



IRRIGATION
STRATEGY
OF SERBIA

Supporting the development of an irrigation strategy for Serbia

Cost for usage of irrigation water and cost for
usage of water facilities and systems in public
ownership for the purposes of irrigation in the
republic of Serbia

Zoran Knežević, Miloš Milovanović,
Dr Steve Goss and Luis Dias Pereira
Belgrade 2020

Key messages

- In Serbia, the cost for the use of irrigation water as a natural resource is same for the entire territory. Consideration should be given to water pricing based on basins and on the amount of available water per basin.
- It is not easy to determine the cost for the use of water facilities and systems in public ownership, because they are multipurpose (they are used for several purposes). The current method of determining the cost for the use of water facilities and systems in public ownership is based on equalization with the maintenance fees (marginal method) as a percentage in relation to other purposes of use. The cost for the use of irrigation water should enable the sustainability of water facilities and systems in public ownership, and at the same time be acceptable for users (farmers) with the possibility of subsidizing in the beginning.



Key messages

- Funds from charges for the use of irrigation water are going into the budget (national or autonomous' province). It is necessary to determine the obligation to use these funds for the intended purpose:
 - *Charges for the use of water as a natural resource for resource costs,*
 - *Charges for the use of water facilities and systems in public ownership for capital costs and O&M costs*
- Most irrigation systems use larger amounts of water, so when planning the construction of new irrigation systems, it is necessary to consider the application of irrigation technologies that use less water. Also, users should be encouraged through the cost for the use of irrigation water to use technologies that require smaller amounts of water.



Introduction

Water pricing is one of the instruments often used to promote optimal resource use. The main goal of allocating and determining the costs for water resources is to ensure that they are used in the best interest of society as a whole. Water charges should allow for the reimbursement of costs related to its management and they can be different depending on whether there is an abundance of water or when there isn't enough water.



Introduction

The share of irrigated land in the total area of used agricultural land in the EU-27 is 6,7%, but it is mainly concentrated in the Mediterranean region, which covers 8,49 million ha or 85% of the total area of irrigated land in the EU-27. In Serbia, according to official data (Statistical Office of the Republic of Serbia), 159.587 ha are irrigated, which is 4,6% of the total area of used agricultural land or 5,1% of the total area of used arable agricultural land.



Legal framework

- As a candidate country, Serbia is in the process of harmonizing its legislation with European Union legislation, and in general, the legal framework relating to water management is partially aligned with the Water Framework Directive.
- The Law on Waters prescribes that water is a natural resource owned by the Republic of Serbia.
- The Law on Charges for Usage of Public Goods regulates the charge for the use of water for irrigation and the charge for the use of water facilities and systems in public ownership for the purposes of irrigation.
- The Law on Defining the Jurisdiction of the Autonomous Province of Vojvodina prescribes the establishment of a public company for water management, as well as other competencies in the field of water management on the territory of Autonomous Province Vojvodina.



Charge for the use of water for irrigation

RESOURCE COSTS

Irrigation water pricing (resource charge) is done depending on:

- Quantity of abstracted or delivered water expressed in cubic meters (m³), when there are devices for measuring the amount of abstracted or delivered water (***engaged capacity cost***)
- Area of agricultural land that is irrigated, expressed in hectares (ha), when there is no possibility of measuring the amount of delivered water (***installed capacity cost***).

Pricing is done by Ministry – Republic Water Directorate, i.e. Provincial Secretariat for Agriculture, Water Management and Forestry for the territory of AP Vojvodina



Charge for the use of water facilities and systems in public ownership for the purposes of irrigation

TRANSPORT COSTS

Charges for the use of water facilities and systems in public ownership for the purposes of irrigation are applied as $a+b$:

a) Installed capacity for irrigation:

(i) fixed charge per hectare;

6) Engaged capacity:

(i) variable charge per cubic meter, if there is a device for measuring the amount of delivered water.

(ii) fixed charge per hectare, if there is no device for measuring the amount of delivered water.



Charge for the use of water facilities and systems in public ownership for the purposes of irrigation

TRANSPORT COSTS

There are three different charges for the use of water facilities and systems in public ownership for the purposes of irrigation:

- For the use of land reclamation systems and high-pressure pumping stations
- For the use of Hydro System Danube Tisa Danube
- For the use of regional irrigation systems

If water facilities of reclamation irrigation systems and regional irrigation systems capture water from Hydro System Danube Tisa Danube, the user pays that charge as well



Charge for the use of water facilities and systems in public ownership for the purposes of irrigation

TRANSPORT COSTS

Cost for the use of Hydro System Danube Tisa Danube is charged as:

- a) charge for the installed capacity (differs based on whether the water is intended for irrigation of field crops, vegetable crops or orchards);
- b) a unique tariff for engaged capacity if consumption is measured; or a different tariff per area for field crops, orchards and vegetable crops - the charge for irrigation of perennial crops, orchards and vegetables is about 60% higher than the charge for irrigation of other crops



Comparative costs of irrigation water

SERBIA – REGION – EU

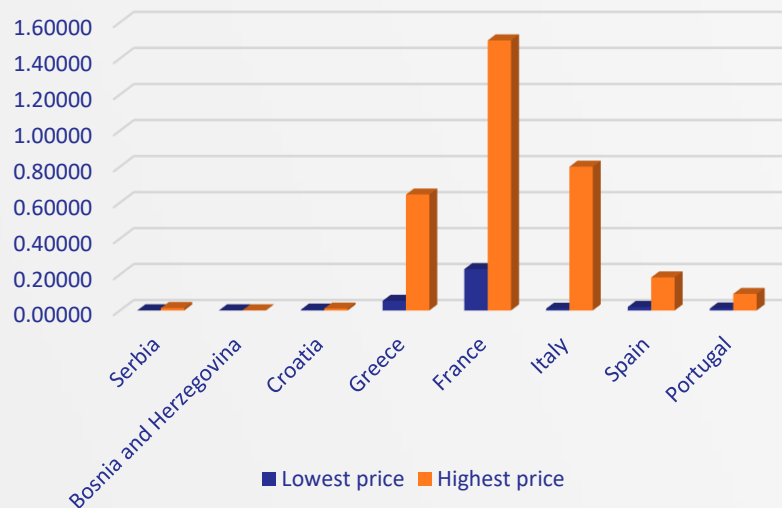


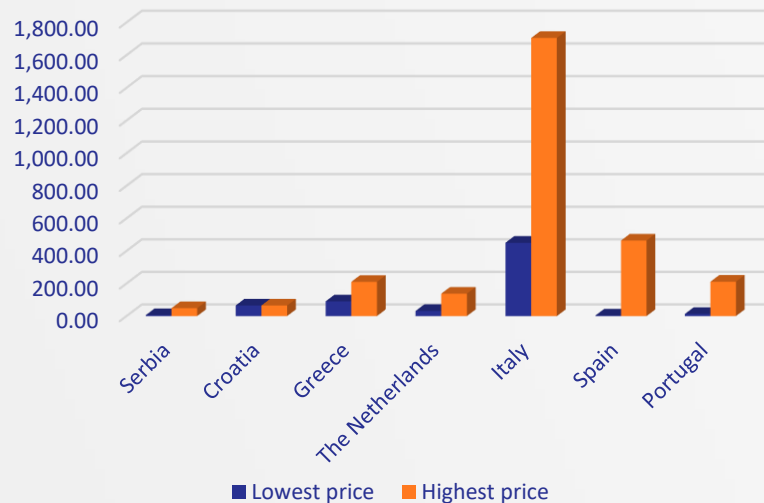
Figure 1. Determined charges for irrigation water in €/m3
Source: (Giannakis et al. 2016, Alberto Garrido and Javier Calatrava 2010)

In Figure 1 you can see the cost of water irrigation in €/m3 in Serbia, the countries of the region and some of the European Union countries. Serbia has the lowest cost of water for irrigation, and that difference ranges from a few percentages to 112 times higher cost in France



Comparative costs of irrigation water

SERBIA – REGION – EU



In Figure 2 you can see the cost of water irrigation in €/ha in Serbia, the countries of the region and some of the European Union countries. Serbia has one of the lowest costs of irrigation water, while the highest cost is being paid by users in Italy

Figure 2. Determined charges for irrigation water in €/ha
Source: (Giannakis et al. 2016, Alberto Garrido and Javier Calatrava 2010)



Recommendations for the Strategy and Action Plan

- The cost of irrigation water can determine the sustainability of water services and should be based on a detailed economic analysis that takes into account a multitude of factors that affect the acceptance of irrigation and the economic performance of each system
- The results of the economic analysis of irrigation water cost should encourage discussion with key stakeholders on the mechanisms that should be used to determine the pricing
- Funds from the charge for the use of water (for irrigation and drainage) should be used to maintain and improve the operation of water facilities and systems in public ownership, as well as sustainable water management



Conclusions

- In Serbia, the cost for the use of irrigation water as a natural resource and for the use of water facilities and systems in public ownership (for water transport) is regulated by law. Special charges have been set for water as a natural resource and for water transport, which is in line with the Water Framework Directive
- There is no difference in the cost of irrigation water in relation to the quality of irrigation water. Cost for the use of irrigation water (surface waters and groundwaters) is determined based on quantity of deliver water in m³ (when there are measuring devices) or area of irrigated agricultural land in ha



Conclusions

- Serbia has one of the lowest prices of irrigation water in relation to the countries of the region and the European Union. It is necessary to make a detailed analysis of irrigation water cost (cost for the use of natural resources and cost for water transport). Determining the cost of irrigation water should be made with the participation of all stakeholders in the planning and decision-making process



Thank you for your attention