



IFSA Agency

IFSA projects in Uzbekistan

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Aral: from ideas to practical implementation

One of the world's most famous researchers in the Aral Sea, Philip Miklin (USA) and Nikolai Aladin (Russia) published an article about Aral in the book "Big Asian Lakes in a Changing World", which was recently published in English by the Swiss publishing house Springer.



The editors of Pravda Vostok asked to comment on the opinion of one of the leading experts on the problems of Aral, the head of the Agency for the implementation of projects of the International Fund for the Saving of the Aral Sea (IFAS) in Uzbekistan Vadim Sokolov.

The main messages of the authors

It should be noted that the basis of the article was the publication of the same authors "The Possible Future of the Aral Sea and its Fauna", published in 2016 in the Astrakhan Gazette of Environmental Education.

After the separation of the Aral Sea in 1989, Little Aral has a positive water balance, its salinity decreases (after the construction of the Kokaral Dam in the Strait of Berg, its water level increased). It has become possible to restore biodiversity and revive fisheries.

Large Aral, having a negative water balance, continues to dry out and become saline, turning by the end of the 1990s into a hypergalin (strongly salty) body of water. Restoring its biodiversity and fisheries does not seem realistic. The only possibility of economic activity at the Greater Aral is the industrial harvesting of the artemia cyst. To date, the Great Aral has been divided into three separate reservoirs: the Western and Eastern duct-bound basins and Lake Tuschebas. (At the same time, West Aral and Lake Tuschebas are filled mainly by groundwater - V. Sokolov' note)

A significant increase in the efficiency of irrigation in the Aral Sea basin could save a significant amount of water that would replenish the water balance of Aral. However, this requires an all-encompassing and very costly reconstruction of irrigation systems, as well as significant socio-economic changes.

The authors have proposed a number of ideas for the conservation of the biodiversity and biological resources of the Aral Sea: to raise the dam in the Berg Strait by two or three metres as soon as possible; build a dam in the throat of Saryshyanak Bay in the coming years; build a simple dam south of the Kulanda Peninsula; abandon shallow-water reservoirs in the Amu Darya Delta, and direct the rest of the river runoff to the Western Great Aral Sea.



Theory and practice

We will discuss the main messages and ideas of the authors - how acceptable they are for practical implementation in the foreseeable future.

The authors are undeniably right that the full restoration of the Aral Sea will require 1,080 km³ of water (sea volume at the level of the 1950s) plus about 50 km³ per year to compensate for the loss of evaporation. The total annual flow of the Amu Darya and Syr Darya rivers is about

120 km³. Thus, in order to fill the sea with the same volume as it was, it is necessary to completely stop all economic activity in the basin for at least 40-50 years. And that's impossible.

Today, the most realistic agenda is to strengthen regional cooperation within the International Fund for the Saving of the Aral Sea to implement joint action to prevent further deterioration of the sea remnants. This is recognized and supported by the leadership of four of the five Central Asian countries.

Real cooperation on the IFAS platform can stabilize ecosystems, overcome the consequences of the Aral crisis, strengthen the ecological and socio-economic situation in the Aral Sea region, prevent the growing risks of desertification and its negative effects and population migration, create climate sustainability and conserve biodiversity, and develop economic diversification in the form of ecological tourism, logistics and the development of effective social protection measures for the population of the region closest to the Aral Sea.



Support not in words

What does it take to make IFAS a working platform for cooperation and implementation of necessary measures?

The problem of the fund is that the main projects since 2003 were carried out with the money of the Aral basin countries themselves, donors did not invest serious funds. Thus, during the 15-year period 2003-2017, only about \$30 million was spent under the IFAS in the territory of "Priaralya" in Uzbekistan, of which more than 60 percent were Uzbek state budget contributions to IFAS.

At the same time, the total cost of water activities needed to solve the key problems in the Aral basin (within Uzbekistan), according to the most modest estimates – is about 2 billion dollars. As you know, water is the key to solving all the problems associated with the drying out of Aral. That is, it is clear that if we continue to rely only on IFAS, which is funded by the countries themselves, it will take another 100 years to solve Aral's water problems.

Why international donors are not very active in allocating finance is a special issue. The root of evil is that any investor, investing funds, waits over time for their full return with a profit. In the case of Aral, there are too many risks: the money invested in the environment will not provide a quick economic profit.

The main task of reforming IFAS is to restore its functions by making appropriate changes and additions to the IFAS provision and its institutional agreement. A special investment bank of the Aral Sea Basin should be organized to generate funds (contributions) by accumulating contributions from the Aral Basin states. When the international community sees Central Asian states investing in IFAS, it will pave the way for more active fund raising from donor countries, international financial institutions and private investors.

Contributions are voluntary. The main thing is that they provide a basis for the active participation of countries in the fund and the implementation of agreed major priority projects aimed at creating infrastructure that will allow the development of a socio-economic and environmental base in the new Aralkum Desert.

It should be recalled that a new mechanism has already been created on the initiative of Uzbekistan to attract the attention of investors. In November 2018, the UN headquarters in New York hosted a special UN high-level assembly on "Promoting Regional and International Cooperation towards Integrated Strategies for Sustainable Development", which established the UN Multipartner Trust Fund for Human Security for the Priaral region of Uzbekistan (IFTH). Today, the foundation is implementing a number of projects to support the population in Karakalpakstan totaling more than \$10 million. Unfortunately, the IFT is not able to implement the major infrastructure projects that are so necessary to change the situation in the region.



Projects and accomplishments

In the Kazakh part of Priaralya, a large-scale project "Regulating the riverbed of the Syr Darya and the preservation of the northern part of the Aral Sea" (RRSSAM-1) was implemented in the framework of the second phase of the Aral Sea Basin Program (ASBP-1). The start of the project was in November 2002. The World Bank borrowed \$64.5 million to finance the project and \$21.29 million in co-financing was allocated from the national budget.

The implementation of the RRSSAM-1 project brought the sea closer to the city of Aralsk from 74 km to 17 km. If at the time of the critical condition of the drying small sea in it was inhabited only Gloss flounder, in recent years there are more than 20 species of fish, several times reduced salinity of water, the feed base restored. Aral is gradually becoming a commercial body of water with good prospects.

Micklin and Aladin are right here: for these future prospects to become positive and bring the desired effect, there is still a lot of effort to be made in Kazakh territory. For this purpose, the second phase of the project "Regulating the riverbed of Syr Darya and the preservation of the northern part of the Aral Sea" (RRSSAM-2) was proposed and its implementation initiated in 2018.

Experts predict that the implementation of the new project will bring the sea at 1 km from the city of Aralsk, and the catch of fish to increase many times. There is reason to believe that the system of lakes along Syr Darya will also be restored.

It should be pointed out that the RRSSAM project is funded by the National Budget and the World Bank for Reconstruction and Development. After the first phase of the project was implemented and the Kazakh part of the sea was practically fixed by the Kokaral Dam, Aral began to fill the waters of Syr Darya. The microclimate in the region has improved significantly,

the reservoir has prospects for rapid recovery, and the population - to improve social conditions, develop fisheries and fish processing, create work places.

The implementation of the second phase of the RRSSAM project with maximum benefits was discussed by the partners in the bank and the government of Kazakhstan a long time. In the end, six components of RSSAM-2 were supported. But, for example, the idea of building an Aklak hydroelectric power plant in the Kyzylorda region is excluded, as the cost of electricity it generates would be many times higher than the market prices.

The first phase of the RRSSAM-2 project now includes sub-projects such as the restoration of the left-bank gateway-regulator of the Kyzylorda hydroelectric dam, the straightening of the river Syr Darya at Korgansha and Turumbet, the construction of protective dams in the Kazalin and Karmakshin districts, the road bridge near the village of Birlik, the restoration of Kamishlibash and Akshatau lake systems in the Aral district, the reconstruction of the Aralsky and Akshatau lakes in the Aral district.

At the end of May 2020, the Minister of Ecology, Geology and Natural Resources of the Republic of Kazakhstan Magzum Mirzagaliyev familiarized himself with the current situation at Kokaral, and gave instructions to strengthen the dam. To do this, a feasibility study has been prepared, and the development of project documentation has begun, after the approval of which construction work will begin. According to the Minister, two options for the project are being considered. The first involves the construction of another dam - in the bay of Saryshaganak, which will add another level to the Small Aral Sea. Experts are sure: it will help to noticeably desalinate sea water and water the lake systems.

Work to strengthen the Kokaral Dam began in July 2020. Also this year, another problem will be solved: to prevent the migration of fish to the Great Aral, a special system of fish protection will be installed near the dam. Adilkhan Karlykhanov, head of the Aral-Syr Darya Basin Inspectorate for Water Conservation, confirmed that the system would be put into operation in September. Special installations will scare the fish and not let the fish through the dam. Hundreds of tons of fish are dying here today.

As for the proposal of Miklin and Aladin - to abandon shallow water reservoirs in the AmuDarya Delta and to direct the remainder of the river runoff to the Western Great Aral Sea - this, in our opinion, is not quite the correct idea.

According to Uzbek experts, it is the system of small local reservoirs in South Aral region that will not only stabilize ecosystems and preserve biodiversity, but also, as in the Kazakh part, create conditions for the socio-economic development of the region and improve the well-being of the local population in Karakalpakstan.

The remnants of the sea (West and East) and wetlands in the South Aral Sea region (including the Amu Darya Delta) can be divided into four zones in accordance with the situation of the water sources.

1. The drained seabed and adjacent to the Ustyurt plateau are the Western Aral Sea, gets its water from groundwater and Lake Sarykamysh, which feeds on the runoff from Khorezm and Dashkhovuz.
2. The left bank zone of the Amu Darya Delta (West) is an area regulated by the Raushan canal system, drainage collectors CCC and GK. The main reservoirs are the water system of Lake Sudochoye - Akushpa, Tayla, Big Sudochoye and Begdulla-Aydin, Lake Karateren and the lakes of the Karajar system - Mashaankol, Khojakol, Ilmenkol.
3. The central zone of the Amu Darya Delta is a territory regulated by the main channel of Amu Darya, the Taldyk Canals (Kungrad Muinnak), Muinak (Glavmyaso) and Marinkinuzyak. The main reservoirs are the Interrechen Reservoir (including Lake Maypost and Domalak), Lake Fisherman and Muinak, Lakes Sakirkol and McPalkol.
4. The right-bank zone of the Amu Darya Delta (East) is a territory regulated by the Kazakhdry duct, KC-1 drainage collectors, KC-3. The main body of water is Yoldyrbas. Also, the area supplied by the drainage collector COP-4 system of small lakes called Akpetka.

| Amening the reservoir | Water level (Baltic Sea altitude system), m | Area, km ² | Volume of water, million m ³ |
|---|---|-------------------------------------|---|
| The drained bottom of the sea and the surrounding area of the Ustyurt plateau | | | |
| Lake Sarykamysh and the adjacent Ustyurt Plateau | 8,0 | 959,7 | 70000 |
| West Aral and the adjacent Ustyurt Plateau | 24,6 | 5110 (including water surface 3175) | 43600 |
| Left bank (western) zone of Priaralya | | | |
| Lake Sudochee's Vetland System | 52,5 | 464,7 | 884 |
| Mashankul-Karajar Lakes Complex | 53,0 | 50,7 | 440 |
| Central zone (AmuDaryi Delta) | | | |
| Interrechen Reservoir | 57,0 | 320 | 420 |
| Fishing Bay | 51,0 | 64,0 | 136 |
| Muynak Bay | 51,6 | 97,4 | 163 |
| Lake McPalcol | 53,0 | 12,0 | 63,0 |
| Right-bank (eastern) zone of Priaralya | | | |

| | | | |
|------------------------------------|------|--------|--------|
| Lake Jiltyrbas (on left and right) | 52,0 | 297,2 | 477 |
| Akpette Lake System | 53,0 | 391,5 | 100 |
| Total in Priarly | | 1740,4 | 2730,8 |

The main parameters of reservoirs and wetlands of the South Aral region.

To address the water supply problems of this zone, the Government of Uzbekistan initiated a project "Creating small local reservoirs in the AmuDarya Delta" in 2002. As a result of the project, by 2027, the necessary engineering infrastructure will be created to provide the optimal water level for the sustainability of ecosystems and economic activity in the reservoirs of the southern Aral Sea region.

Moreover, Uzbekistan in this zone has begun measures to develop and strengthen protected natural areas (OPT).

Thus, the President's decree "On measures to improve the system of public administration in the field of protected natural areas" of March 20, 2019, approved the "road map" according to which in 2019-2022 it is planned to create a state reserve "Sudoche System of Lakes" on the basis of the state reserve "Sudoche" (from 50 to 88 thousand hectares).



Not for a beautiful picture, but for the sake of your future

The Cabinet of Ministers' resolution "On the approval of the Biological Diversity Conservation Strategy in the Republic of Uzbekistan for the period 2019-2028" of June 11, 2019 provides for the expansion of the area of protected natural areas among the priorities. The first phase of the

Implementation of the Strategy (2019-2023) includes the creation of 5 OPTTs in the territory of the Republic of Karakalpakstan - the national natural parks "South Ustyurt" (1.4 million hectares) and "Central Kyzylkum" (Central Kyzylkum) (Central Kyzylkum) (Central Kyzylkum) (Central Kyzylkum) (South Ustyulkum) (Central Kyzylkum) (1.4 million hectares) and Central Kyzylkum (Central Kyzylkum) (1.4 million hectares) and Central Kyzylkum (Central Kyzylkum) (1.4 million hectares) 1.1 million hectares), state reserves "Beltau" (188.3 thousand hectares), "Akpetka" (587.7 thousand hectares) and "Akdarya-Kazakhdary" (22 thousand hectares). The creation of these new OPTTs in the Priaral region will increase the protected area by 3,561,490 hectares or 8 per cent of the total area of the country.

It should also be noted that by creating protected natural areas, Uzbekistan has made commitments in these zones to ensure the so-called neutral land degradation (expressed alternatively non-deterioration of the state of the land). It is a condition in which the volume and quality of land needed to maintain ecosystem functions and services, enhance food security, remain stable or increase within the specified time and space framework.

It is important to recall here that the Republic of Uzbekistan, the first of all countries in the Asian region and the CIS (1995), has ratified the United Nations Convention to Combat Desertification (UNCCD) and has taken an active part in all stages of its preparation. In accordance with the Government's policy and in accordance with the priority commitments made under the Convention, the Country developed a National Programme of Action against Desertification in 1999.

Since 2016, the Convention has imposed certain obligations to ensure the neutral degradation of the land (NDS). The technical guidance "Setting goals for a neutral balance of land degradation" of UNCCD from 2016 is a good instrument to apply.

In this regard, on February 22, 2019, the President's resolution "On measures to improve the effectiveness of work to combat desertification and drought in the Republic of Uzbekistan" was adopted. Uzbekistan's voluntary goal of NDD is to end the fight against desertification by 2030, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-neutral land- to the world.

So, how much water is needed to maintain the stability of the remnants of Aral, reservoirs and wetlands in the South Aral Sea region (including the Western Sea and the Amu Darya Delta)?

The aforementioned water stability and neutral land degradation can only be achieved if the area's water supply through the Amu Darya River and drainage collectors are stable. To maintain The West Aral (as recommended by Miklin and Aladin), Uzbekistan has worked out preliminary project proposals for the supply of reservoir water through the Sudoche and Ajibay system along the Ustyurt plateau to the Western Reservoir. The average amount of water

needed for the West Sea is estimated to be about 1 km³ per year and for the reservoirs of South Priaral at least 6 km³ per year.

To achieve this goal, Uzbekistan is taking the following steps:

- Establishing water limits agreed with other countries in the middle and upper reaches of the Amu Darya and Syr Darya basins to determine the degree of water supply compared to the actual need for water;
- Implementation of a regional water conservation program in irrigation. Ensuring that water consumption in the upper and lower reaches is reduced by increasing their even water supply during the growing season and reducing all types of losses (increasing the efficiency of the system and irrigation equipment), as well as releasing 3-4 km³ of water along the main channel of the AmuDarya River to the delta;
- Transfer of part of sewage (collection-drainage) water from Khorezm and Bukhara oases to the lower AmuDarya - 3 km³;
- Conservation and sustainable management of wetland ecosystems and coastal corridors of the Aral Sea Basin to support sustainable livelihoods, including the protection of existing water facilities and their connectivity to improve functional integrity and the gradual restoration of ecosystems and biodiversity.

Vadim Sokolov.

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