Issyk-Kul: Problem-Ridden Jewel of Central Asia

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ABSTRACT

Lake Issyk-Kul is the second largest mountain lake in the world. It possesses water and mountains of unparalleled beauty. The most popular tourist destination in Kyrgyzstan, the lake attracts people from all over the world to enjoy its wonderful waters and its healing minerals. Last year it was visited by more than a million of tourists. Not only is Issyk-Kul a high tourist destination, the lake's history and tales are also an important cultural heritage of the Kyrgyz people. The lake is also a significant source of income. 80% of Issyk-Kul residents derive their primary income from catering to tourists. Tourism accounts for approximately 10% of Kyrgyzstan's GDP with Issyk-Kul contributing 9%. Thus it is very important to preserve such a natural treasure. Currently Issyk-Kul is facing an array of problems that significantly endanger the lake. This paper looks into four categories of problems that challenge Issyk-Kul's sustainability: Water Pollution, Infrastructure Deficiency, Endangerment of Flora and Fauna, and Lack of Policy and Enforcement. Then the paper proposes various recommendations for the preservation of Lake Issyk-Kul, an important cultural and economical source of livelihood.

Keywords: Tourism; overcapacity; infrastructure; deficiency; preservation; water; pollution; policy

INTRODUCTION

Lake Issyk-Kul is situated in the Northeastern part of Kyrgyzstan (Picture 1). Being located at an altitude of 1,606m, it is the second largest mountain lake in the world. With water and surrounding mountains of unparalleled beauty, it is truly the jewel of Central Asia. It is the most popular tourist destination in Kyrgyzstan. People come to enjoy the lake’s wonderful waters and its healing minerals from all over the world. Last year it was visited by more than a million of tourists. Not only is Issyk-Kul a high tourist destination, the lake’s history and tales are also an important cultural heritage of the Kyrgyz people. Numerous historical sites are located on the shores of Lake Issyk-Kul.

Moreover, it is a significant source of income for the Issyk-Kul region and for Kyrgyzstan. 80% of Issyk-Kul residents derive their primary income from catering to tourists. Profit earned during the summer months is the only source of income for many residents, and it sustains them for the whole year. Issyk-Kul is also a major tourist destination for international travelers coming into Kyrgyzstan. Tourism accounts for approximately 10% of Kyrgyzstan’s GDP with Issyk-Kul contributing 9% (Travel and tourism in Kyrgyzstan, 2007). Thus it is very important to preserve such a natural treasure.

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WATER POLLUTION

The inflow of tourists significantly exceeds the limit that Lake Issyk-Kul can sustain, and this has become the main source of water pollution. This section looks at the resulting water pollution problems.

The first water pollutant is organic waste. Urine contamination of Lake Issyk-Kul was identified in recent years as a major health hazard. As was presented during a meeting with Kurmanbek Bakiev, Kyrgyzstan’s president, in June 2007, the average amount of urine in the lake per person per day is 500ml. During high-tourist season Lake Issyk-Kul accommodates 300,000 tourists on its shores per day. This generates approximately 150,000 liters a day that is mostly concentrated around the beaches, thus presenting a significant water pollution problem that is dangerous to tourists and the environment.

Another major water pollutant in Lake Issyk-Kul is waste products from water scooters, jet skis and boats. Running a typical water scooter for one hour releases about the same amount of smog-generating pollutants as driving a car 800 miles (Whiteman, 1997). Riding a water scooter for seven hours creates more smog-forming emissions than driving a 1998 car 100,000 miles (Citizens for Florence, 1999). Two-stroke engines, used by most scooters, run on a mixture of oil and gasoline - both of which are high polluters. Up to twenty percent of the fuel, including all the oil content, passes through unburned and is released into the water, contaminating it with benzene, toluene and MTBE, a
waste contaminate Issyk-Kul directly, by releasing mineral fertilizers, pesticides and other domestic waste. However, comes from local industry and agriculture. The biggest pollution source of Lake Issyk-Kul, however, comes from local industry and agriculture. Mineral fertilizers, pesticides and other domestic waste contaminate Issyk-Kul directly, by releasing unprocessed waste into the lake, and indirectly, through rivers that discharge in to Issyk-Kul. An increasing content of ammonium, nitrite, zinc, copper, petroleum, organic waste and other harmful substances is observed in Tup, Djergalan, Djety-Ogyz, Cholpon-Ata, and Chon-Aksuu rivers - all of which discharges into Issyk-Kul, aggravating an already stressed ecosystem.

All of these water pollution problems are further exacerbated by the nature of Issyk-Kul. Out of 118 rivers flowing into the lake, only 49 flow out. This traps in most of the pollutants coming into Lake Issyk-Kul with no outlet. In addition, from 1932 to 1984 the water of Issyk-Kul dropped 2.5 meters in height and 16 km³ by volume. This precipitated an increase in salinity from 5.82 g/L to 5.9 g/L (Baetov 2007).

Unless actions are taken, these water pollutions will become worse bringing unwanted harms to both the environment and tourists.

INFRASTRUCTURE DEFICIENCY

Infrastructure deficiency is currently a major problem. Issyk-Kul’s infrastructure stopped developing in the late 1980’s and was designed at the time to cope with only a maximum annual inflow of 350,000 tourists. The current annual inflow of Lake Issyk-Kul is more than a million, 200% more than its designed capacity. Infrastructure deficiency is manifested in the following areas: sewage treatment, water treatment, and garbage disposal.

According to the data provided by the Ministry of Environmental Protection in 2000, 60-70% of sewage treatment plants, covering over 300 million square meters per year, are in unsatisfactory conditions. In 1989 the rate of insufficiency was 30-40%. Current plants fail to provide effective sewage refinement and are potential sources of ecological danger. Refining constructions of Kara-Kol, Cholpon-Ata, Balykchi, Djalal-Abad, Osh, Tokmok, Maily-Suu, Naryn and many others require urgent reconstruction, overall repair, and construction completion. From 1990 to 1995 while industrial production was reduced by half, sewage volume was increased by 53%.

Furthermore, some Issyk-Kul resorts lack sewage treatment plants all together. In the beginning of 2007 authorities threatened to close down over a dozen resorts, but none were prevented from accepting tourists during high-tourist season. Inadequate law-enforcement and state of facilities result in the waters of Issyk-Kul to be severely contaminated.

Water treatment plants suffer the same inefficiency. Local authorities frequently ask the central government to provide capital investment for the renewal of water treatment plants with no action from the central government thus far.

Garbage disposal is another case of Issyk-Kul’s infrastructure problem. Due to the lack of efficient central garbage disposal, most of the resorts and local villagers are disposing of the waste themselves. Villagers that cannot reach designated garbage dumping sites are disposing their garbage in nearby undesigned areas. Resorts often hire trucks to remove garbage only far enough to not affect their business. Issyk-Kul locals’ attempt to reduce costs and irresponsible garbage disposal has led many unauthorized landfill sites to spring up. The problem with that is many natural sites of attractions are being used as landfills causing both ecological and aesthetical harm. With little financing from authorities towards solving this issue, the landfill problem will surely exacerbate in the next decade to permanently affect the environment and the tourism business.

FLORA AND FAUNA

The lack of management of natural resources is also a leading problem in preserving the flora and fauna of Issyk-Kul. Large tourist inflow has significantly damaged indigenous wildlife including fish, seabirds, and sea buckthorn.

At the beginning of the 1990s, fishing permits were issued for an annual catch of 320 tons, calculated to be the sustainable level. However, this amount was far too low to satisfy Issyk-Kul’s annual consumption of 8000 tons (Savvaitova 1999). With Soviet Union’s disintegration, local authorities lost their ability to control private fishermen’s annual catch. Private fishermen, attempting to maximize their profit from tourist’s fish appetite, have almost eradicated many fish populations in Lake Issyk-Kul. Currently, most of the fish sold in markets are brought from other lakes, notably the Son-Kul. At the lake’s current rate of fish declination, many species will not remain for future generations to enjoy.

Rapidly declining fish population also drastically affected the local seagull population. Having lost its main food source, seagull population noticeably decreased as well. With the diminishing seagull population, crows are able to claim more and more territories. The previously beautiful sights of seagulls have since been replaced by packs of crows. Moreover, the growing population of crows are pillaging seagull nests, further reducing seagull population.
Unsustainable use of local resources has also affected winter migratory bird species. Many bird populations come to Issyk-Kul in mid-autumn looking for milder winters and better food sources. Sea buckthorn berries is one of the most important food source for birds both migratory and indigenous. However, since tourists are also very fond of sea buckthorn, local residents have been pillaging the whole harvest leaving nothing for the bird species. Not only is sea buckthorn being over-picked, the method of gathering them has a character of vandalism; instead of carefully collecting the berries, farmers frequently tear out large parts of the bushes causing significant damage to the plant. These behaviors rob birds of their food source as well as reduce the harvest rate of subsequent years.

POLICY DEFICIENCY

Problems described above are mainly due to the lack of comprehensive policies on the central government’s part. Very little research is done to evaluate the full extend of water pollution problems. As of now there is no motion towards banning motorized water vehicles. Nor is there any effort to understand the full scale damage to Lake Issyk-Kul’s environment by the overflow of tourists. Ecosystem sustainability has long been a dire topic, and several projects from organizations such as UNDP were carried out to produce reports with recommendations, but none of those reports managed to spawn effective policies to deal with the lake’s environmental damage.

As significant as the lack of comprehensive policy is the central government’s inability to enforce policies that are already in place. This inability has led to problems of sewage treatment and garbage disposal described above. None of the resorts were forced to shut down or to follow the established policies. Inability to enforce fishing quotas is also eradicating indigenous fish populations. Small cafes are also spawning everywhere, despite the fact that most of them do not meet sanitary requirements.

This lack of attention to policy making and policy enforcement continues to harm the already stressed lake environment. This will eventually bring permanent damage to Lake Issyk-Kul.

RECOMMENDATIONS

Lake Issyk-Kul, named the Ramsar Wetland in 2003, is not only a significant heritage of Kyrgyz people, it is a precious jewel entrusted to the world. It is famous for its picturesque scenery of glistening water and snowy mountains, its healing minerals and pristine natural resources. Traveling to Issyk-Kul is unique from its ecological respects as well. It is paramount to preserve the unspoiled ecology of the lake for cultural, economical, and environmental reasons.

The following recommendations are aimed at evaluating the impacts of mass tourism and at taking first steps toward making Issyk-Kul more sustainable:

- Currently, the only way to reach Issyk-Kul is by road from Bishkek. Upon entering Issyk-Kul there is a tollbooth taxing incoming cars. Use this resource to collect more concrete data on the number of incoming tourists.
- Evaluate current sewage and water treatment capacities. Attract capital investment to meet the demand.
- Conduct complex analysis of Issyk-Kul’s flora and fauna to identify harmful trends and endangered species.

Picture 1: Lake Issyk-Kul
• Implement existing policies on resorts so they can better follow environmental guidelines such as the proper disposal of their garbage and sewage wastes and banning two-stroke engine water vehicles on the lake.
• Enforce proper taxation of resorts to provide capital for infrastructure improvements. Further capital can be raised through reasonable taxation of tourists passing through the roadside tollbooth.
• Impose policies that limit the amount and method of sea buckthorn gathering and fishing.
• The most important result of the policies and the analysis proposed above is to develop a long-term plan toward preserving Issyk-Kul and making the lake sustainable.

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