



Destructive Factors on Parishan Lake Ecosystem, Iran

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Abstract

Kazerun covers one of the most precious and beautiful natural regions of Fars Province. Parishan lake, also known as Famour pond is on the east of Kazerun. The scenery during spring and fall was very attractive, and the green and flower fields around the lake and presence of wild birds made a very astonishing natural resort. At present, the lake has almost lost its natural ornaments because of over-exploitation of its resources and unusual human intervention in and around. In this article, a brief study of the animals and plants specifications of Parishan Lake before fire and also the important factors responsible for destruction are presented. The Methodology includes documentary as well as field study.

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1. Introduction

Environmental and biological factors regulate the population dynamics and species interactions in their communities. The unique ecosystem ecology is the result of biotic-abiotic factors and interaction among components leading to single integrated system. Unfortunately, country's nature has had set back due to lack of proper management, concurrently irregular exploitation during decades.

In present days, Iran's environment conservation department has been working hard for restoring the remaining country's natural environment. As a result of this attempt, valuable natural complexes covering more than 1,300,000 ha is under management which approximately shares 10% of Far province. These natural complexes are categorized as-

- a. National park
- b. Wildlifes' shelters
- c. Restricted region
- d. Abandoned hunting region

Parishan lake is the biggest fresh water lake and one of the attractive lakes of Iran which is in latitude 51° 51' E, longitude 29° 32' N and altitude of 820 m above sea level. The basin of this lake is 266.5 sq km. Mountain ranges approximately 4-5 km away in north and 500 m in south.

Maleki village is located in north, Famour Arabic village,

Sisokht village and Orange castle and Jarough in east, Narges-Zar in south and A'abgineh bridge village in west. Geographically, this lake is formed 3 km away from Ayaz Abad Village, located in 12 kilometers far from south of Kazerun Township.

This lake is considered as international pond, declared as restricted region. This lake is also known by different names; Mour, Parishan, Shour, Kazerun, Yioon, Mouz, Touz, Parisham, Fez-shouyeh. Parishan Lake is also called Famour pond because it receives water from Famour mountain. One of the most beautiful lakes of the country because of its geographical distribution located near woody mountains and surrounded by wide herbaceous overlay. Thousands of birds roam around, add to its beauty.

Lake's water is sweet. Famour Mountain is the major source of water. In structural and geological view, it is located in crackly Zagros' width. Common animal species are usual fox, reynard, pig, rabbit, pelican, marble duck, eagle, chaliper snake, variety of frogs which have diversified the ecosystems.

2. Past Review and Analysis

2.1. Water resource

In local language, it is also called "Pir-Shoun" and stores superficial waters provided because of rain and snow inside itself. This source of lake's water is of small and big fountains of Arzhan field's regions and Famour field. The region has 147



km² agricultural land and 116 km² mountain in this region. Lake covers an area of 18 km². Its water is sweet but it's not suitable to drink. This average depth of water is 1.6 m, which reaches up to 2 m in some years. There are many fountains at the bottom of sea which is a source of providing lake's water itself. The lake is used for fish cultivation. Because of its ecological value, this lake has been registered as a wetland of International Importance (Ramsar Convention).

Considering beautiful natural sceneries and biodiversity, this region had many not only for visitors but also for experts and researchers (plate 1). A 4 ha land had been utilized for proper sanitation, parking facilities especially for visitors. In present days, this natural phenomenon is facing threats for farming, illegal hunting and fishing, destroying upper lands, industrial pollution, leftovers, chemicals etc.



Plate 1: Scenery of Parishan Lake before fire in 2009

2.2. Lake's birds

This lake is considered very important not only of having delicious fish, but also of its 350 kinds of aborigine and not-aborigine immigrant birds. The landscape was magnificent with interesting vegetation and wildlife during spring and autumn. Many migratory birds used this wetland as their wintering habitat. Lake's view during spring and fall's was very attractive. Pastures fields around the lake, variety of flowers and wild birds had created an outstanding natural phenomenon.

In the middle of fall season, every year, hundreds of bird species begun to reach here from northern hemisphere. The most important species were anghut, balaban, changar, gray geese, okrats, gray and purple herons and pelicans. Among all of them, the most special rare immigrant birds were gray foot pelican, white head duck, marble duck, white head goose and bride goose. Around 40 species of them breed around the lake.

In a real fact, one of the residents of villages around Parishan Lake had regular visits of migrated Gavcherang birds. They sat on the shoulder of cows grazing in the eastern side of the lake and ate insects from the body, keep them healthy. But this

bird is no more.

2.3. Lake's fishes

The lake is well known for variety of fishes. Fishing and raising aquatic creatures are considered as one of the sources of livelihoods. There are 18 villages run their families based on agricultural, ranching and fishing. It has 4 major fish species namely; carrot fish, red fish, parak fish, sweet water's eel and also s imported fishes like crap fish, fito falek and amour.

3. Present damage and threat

Parishan Lake is under continuous threat due to use of heavy constructing machines for construction works nearby. Major factors that adversely affecting are -

Irregular digging, road constructions, petrochemical settlements.

3.1. Irregular digging

Experts' research recognizes illegal lifting of water is the main reason of dryness. The Lake has been spending bad years because of over-using water, poor management in controlling illegal water lifting for irrigating farm lands around the lake. Environmental expert admitting has concluded that digging shafts is the main reason of drying lake water during recent years. In addition to illegal shafts, there is cheating on using legal shafts' water. Justice department had requested to stop digging shafts especially illegal ones in order to save the lake.

3.2. Road construction

In 2009, thousands of turtles, migratory birds, snakes and other animals have burned tragically in fires around Parishan wetland in Iran. The fires had been set to clear the reeds in the area for road building. It has caused an environmental disaster resulting in death of the native turtles, migratory birds and other animals that lived around Parishan lake.

Disasters have begun by constructing Parishan-Kazeroun road threatening pond's area to complete destruction (plate 2), can be known as:



Plate 2: Road construction



- a. Ruining of settlements, cutting mountains around the pond.
- b. Unloading soil, stone and forest's cadaver of safe settlements into the pond in order to make suitable for road construction.
- c. Cutting hydrologic plexuses and destroying underground water sources which are the source of lake water. The lake had faced water crisis leading to drought in 2009 and 2010. The road construction aimed several vital springs at the beginning and destroyed some of its important parts like Benk and Gabr Springs.

Apparently, this ministry of road construction's decision has been made without considering that environment organization is concern which has the control over this lake, however Iran's government has guaranteed its protection.

3.3. Petrochemical settlements

Kazeroun petrochemical settlements is one kilometer far from this lake, exactly one week after was caught a huge fire, which burned a hundred hectares of fields around the lake.

According to Mehr report center's story, the amount of industrial sewage and sludge of a 300-hundred-ton petrochemical settlement is equal to waste water of city having 60 thousands citizens.

Environment experts resemble straw's fields around the pond like soldiers who fight against pollutions coming in from land. He says "It means that they embed different kinds of pollutions like chemical dung in their root and stalk. If we remove these, Parishan Pond will be more miserable. It means that it will be facing with variety of pollutions."

4. Consequences

An environment expert also recognizes that when the lake will start reviving, newer problems may occur. This will cause trouble for lake's creatures as well as ecosystems. The environment expert confirmed that increase in amount of insects in area can cause disease and added that harmful insects and mosquitoes that move from places to places can cause disease to human body.

Due to death of all aquatics and allowing of sewage into the lake have caused growth of different kinds of insects. The trend has caused the lake an environmental disaster because of propagation of insects and lack of water and existence of sewage which threatens lives of rural people around. Spread of harmful insects is obvious to take place while dead turtles' bodies have caused awful smell in the area (plate 3). In addition to spread of insects, sewage and swampland, the most obvious consequence of lake's dryness is imbalance in ecosystem cycle. Considering gloss and lightness of Parishan Pond's soil, blowing wind or even breeze, will cause the soil to spread in surrounding areas. In addition to dangers that this issue causes to area's agricultural and vegetables, it will cause air pollution



Plate 3: Burnt turtles of Parishan Lake after fire in 2009

widely.

5. Measures

This pond is a natural valuable asset of the country that must be protected for future generations. It has worldwide living values and therefore it has been chosen for an international project by United Nations' global facilities office. Environment preservation organization is the main responsible for the protection of the area. It must concentrate and sacrifice the minor or less important projects in order to lead the project.

Air, water, soil and sound pollution have paved the way in imbalancing the beautiful ecosystem of Parishan Lake. Parishan pond has 10 thousands of local nominees. Project GEF is planned in order to protect and support local nominees. The national plan "Protection of Parishan Lake" in partnership with international cash-register has a budget of 12 million dollars where 9 million dollars will be shared by Islamic republic of Iran. We need to pay attention to this project which has started with the help of interior and international counselors since last 7 years, otherwise it will face consequences.

People's representatives in Islamic council parliament shouldn't be quiet against destruction of international Parishan lake. In order to prevent from this destruction, government should be briefed. Earth sentinels' club also requests juridical department to treat with offenders and destroyers seriously.

6. Conclusion

In addition to destruction of a beautiful and unique ecosystem, Parishan Lake could attract thousands of tourists and cause employment and development.

Environment experts demand that Iran's environment organization and ministry of hygiene should be proactive in wake of possible spread of infectious diseases in the area.

So, Government should come forward to take effective measures in saving this natural lake immediately. Environmental experts should be consulted before formulating a suitable policy.