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The role of environmental NGOs in protection Zayanderood River in Isfahan

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Isfahan is a famous city in Iran and Zayanderood is a river with a curved length of 420 km which divides Isfahan into two separate parts and makes civilization and life in its banks. Now with balancing weather conditions, beautifying, attracting tourists, providing drinkable water, supporting agriculture and industry, it has a significant role for the city. In the last years, it has been in danger because of the unsustainable development in the city. Among the most important threatening factors are: arrival of different contaminates involving industrial and agricultural sewage, overusing the water, making higher buildings, and industrial and urban development. On the other hand, environmental NGOs take some measures to protect it. These activities include culturalization, providing information, cleaning, determining a day as the Zayanderood honor, protesting to the threatening factors, presenting scientific solutions. Participating in making decisions and planning. This article discusses the activities of non-government environmental organizations in Isfahan.

Key words: Iran, Isfahan, Zayanderood, environment, NGO, river, development, protection, tourist, industrial.

INTRODUCTION

Isfahan is a metropolitan city located in Iran's central plateau and Zayanderood is one of the most important merits Isfahan has. It is the river that makes civilization in this city. In the recent years Zayanderood has been in danger because of the city development so Isfahan environmental NGOs try to protect this river. In this work, the role of NGOs in protection of Zayanderood has been studied.

Descriptions

Isfahan is the third largest and fourth populated city in Iran. The ancient civilization of the city is recorded as three thousands B.C.

Isfahan is one of the best architectural collections and Islamic civil construction in the region and world. Chaharbagh Street and Nagheshe-Jahan Square are among the most outstanding cultural works. The latter is

recorded in world human cultural heritage list. The city has geographical coordinates of 51°34'40" east longitude and 32°38'30" north latitude. It covers an area of more than 250 km² and a population of more than 1.6 million people. Its average rainfall is about 100-150 mm per year Shayesteh [4].

Zayanderood River starts from the western part of the city-Zardkooh and after passing a curved way of 420 km, it arrives Gavkhooni marsh in the East[4]. The amount of water increases before Zayanderood River Reservoir due to entering up streams, but it gradually decreases toward the river. The average annual quantity flow in the first measuring station after the reservoir is 47.5 m³/s before arrival of the river to the city in the west. In Moosian station in the east, where the river leaves the city, it is about 22.1 m³/s and finally in Varzane-the last station-the amount is recorded as 0.16 m³/s [3].

The advantages of Zayanderood for Isfahan:

The most important advantages are: irrigation agricultural lands, supplying factories and industrial centers with

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water, supplying drinking water, supplying the green space with water, air modification, beautifying the city and attracting tourists.

Zayanderood's threatening factors:

Just like its quantity, the quality of Zayanderood water declines in the course. Measurement of indexes that indicate the quality of water including DO, BOD, COD and EC illustrates that the river's quality declines in the path. In the beginning of the river the amounts of EC, BOD, DO and COD are 0.282. ds/m, 1mg/l, 8.3 mg/l and 4 mg/l respectively, but toward the end of the river just 5km after Varzane Bridge the amounts are measured as 16.7 ds/m, 18.5 mg/l, 6.5 mg/l and 67 mg/l.[3]. So it is classified in Pollutant river in quality classification in Iran with more than 70% pollution [5].

Unsustainable development in Isfahan leads to threats for Zayanderood. The most important threatening factors are: arrival of different contaminants involving industrial and agricultural sewage, industrial centers exist around its fountain-head, changes in land use in riparian lands of this river, uncontrolled excavating of sands from the river-bed, disruptive role of people who use it for recreation, garbage disposal, lacking enough information and attention about the benefits and role of the river specially in local planning, and transmitting the water of this river to other cities and regions.

METHODOLOGY

NGO has no generally accepted definition and the term has different connotations. An NGO must be independent from the direct control of government, it will not be constituted as a political party, it will be non-profile-making and it will be not be a criminal group, in particular it will be non-violent. NGO is a non governmental and non-profitable organization with volunteer members acting together on a continuous basis, for some common purposes Willetts *et al* [6]. Main objective of environmental NGO is taking measures for protection of environment or related fields Amini [1]. In Isfahan the most important goal they have in environmental protection is through culturalization.

This study was done on 7 different environmental NGOs in Isfahan city with some questionnaires following instructions. In addition a workshop was carried out with a representative of each NGO under study. Their representatives explained their activities. The study was done in a library form and then the results were analyzed. In addition to these mentioned above, there are ten other NGOs in different cities of Isfahan province. They take measures with regard to Zayanderood and they have cooperative relation with those NGOs though not stated and studied in this research. NGOs activities are performed individually or in network. These activities are as follows:

1. Holding a conference with the title of " Isfahan, Development and Zayanderood" in 2000. In this conference some NGOs representatives and university professors presented lectures. Then authorities answered the questions in a discussion. To make such decisions practical, some other meetings were done

2. In 2003, Isfahan environmental NGOs introduced October 10th as Zayanderood River Day. In 2003 and 2004 some ceremonies such as marching in Zayanderood bank, giving lectures and statements and open-air theatres were undertaken.
3. Publishing articles about Zayanderood in the environmental magazines. 3NGOs have local magazines which publish articles on Zayanderood. Moreover, these NGOs invite news-reporters to take part in some programs and present their views through radio, TV, local and national papers. 3 NGOs have their own websites.
4. Participating in local and national exhibitions and distributing relevant bulletin and information.
5. Holding meetings with civil authorities and parliament representatives about Zayanderood.
6. Performing open-air theatres.
7. Protesting to uncontrolled constructions in Zayanderood bank and changes in application of farming lands.
8. Holding meetings with authorities of factories and contaminating sources such as Mobarakeh Steel and Steel Plant Companies to inform them about the harm they make.
9. Inviting public to take part in cleaning Zayanderood.

Activities are done by all NGO associations if no specific name is given.

RESULTS

Expressing opinion based on scientific principles, presenting practical solutions, choosing different methods, establishing cooperative relation among the associations are outstanding peculiarities of Isfahan environmental NGOs.

These activities are effective in changing authorities' policies and development process in Isfahan. The outcomes are evident in chosen policies. This is due to either providing information in this regard or the restrictions society imposed on them.

The most important measures that were taken are as follows:

1. Paying more attention to using new environmental technologies in industrial units and factories. They were ignored before, because of the high expenses. For example this was done about two important and pollutant factories, Mobarakeh Steel and Steel Plant Companies. Now they invited NGO for an approval.
2. Replacing the high requirement water plant similar to grass with those that need less water in some green spaces.
3. Increase in government control due to NGO's instructions.
4. Inviting environmental NGOs representatives to take part in Zayanderood meetings such as Zayanderood High Protection Council. This council was established in 2004 in Isfahan governor general. In the past, environmental
5. NGOs made effort to visit or invite the authorities, but now it is contradictory which indicates NGO members' influence on authorities' attitudes.

Zayanderood has very important environmental problems because of Isfahan development but the role of Isfahan environmental NGOs is suitable in protection of this river although some results will be remarkable in long term.

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