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ENVIRONMENTAL PROBLEMS OF THE ARAL SEA: LEGENDS AND SOLUTIONS

J. E. Seytjanov
Assistant professor Karakalpak State University

Dilnoza Jaksulikova
3rd year student of Karakalpak State University

ABSTRACT

The article is quite different from many other articles of papers, books, on the Aral Sea. It is meant to purposely highlight the reality of the situation in Central Asia: the Aral Sea that was once a thriving body of water is no more. That sea is dead. What does exist in its place are the Aral seas: there are in essence three bodies of water, one of which is being purposefully restored and its level is rising (the Little Aral), and two others which are still marginally connected, although they continue to decline in level (the Big Aral West and the Big Aral East).

Keywords: Aral Sea, Amu Darya, water level, waters, Kazakhstan, Syr darya, Uzbekistan, the Little Aral, Central Asia.

INTRODUCTION

The Aral Sea is located on the border of Kazakhstan, in the north, and in Karakalpakstan, in the south. In translation, the name sounds like "Sea of Islands", as it contains more than 1500 islands. Since the 1960s, the water level in the Aral Sea began to drop rapidly, due to the fact that the channels of the rivers flowing into the sea were changed by the Soviet Union for irrigation. In 2004, only a fourth of its original area remained of the sea, and its salinity increased fivefold, which killed most of its characteristic flora and fauna. The Aral Sea is also very polluted, thanks in large part to weapon testing, industrial projects, and dumping of agricultural waste. Dust storms are not uncommon there. Currently, Kazakhstan is carrying out a lot of work to restore the Aral Sea. The main environmental problem is that the change in the course of the Syr Darya and Amu Darya rivers for irrigation has greatly reduced the area of the Aral Sea.

The Aral Sea has been drying up for fifty years, causing a challenge for the sea and the entire region. many environmental and economic problems. In 1918, the Soviet government decided that the rivers Amu Darya and Syr Darya, which flow

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into the Aral Sea, would be changed channels to irrigate the desert, which they wanted to use for agriculture. The construction of irrigation canals took on a large scale in the 1940s. Most of the irrigation canals were of poor quality, allowing water to evaporate or seep out. The Karakum canal, the largest in Central Asia, lost more than 50% of its water due to this. By the 60s, about 40 thousand cubic meters of water annually went into the land instead of the sea. Due to the disruption of water supply, the Aral Sea began to rapidly shrink.

METHODOLOGY

In the period from 1961 to 1970, the water level in the Aral Sea every year decreased by 20 cm, from 1971 to 1980 by 60–70 cm annually, and by the 80s this figure reached 90 cm per year. The sea area has decreased by 60% and its volume by 80%. In 1960, the Aral Sea was the fourth largest lake in the world and had an area of about 68,000 km2 and a volume of 1,100 sq. Km. km. By 1998, the lake had shrunk to 28,687 km, making it the eighth largest lake. By this time, its salinity increased from 10 g / l. up to 45 g / l. In 1987, due to the continued shallowing, the sea split in two, into the North Aral and South Aral seas. An artificial canal was dug to connect them, but communication was cut in 1999 as both parts of the sea continued to shrink. In 2003, the South Aral Sea split further into eastern and western parts. Currently, the evaporation of the North Aral Sea has been reduced. Work is underway to restore it. In October 2003, the Kazakh government announced the start of construction of a dam (Kokaral Dam) to separate the two parts of the Aral Sea.

RESULTS

In August 2005, the construction of the dam was completed, after which the water level in the North Aral Sea increased and its salinity decreased. 2006 saw a significant rise in sea level, even more than expected. In January 1994, the countries of Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan and Tajikistan signed an agreement, according to the terms of which 1% of their state budgets are allocated for solving the problems of the sea. Before drying up, the Aral Sea was the fourth largest lake in the world after the Caspian Sea, Lake Superior (North America) and Lake Victoria (Africa). The degradation of the Aral Sea began in the 1960s, when most of the flow of the Syr Darya and Amu Darya began to flow through a system of canals for irrigation and economic needs of Turkmenistan, Uzbekistan and southern Kazakhstan. As a result, the sea receded significantly from its coast, and the bottom was exposed, covered with sea salts mixed with pesticides and other chemicals.

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In 2012, the area of the Aral Sea changed greatly depending on the seasons: for example, in the summer the Eastern Aral Sea greatly increased in area, and in the fall it became shallow again. In August 2014, the eastern part of the Big Aral Sea completely dried up. The main, but not the only problem of the Aral Sea is the loss of water. The shallowing of the sea, the work of man. In 1960, its area was 67 thousand square kilometers. Due to unrestrained land reclamation, it has decreased to 10,000 kilometers, and the volume of water has decreased 14 times. Until the 1970s, 34 species of fish lived in the Aral Sea, now few fish are caught, only in the small Aral, and in the big one there is none at all.

What will happen to the Aral Sea in the future? Earlier, Aralsk was a lively port city. Ships moored here for unloading, tourists rested on the beaches, enjoying the sea and the sun, and the local population had a job and prosperity. Now all this is gone, along with the water of the Aral Sea. Strange as it may seem, but in just a few decades, people have dried up the whole sea.

For a long time, the sea is considered an inland water body, which is characterized by slightly salted water. Of the reservoirs of this kind, the Aral Sea took the honorable second place in size, second only to the Caspian Sea. The water supply system is structured as follows: all incoming water was retained in the sea and was consumed only by evaporating. This is what supported a certain supply of water resources. The Amu Darya and Syr Darya rivers filled the Aral Sea with water. Since ancient times, people have used the resources of these rivers for irrigation, but the sea did not suffer from this, its level had a certain stability. The average depth was 16 meters, maximum 68.

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DISCUSSION

The problem of decreasing water level began to manifest itself in the early 1960s. About 3 million hectares of land, where rice, cotton and other crops grew, were watered with waters that were taken from the rivers that feed the sea. In addition, water was accumulated in the Arnasai and Sarykamysh depressions. The appearance of the Karakum Canal meant that even less water would reach the Aral Sea. As a result, during dry periods, river waters did not reach the sea at all. There was a sharp drop in sea level. In the 1980s by 8 meters, and in the 1990s by about 15 meters.

The environmental problems of the Aral Sea were not unpredictable. Some scientists predicted the decline of the Aral Sea, which was ignored and justified by the justification of those goals, which actually caused the depletion of the Aral Sea. However, desiccation is not the only environmental problem in the Aral Sea. This is just an impetus for further spread of disasters in the Aral Sea region.



With the help of the Kokaral Dam, it was possible to fill a small part of the Aral Sea. This gave, albeit small, but still hope for the local population. They began to breed fish here, but the poachers simply become impudent, thereby showing their soulless essence. The ecological problem of the Amazon River is similar. Poachers there almost completely exterminated the ancient fish, that is, a living fossil. This is how it turns out that some people create environmental problems, others try to solve them. It is not so easy to revive the Aral Sea, and this task requires effort and investment.

Residents of Kazakhstan know this better than anyone else. The environmental problems of the Aral Sea are not so imperceptible. The Aral Sea, which belonged to

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Uzbekistan and Kazakhstan, was one of the largest continental bodies of water in the world. Both the sea and the rivers flowing into it (Amu and Syrdarya) had a high ecological value. Very little remains of this wealth today. The water level dropped by more than 20 meters, the coastline retreated in places by 100 km. The former water area, 65,000 sq. Km - equal to the territory of Holland and Belgium combined, has decreased by 70% and continues to decrease.

CONCLUSION

After the formation of new independent states, the government of Uzbekistan, on the initiative of President I. A. Karimov, began to systematically put forward the problem of the Aral Sea on the international arena. The International Fund for Saving the Aral Sea was created, which includes the Interstate Coordination Water Commission and Basin Water Associations for the Syrdarya and Amu Darya. The World Bank, UNDP, GEF supported the projects developed in IFAS. The attention to the Aral Sea problem, shown by the government and the international community, gave hope for a speedy solution to the problem. However, several well-established stereotypes, unfortunately, continue to dominate the minds of many specialists and experts both inside Central Asia and beyond. One of the legends is the possibility of saving the Aral Sea at the expense of a part of the flow of the Siberian rivers, and specifically the Ob. However, none of the options for turning a part of the drain provided for the salvation of the Aral Sea. Almost all the water that will be taken in Siberia must be used for irrigation and only 23 cubic meters. km of water had to be directed towards the Aral Sea in order to maintain the sanitary condition of rivers and lakes in the delta. The international community is trying to coordinate the efforts of the Central Asian countries to resolve the Aral Sea problem. A number of joint declarations have been signed.

The International Fund for Saving the Aral Sea was also created with an action program based on the following provisions:

- development of a general water strategy;
- creation of a monitoring system;
- increasing the efficiency of water use;
- fight against poverty and other consequences of the disaster. Despite the good funding of the programs, they are progressing rather poorly and, first of all, in the most important part - the development of a common water strategy for the countries of Central Asia.

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