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Economical and Social Effects of the Meijaran Dam



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Abstract

Building dams has always been classified as a combination of engineering works, that result in the best utilization of river supplies and protection against river floods.

This Dam is located in the " Nesa rood " river watershed and the whole watershed is in " Ramsar" county . it is placed in the south-west of the Caspian Sea and the north-east of Mount Alborz between the longitudes $50^{\circ}35'$ and $50^{\circ}42'$ of east the latitudes $36^{\circ}49'$ and $36^{\circ}52'$ of north . We evaluated the social, economical and cultural effects of this Dam in populated areas of its watershed and found that the construction of this Dam has remarkable positive effects like controlling dangerous floods, providing water for agricultural activities and increasing job opportunities.

Growing population of the world, increase of deserts , destroying renewable supplies , shortage of food (esp. water) have always been a concern for human communities .

Shortage of water is of high importance in the countries with little supplies of water like Iran. Therefore, the necessity of development projects in order to utilize water properly and avoid wasting it seems obvious.

This has caused many developments to human communities .Studies have shown that the construction of Meijaran Dam in the west of Mazandaran Province has important effects on providing water for drinking purpose , small industrial centers and agricultural lands.

It also attracts tourists and causes the population to move to this place and the result will be the economical and social prosperity.

Key words:

1. Introduction

2.

3. Geographical Location of the Meijaran Dam

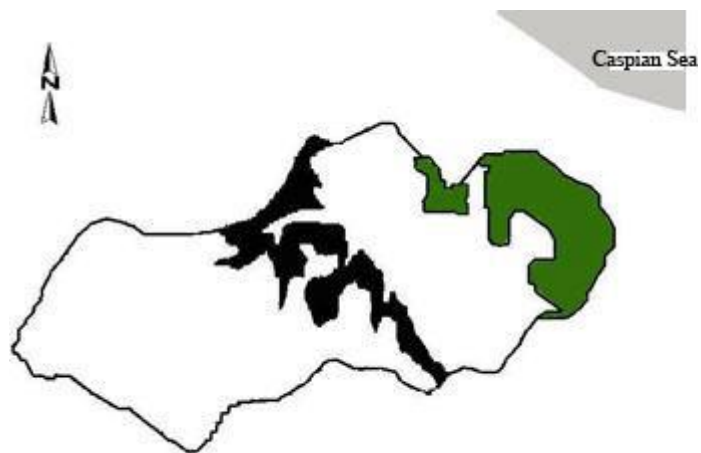
4. The Meijaran storage dam is located on Nesa rood river, in the longitude $50^{\circ}42'$ of east and the latitude $36^{\circ}50'$ of north and has a distance of 20Kms to Ramsar.

5. Nesa rood is made by the connection of permanent and seasonal tributaries and joins the Caspian sea in a distance of 10 Kms to Ramsar. The Nesa rood Watershed has a plain part in the north and a mountainous part in the south.

6. The construction area of the Dam is completely located in the mountainous part that is forestall except for some tea farms.

7.

8.



9.

10. Figure (1): Areal Map of Maijaran, Iran

Physical Properties of the Meijaran Dam

11. It is an earth fill dam with an asphalt concrete core and its highest point is 59.5 meters from the river bed and its reservoir is 1.8 Kilometers long with an area of 45.6 hectares. The reservoir has a capacity of 7.65 million cubic meters. The purpose of constructing this Dam is to provide drinking water of the cities “Ramsar”, “Katalem” and “Sadat Mahale” up to the year 1400, water for 750 hectares of tea farms and 270 hectares of rice farms in the downstream and also to attract tourists.
- 13.

Social – Economical Position of the Area

14. According to the purpose of building this dam (mentioned before) we did social and economical studies in the related area.
15. Ramsar County is located on the west of Mazandaran Province and contains three cities : Ramsar, Katalem and Sadat Mahale and some rural parts. The average population in rural and urban parts of this county is decreasing. Predicting the number of people and their consumption needs in the incoming years is of high importance. The results of our surveys are collected in table(1)

16.

| ۱۳۹۵ | ۱۳۹۰ | ۱۳۸۵ | ۱۳۸۰ | year |
|-------|-------|--------|-------|-------------------------------------|
| ۹۲۲۲۰ | ۸۰۹۰۰ | ۷۰۴۹۰ | ۶۱۱۰۰ | population |
| ۲۵۰ | ۲۳۰ | ۲۳۰ | ۲۳۰ | Per head consumption (L/D/P) |
| ۲۳۱۰۵ | ۱۸۶۰۷ | ۱۶۲۱۲۷ | ۱۴۰۵۳ | Daily consumption (m ³) |

17. table(1): population consumption yearly relationship

18. As the area is mountainous, only a few villages can receive water from the dam. Eight villages were chosen according to three factors:

۱۹

- 1- villages which were near the dam reservoir .۲۰
- 2- villages which were downstream of the dam .۲۱
22. 3-villages which had lands suitable for growing tea
- 23..

24. In the process of building the Meijaran Dam, The "Estal kesh" village had to be evacuated. The few inhabitants of this village were asked to leave it and inhabit other places after compensating their indemnity. In order to get information about the villages, we used special questionnaires .

25.

26. Employment and Income

27. The main jobs of people in the villages under consideration are farming and gardening. Some of the villagers also keep domesticated animals for private use. The main cultivated products of the most villagers are tea, rice and citrus fruits. These crops are sold in the village or sent to "Ramser" or "Tonekabon" to be sold .

28. The tea grown in these farms is bought by tea factories in "Sadat Mahale" , "Katalem" and "Talarsar".

We studied the eight villages separately and found that most villagers have a tendency to change their crops to tea in accordance with the dam building purposes. On the other hand only four villages among these, used piped water and the others provided water from wells. The main water supply for farming in some of the villages was the river and in the villages far from the river , they had to produce crops by dry farming.

Table(3):the area of farmlands and gardens in Chehel Shahid village(according to the farming census of 1372)

| total area | | gardens | | farmlands | | | |
|------------------------------|-------|------------------------------|-------|------------------------------|-------|---------|-------------|
| not belonging to inhabitants | total | not belonging to inhabitants | total | not belonging to inhabitants | total | | |
| | | | | | total | planted | not planted |
| ۳۰۴ | ۱۵۴۴ | ۲۸۳ | ۱۴۰۵ | ۲۱ | ۱۳۹ | ۱۳۹ | . |

Tourist attraction

Ramsar attracts many tourists yearly because of its beautiful nature that stretches from Alborz mountains on one side to the Caspian Sea at the other side.

Eight percent of the tourists who enter Mazandaran, spend some hours in Ramsar.

The results of our studies about the average number of the tourists entering Mazandaran and Ramsar County are given in figures (2) and (3)

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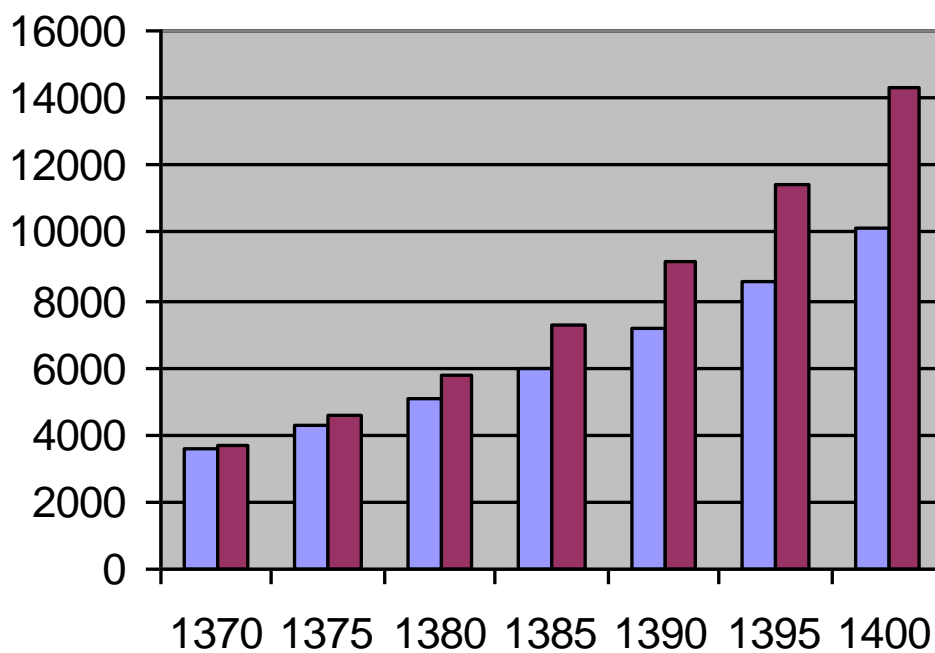


Figure 2. estimation of the number of tourists entering Mazandaran

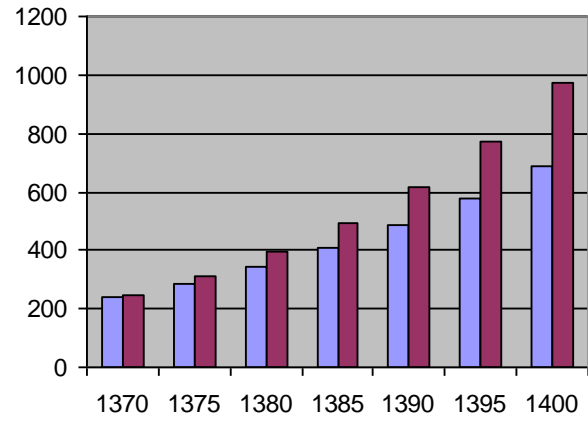


Figure 3. estimation of the number of tourists entering Ramsar

One of the purposes to build the Meijaran Dam is to attract tourists and this can be an income for villagers in addition to farming. On the other hand, because of the entrance of tourists especially in Spring and summer, the population of Ramsar increases and their water need must be taken into consideration. Here, we estimated the daily consumption of water by every tourist will be 320 liters in the year 1390 and 250 liters in the year 1400. Considering this, we predicted the water need up to the year 1390 will be 7 million cubic meters per year and up to the year 1400 will be 10 million cubic meters per year. These numbers are calculated by considering per head consumption of 240 liters per day.

In Ramsar County, there are 99 mosques; 28 of them are in Ramsar city and its suburbs and others are in Sadat Mahale, Katalam and its dependant villages. Also in Ramsar county and its neighboring regions there are more than forty mausoleums that attract many people who like to pilgrimage them. Some of these mausoleums are placed in plain areas and others in mountainous areas.

Estimating the Water Need of Farmlands

The special geographical and regional position of the mountains of Ramsar County is an impediment for the spread of its farmlands.

This county has the least farmland ratio among the counties of Mazandaran. Mostly, the water needed for growing tea, barley, lucern, and growing wheat by dry farming was provided only by rain! But the water for growing rice and vegetables was also provided by rivers and surface streams.

Some of the farmlands of Ramsar, which are placed in Nesa Rood border, always had water shortage problem and every year farmers lost a large amount of their crops. Authorities tried to take water from "Chalakh Rood" to these farmlands but this idea wasn't successful enough.

Today, 270 hectares of farmlands near Nesa Rood are rice farms. We estimated the amount of water needed for growing rice in different parts of Ramsar and the results are given in the table below.

| Water need of rice per hectare(m ³) | Water need per hectare(m ³) | month |
|---|---|-------------|
| ۲۳۸۶۸۰. | ۸۸۴ | Farvardin |
| ۶۴۲۳۳. | ۲۳۷۹ | Ordibehesht |
| ۷۷۲۲۰. | ۲۸۶۰ | Khordad |
| ۸۵۳۷۴. | ۳۱۶۲ | Tir |
| ۶۰۱۵۶. | ۲۲۲۸ | Mordad |
| ۱۵۰۶۶. | ۵۵۸ | Shahrivar |
| ۳۲۵۹۱۷. | ۱۲۰۷. | yearly |

Table(2):Relationship between water consumption and rice fields

Comparing the water need of rice farms and the water capacity of Nesa rood , we found this river cannot satisfy the water needs of its relative farmlands in the months Ordibehesht, Khordad, Tir and Mordad.

Construction of Meijaran Dam led to the satisfaction of these water needs.

CONCLUSIONS

We predicted that by constructing the Meijaran Dam :

- (1)water needs of Ramsar, Katalem and Sadat Mahle are satisfied, the condition of drinking water and therefore the health condition will be improved.
- (2)By satisfying the water needs, we will see the expansion of tea farms and the improvement of tea quality.
- (3) The construction of the Meijaran Dam will attract more tourists and this results in employment prosperity and income increase.

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literature in order to provide the reader with a clear concept of the objective(s).

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If the paper is the result of a research, then the data and material used in the research should be presented here

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Acknowledgements

The authors gratefully acknowledge the support of the Society for the

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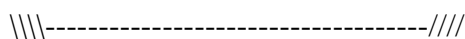


Fig 1: Modern art.

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