrigation in the Republic of Serbia observed through total number of irrigation systems, or surface area on which they were built, is not satisfactory neither considering range, nor considering technical equipment and level of use. About 1.5% of arable soil is being under intensive irrigation. Therefore, the need for more intensive irrigation in our conditions is more and more evident and also the need for higher level of use of already existing irrigation systems.

The most frequent reasons for low level of use of already existing irrigation systems are unfavorable situation in agriculture, insufficient equipment with other production means on households that own irrigation equipment, general financial means insufficiency regarding installation maintenance and irrigation system section maintenance.

Because the above mentioned, the basic aim of the research in this paperwork is to determine current situation related to irrigation in the Republic of Serbia (surface areas with irrigation systems, number of functional systems, plants that are irrigated, income when irrigation is applied), as well as future development related to irrigation.

Soil represents the base in plant production and all processes related to plants are happening on it. Good soil is basic requirement for successful agricultural production and for high standard of living also. In plains and hilly regions of Serbia, there are various types of soil like: Chernozem, Vertisols, Eutric Cambisol, Terra Rossa, Pseudoglei and Humogley. In mountainous regions there are mostly brown types of soil on limestone, Rendzina, Podsol, rocky and humus-silicate soil. Before that, presented the soil types, water resources, and climate characteristics, with average values of basic climate parameters in the Republic of Serbia.