

Th unit water costs and values in Iraq

Professor Dr. Mishal Abdil Khalaf

Department of Agricultural Economics

Water is considered one of the basic elements for the continuation of life in any area suitable for living. Heavenly laws have stipulated that it is not permissible to own water due to the importance of this element in life. However, a unit of water has a value and a cost, and it must have a price that is taken into account when used. The value of a cubic meter of water is undoubtedly represented by the value of its marginal product. Although water is a natural resource, it has a social cost and may have a private cost as well. Its social cost is represented by the average cost of a unit of water that is borne by society and not paid by its user, which may vary from place to place and from time to time depending on the conditions of supply and demand for water resources. Therefore, the supply of water is not determined by the price of its, as is the case with other commodities, but rather the cost of water and therefore its price is affected by its supply. However, what is strange is to find a lot of indifference to the use of water, either due to a lack of sense of responsibility towards society or due to a lack of knowledge of its true cost. It must be noted that the water we use has three types of costs that can be summarized as follows:

- 1- The costs of facilitating water access in rivers can be known as the cost of water supply: - These costs are represented by all the concessions and facilities that the state grants to the countries bordering it in order to maintain relations that guarantee them the preservation of their share of water imports, as well as the infrastructure for harvesting water from within its borders. The country believes that these costs are borne by society, and many of those who use water may not care about them.
- 2- Water resources management costs: Managing water imports that reach any country requires various infrastructures, such as dams, reservoirs, and systems that help in the process of harvesting, storing, and distributing them for various purposes. There is no doubt that these facilities have operational costs represented by losses and interest on invested capital. In addition to the costs of its

maintenance, operation, and management, the state often bears all of these types of social costs, the level and size of which the water user may not care.

- 3- Usage costs are represented by the costs of transferring water from its natural courses to locations where it is needed through irrigation projects, direct pumps, or water projects and complexes. The maintenance, operation, and management of these projects and pumps, as well as the losses and interest on the capital invested in them, represent the costs of usage, and the state mostly bears All or part of those costs.

It is possible, even with approximate numbers, to note how much the cost of a unit of water (m³) in Iraq in the Euphrates River in Anbar Governorate is. If we assume that Iraq bears trade agreements and facilities with neighboring countries bordering the Tigris and Euphrates rivers, it would be a deficit of half a billion dollars annually. Half of it is used to supply water to the Tigris River and the other half to ensure the supply of water to the Euphrates River. We assume that the average annual import to the Euphrates River was 13 billion cubic metres, which means that the cost of supplying a cubic meter is 26 Iraqi dinars.

With regard to the cost of managing water downstream, considering that this governorate has three main facilities on the course of the Euphrates River, the first represented by Haditha Dam, the second by the Al-Warar system and its annexes, and the third by the Fallujah Dam, even if the numbers in the table below represent the investment costs in those facilities, the operational costs, and the share of water resources from them if they are. Haditha Dam was considered for two purposes: the first for water management and the second for generating electrical power.

Table (1) Investment costs of projects, requirements for water management, and operational costs in anbar governorate of Iraq

Type of facility	Estimated investment cost (billion dollars)	Water Resources management's share (billion\$)	Interest on capital 10% annual (billion\$)	Depreciation in year (Billion dollar) *	Maintenance and repairs (Billion dollar)	Share of a cubic meter in (Iraqi dinars)

Haditha Dam	1.6	0.8	0.08	0.024	0.032	14
Al- Warar regulator	0.5	0.5	0.05	0.015	0.02	9
Fallujah Dam	0.25	0.25	0.025	0.0075	0.01	4.5
Machines and Equipment	0.05	0.05	0.005	0.005	0.0025	1.8
the cars	0.05	0.05	0.005	0.005	0.0025	1.8
Salaries and wages	500 workers and employees with an average salary of \$1,200 per month			0.072 billion dollars annually		7.5
Fuel and oils	250 machines and cars, at a rate of 6000 liters/machine annually			0.0072 billion dollars annually		0.75
Other expenses				0.0289 billion dollars		3
The share of cubic meters in water management costs						42.35
Per cubic meter share of water imported costs						26
The total cost of a cubic meter in the Euphrates Riverbed in Anbar Governorate						68.35

- Depreciation costs were considered at 3% and maintenance at 4% for large facilities, while depreciation costs were considered at 10% for machines and cars and maintenance at 5%.

It is clear from Table No. (1) that the social cost of running water downstream of the Euphrates River in Anbar Governorate is approximately 68.35 Iraqi dinars per cubic meter, and this cost increases due to the additional costs of facilities and administrations in other governorates.

As for the costs of converting water to different uses, they also vary according to the type of use, the location, the method of pumping, the type of pump, the energy it operates on, the method of transporting the water, as well as the treatments that may be carried out on the water, especially when it is directed to domestic agricultural uses. It may reach about 125 dinars per cubic meter, and in many cases the state bears these costs. In addition to the above, the costs that society may bear in terms of draining excess water and returning it to the river courses are added.

The summary of the above is that the cost of a cubic meter of water for agricultural uses may not be less than 200 Iraqi dinars/m³, and that 50-100% of those costs are not paid by the farmer but are borne by the community, and this cost may reach four times for other uses. Therefore, the water user must use it for purposes whose benefit or marginal product value exceeds that cost to achieve the desired efficiency in water uses.