Abstract

The development of human societies and the need for further water will inevitably lead to the implementation of water resource development plans for optimal use of the potential of the water sector. In addition to technical justification, development plans should be subjected to economic, environmental and social analyzes. Since the province of Sistan and Baluchestan has suffered from droughts in the past decade with decreasing celestial precipitation, attention has been paid to the transfer of water in the province in recent years. Consequently, in the present study, the irrigation plan of 46 thousand hectares of the land of Sistan province with a pipe that was placed on the agenda of the authorities was evaluated economically. In this study, the predominant cultivation area was studied. Then, linear linear programming (PMP), CES production function and engineering economics method were used in the form of cost-benefit analysis and economic evaluation of water. The results of the PMP model indicate that with the additional allocation of water resulting from the plan, the total cultivation area in the whole Sistan region will increase from about 67 thousand hectares to about 75.4 thousand hectares, which means that about 4.8 thousand hectares The area under the cultivation of the area is increased. Also, employment in the agricultural sector of this region will increase by 184 thousand working days as a result of the implementation of the water supply plan. Water consumption in the region's agriculture will increase from 1030 million cubic meters to 1,300 million cubic meters. The total revenues of the region will increase by 177 billion USD, which is equivalent to 42% increase in farmers' income. Also, the results of the evaluation and cost-benefit analysis of the plan indicate that the return on investment capital (PP) for the plan was 21/40 years, the net present value index (NPV) was 763 billion, the internal rate of return (IRR) 1%, and the ratio index The cost of the project is also 725/0. The results of the economic evaluation of water showed that with the implementation of the plan, the amount of yield per unit volume of water (CPD) in the whole Sistan decreased. Therefore, the physical efficiency of water decreases. The Gross Density Index (BPD) also showed that, with the implementation of the plan, the BPD also decreased in the entire Sistan area. So, overall, the implementation of the plan will reduce the economic productivity of water. Finally, according to the results of the research, it is recommended that the managers of this project pay special attention to the water utilization sector in the region in order to maintain the water balance in the region. Further studies are needed to further elaborate the design of the project in question, as

well as other plans, in order to provide more complete information to the managers and relevant authorities.

University of Zabol
Graduate school
Faculty of Agriculture
Department of Agricultural Economics

The Thesis Submitted for the Degree of M.Sc
In the field of Agricultural Economics

Title:

Investigating the consequences of water supply project on farmers' behavior in Sistan region: Application of positive mathematical programming

Supervisors:
Dr. S. Ziaei

Advisers:
Dr. V. Sarani
Dr. M. Mardani

By:
A. Sharafian

September 2018