

Name of Candidate **Mahmoud Abdel Tawab arafa** Degree **Master**
 Title of Thesis **An Analytical economic study for Water resources use in Egyptian agriculture.**
 Supervisors: **Prof. Dr. Abdel Hady Mahmoud Hamza**
Prof. Dr. Mohamed Salem mostafa Mashaal.....
 Department : **agricultural Economic**
 Branch..... Approval.....

ABSTRACT

The agricultural sector in Egypt is considered the primary leading sector in economic development since it contributes largely to the total national income, increasing the tax revenue, and raising the value of exports, in addition to filling the major part of the nutritional gap. Water is one of the agricultural production resources without which production could not be complete. In fact, agriculture and water are the cornerstones for economic development.

This study aims to achieve the best strategy for the usage of water and specifically irrigation water which makes up the major part of the total water consumption in Egypt since the agricultural sector consumes around 85% of total water consumption. The best usage strategy for water in agriculture could be achieved in several ways; this study has used the methodology of linear programming to achieve the crop construction necessary for the maximization of the net revenue of the water unit.

Two alternative plans for crop construction included the plan laid by the Ministry of Agriculture & Land Reclamation until year 2017 which has previously been discussed

The first alternative plan aims at maximizing the net revenue of the water unit in view of new organizational boundaries. It was revealed that the quantity of water that could be saved by implementing this alternative plan is estimated at around 3657 million m³, representing around 10.91% of the total currently used amount. The increase rate of the total net revenue of irrigation water and land for the suggested crop construction reached around 0.44% and 8.68% respectively over the current crop construction. Moreover, irrigation costs for this alternative plan decreased by 0.93% from the current crop construction.

Second alternative plans for crop construction have been studied, all of them governed by organizational laws. In the fifth and sixth alternatives, the analysis was performed based on certain organizational laws or boundaries in which the land area of some major and strategic agricultural crops has been fixed in accordance with certain goals. The analysis results for these alternatives revealed the increase of the total net revenue of the feddan in the first and second alternatives by an increase rate of 4% and 3% respectively upon the current construction, and also a decrease in the total net revenue of the feddan for the remaining alternative plans suggested.

The study recommends the opening of gateways for training personnel necessary for the maintenance of irrigation and drainage networks, and the importance of the participation of local authorities plus political and youth institutions everywhere in the guiding of people everywhere in the best and most economical use of water. Also all kinds of media must help in this guiding process for citizens in the most efficient and people-friendly way, aiming to alter their consumption habits of irrigation water in all fields.