

Productivity Management: Management Practices to Reduce Agricultural Water Use in Fars Province – Iran

Jaber Karimi Jashni¹, Farzaneh Gholamrezapour Amiri², Elahe Shokry³, Mahmoud Raoufipour⁴, Hadi Namazi⁵, Majid Zare^{6*}

¹Lecturer of Applied Scientific Tehran University and Payamnoor University

^{2,6}Young Researchers Club, Arsanjan Branch, Islamic Azad University (IAU), Arsanjan, Iran

³The Former Economics Agricultural Student, Islamic Azad University (IAU), Ghaemshahr, Ghaemshahr, Iran

^{4,5}The Former Economics Agricultural Student, Islamic Azad University (IAU), Arsanjan, Iran

ABSTRACT

Given the sensitive location and condition of water resources in the province, in order to achieve a relative balance of supply and water, creating a comprehensive system of water management is essential and is necessary. Excessive exploitation of groundwater and surface water resources of the farmers in the management of the irrigation method and conduct it properly and not wasted on areas that will always remind them of the danger of dehydration and the need for efficient water use methods, irrigation management and appropriate policies for the use of surface and groundwater sources reveals. With regard to the matters alleged in this study was to use the water issues in the agricultural province must be examined.

KEYWORDS: Fars, water management, Department of Agriculture.

1. INTRODUCTION

Province due to features such as climate variability, there is a broad and fertile plains, underground and surface waters are rich in resources, the centers of scientific - technical and support services with a variety of agricultural activities and activities of operators in the sector various long as One of the most important agricultural centers, and major centers of crop planting and production of various crops, orchards, livestock, aquatic, and forest products processing industry in question and examine the investment potential of the sub-sector development and export of products is. According to the latest available information, an area of Fars province over 12.4 million hectares (7.4 area of the country) was third from the province of this vast country is. The province's total area, 18 percent of the arable land, 79 percent of natural resources and the other makes up 3 percent. Of the total cultivable lands, the 2.2 million hectare, 54.5 percent planted, 10% fallow and 35.5% of the unused represents the sum of these lands, 73.8 percent of agricultural water and remaining 26.2 percent crops of dry land is. It is necessary to explain 80 percent of land irrigated and rain fed crops and 62 percent of cultivated land is rain fed.

Water over the whole province is 9606 billion cubic meters, more than 90 percent in agriculture and other industries and drinking Are used of which 83 percent and 17 percent from groundwater sources Level of resources is ensured and the statistics reflect the fact that the agricultural Mainly relies on underground water resources (Table 1). Development of cultivation and increase performance Unit area, the maximum exploitation of underground water resources of the province and Indiscriminate harvesting of this resource is currently causing most of the Plains Negative balance and are facing a sharp drop in the static level of the organization Water in 98 Percent of annual discharge rates of plain water is more than nutrition. The Groundwater balance is negative (2). The optimum utilization of water caused the water crisis is the man. And every part of the agricultural potential of land under cultivation is excluded. Enthusiasts in the city; Arsanjan; Darab and parts of Shiraz (Krbal and Daryon) underground aquifers and surface waters due to the loss of thousands of hectares of land Is arable. 500 wells in the DARAB in recent years has completely dried. And the conditions arising in the above cities, thousands are unemployed. 63 fields of study, water was negative 62 plain and 22 plains more than a meter in aquifer levels have dropped in terms of quality and in some fields because of the invasion front Water quality, water resources and In terms of quality in some fields because of the invasion front, water quality, water resources, modified, and in some cases, the electrical conductivity of irrigation water to 21000 (Umhos / cm) has increased the effective use of water for cultivation of crops impossible to. If this is the same water Extraction and optimization are not the optimal use and irrigation efficiency of 40% Is estimated. In other words, 97.9 billion cubic meters of water in agriculture is provided. And only 98.3 billion cubic meters of the plant were used. And the rest of its 9.5 billion cubic meters of

*Corresponding Author: Majid Zare, Young researchers club, Arsanjan Branch, Islamic Azad University (IAU), Arsanjan, Iran.

waste out of the plant are available. Loss of water Not only is the loss of precious water, but also serious injuries such as salt and Land wetlands, soil erosion, declining soil fertility, reduce the quantity and quality Agriculture, and ultimately lead to pollution of surface water and groundwater are (2).

Table 1 - Underground water resources in the Fars and the annual discharge of water (2009 – 2010)

Source	Total	Discharge volume (million cubic meters)	Consumption (million cubic meters)	Percent
Well	69203	6694	6694	64.4
Aqueduct	1402	480	312	4.6
Springs	2549	3225	2600	31
Sum	73154	10399*	9606*	100

* Discharge rate differentials and consumer spending environment.

RESULTS AND DISCUSSION

Agriculture with 93 percent and the largest water consumer in the country is considered. Over 80 percent of waste water due to the use of advanced irrigation technologies in agriculture is wasted (2). Many experts believe that if 15 percent of waste water in agriculture is prevented, others will not see the water shortage crisis. At present, mainly as a dipping irrigation efficiency is estimated to be between 30 to 40% (2). About 70% of the water to evaporation, deep percolation, surface flows to the drain, and through the rivers to the sea or put out of the borders will be wasted... The problems and challenges facing water management and water productivity in agriculture is as follows:

- Small operational units (ownership), which is one of the biggest challenges in the agricultural sector (2). According to available statistics, more than 58 percent of wheat and 85 percent of the corn fields in parts of Fars province are less than ten acres (1).
- Increasing the number of social and economic reasons. That the laws of heredity and the buying and selling land and gardens are a binder (3).
- Agricultural and horticultural land inequality in the country, will increase performance and reduce water consumption (3). Was that leveling of land, reduced water consumption by 25 percent and increases yield by 20% (1).
- The transfer of soil water to farms and orchards that 60 percent of water is wasted in the transmission path. Penetrate deep in the ground water; surface evaporation, water use by weeds and the traditional route are the main causes of water loss (1).
- Lack of water transmission routes in more than 90 percent of irrigated land in Iran. Currently 22% of the channels in the Fars and about 41 percent of agricultural water supply is covered by agricultural climate.
- The new rules of groundwater and wastewater management problems effectively on the feedback (3).
- No new strategies for encouraging participation in all water users associations and institutions, and the definition of policies relating to water and its management.
- Lack of laws and regulations relating to prices and improved water management (3).
- Degradation of groundwater resources due to over-harvesting and mismanagement. About 75 percent of agricultural water supply is groundwater resources in the province, while the figure in the whole country, 52 percent of the world is less than half the amount (2).
- The use of advanced irrigation technologies in the agricultural sector more than 80 percent water loss is due to the use of traditional systems. Many experts believe that if 15 percent of waste water in agriculture is prevented, others will not see the water shortage crisis (1).
- Volume of water delivered at the provincial networks, there are over 4700 intake openings with Measuring instruments are not equipped to deliver a volume of water and the water requirements of plants Do not provide. This makes the efficiency of irrigation networks in the territories subordinate Is low. Therefore, in order to optimize the efficiency of surface water resources due to the high efficiency Low in this type of network that spans the pond at the provincial level with Tools to accurately measure the volume of water to be delivered (3).
- Maximum water for maximum production. Currently, most farmers and horticultural crops with the aim to maximize the yield per unit area can be irrigated (3).
- The reason of disability, including savings, investments and use of new technologies (3).
- Increasing per capita water consumption due to high levels of welfare and public health (3).

- Increased industrial and agricultural needs in different parts of the development of this sector
- Water shortages and inappropriate use of the in agriculture (3).
- Failure to provide collateral for the loans for investment in irrigation technology (3).
- Long-term sustainability of water resources projects (1)
- Limited water resources available and the heterogeneous distribution of resources (3)
- Lack of interest in the preservation and restoration of ground water resources. (3).
- Climate change and the need for long-term forecasts (3).
- Lack of adequate infrastructure for agricultural sector (3).
- To move in Farmers to share in the costs of projects for water and soil (3)
- Prevention of unauthorized digging wells. (3)

The lack of proper irrigation methods, crop cultivation, inappropriate pattern and density of existing water resources facilities, inappropriate pricing system, low education level of farmers, lack of credit, cheap energy (electricity and gasoline), water pollution, increasing population, free of water extraction and water do not receive money from the farmers, poor management of irrigation, lack of culture and promote the waste water in gardens and fields to be (3).

Conclusion

1. Increasing the price of water
2. Rationing water because water prices may not be sufficient.
3. Union of the exploitation of water resources, water pricing and cost data to improve their monitoring of water resources.
4. Farmers aware of the consequences arising from the uncontrolled use of water through education and promotion, and more media
5. Program planning and optimization model based on pure pomegranate orchards irrigation water for agriculture
6. Efforts to enhance efficiency and transmission efficiency and water use in agriculture, including coverage and promotion of methods and new technologies raceway.
7. Receive the social cost of water resources (water pricing) to compel the farmers to apply economic principles.
8. To improve water use is recommended that the revenue is collected through water pricing and water resources for agricultural improvements and investments in this field should be used.
9. Elimination of subsidies

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