

**Report on the 15<sup>th</sup> Economic Forum “Main problems of environmental security and sustainable development in the OSCE area: land degradation, soil pollution and water management”**

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**Water resources - factor of security, cooperation and development of the Central-Asian region. Problems and ways of their resolving. Questions and prospects.**

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**Dear ladies and gentlemen!**

**Dear participants of the Forum!**

Tajikistan is a highland country and all branches of economy are organized basically on 7% of the territory of intermountain valleys. At the same time, Tajikistan forms 55, 4 % of a surface flow of the Aral basin, or 64 km<sup>3</sup>/year (table 1).

Slide 1.

Table 1

Aral Sea Basin (ASB) water resources

Country	Amu-Darya Basin	Sir-Darya Basin	Total in ASB:	
			km <sup>3</sup> /year	%
Kazakhstan	-	4,5	4,5	3,9

Kyrgyzstan	1,9	27,4	29,3	25,3
Tajikistan	62,9	1,1	64,0	55,4
Turkmenistan (together with Iran)	2,78	-	2,78	2,4
Uzbekistan	4,7	4,14	8,84	7,6
Afghanistan	6,18	-	6,18	5,4
Total	78,46	37,14	115,6	100

The volume of moisture accumulated in glaciers constitutes 500 km<sup>3</sup> waters, 20 km<sup>3</sup> of them being fresh water.

Currently, Tajikistan uses about 18 % of the flow formed on its territory (table 2) for its own needs that amounts to 10 % of average annual flow of the Aral Sea Basin Rivers. It indicates on the least in region negative ecological influence on water resources.

Slide 2

Table 2

**Water Resources Use  
In the Republic Tajikistan, million m<sup>3</sup>  
(2006)**

<b>№</b>	<b>Sectors of economy</b>	<b>Sum total</b>
1	Economic-drinking water supply	431
2	Agricultural water supply	609
3	Industry	921
	Subtotal	1961
4	Fish industry	459
5	Irrigation	9059
6	Other needs	22
	<b>Total</b>	<b>11501, including: 9166 – from surface</b>

		<b>water resources, 2036 - artesian and 299 mln. m<sup>3</sup> - return water sources</b>
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Over 95 % of the territory of Tajikistan refers to a flow formation zone. Great is the role of Tajikistan in the ecological rehabilitation of the Aral Sea Basin. Along with the fact that it is one of the core water-supplying states of region, it plays a big role in forming the climate and preserving ecological balance of the whole Aral Sea Basin and neighbour states: Afghanistan, China, etc.

We should note that interdependent water and power infrastructures have formed over many decades in the Central Asian region consisting of cascades of dams of hydroelectric power stations (HPS), water reservoirs of seasonal and long-term regulation and other constructions and industries. During the Soviet time a water sharing order was established based on a seasonal exchange in water resources, electric energy and other resources, which worked rather effectively. Regional interest was expressed in the necessity of maximum production of cotton, rice, fruit, vegetables and other products in terms of one country. At the regional level water management complex maintenance, compensations, population social protection and other issues were solved as well.

Inertia of the past generates some water resources management drawbacks and problems at the interstate level. A set of branches of a predominantly irrigation-power engineering purpose form the water-economic basis of the arid zone, to which Tajikistan is a part. Misbalance of the former economic mechanism of compensations is accountable for the distinct division of the Aral Sea Basin not only geographically, but also economically, on two zones - a zone of flow formation and a zone of flow distribution, where each state has its own water resources use priorities. Primary

placement of HPSes in a mountainous area and irrigated lands in a flat part against imperfect economic mechanism of interaction generates inter-sectoral contradictions (power engineering - irrigation), which further trigger interstate contradictions. Therefore, at the interstate level Tajikistan consistently supports the development and establishment of principles of interaction on use and protection of water resources, the central part of which should become an economic mechanism satisfying all states of region.

Having acquired independence, Tajikistan, as well as other central-Asian states, has come across a problem on water resources management in all its completeness at the regional interstate level. In September, 1991, five states of the Central Asia have come out with the joint declaration that sharing of water resources will form a basis for ensuring equality and common benefits. Then, on 18 February, 1992, an agreement on cooperation in joint management, use and protection of interstate water resources has been concluded in Almaty. As a result of work over many years, pursuant to the principles of the international water law, arrangements available, regulations, which have been inherited from the previous unified state, and also local experience and traditions, having observed a good-neighbourhood, Tajikistan has signed a number of agreements, reports and regulations with the neighbour Central Asian countries, which have set a ground for the present Aral Sea water resources management. After the Ashgabat Meetings of Head of Central Asian States on the problems of the Aral Sea Basin (8-9 April, 1999) many legal discrepancies have been removed and the structure of the International Aral Sea Rescue Fund has been optimized, structural divisions of which now are available in all five Central Asia republics.

International organizations represented by the UNDP, UNEP, the World Bank, the European Union and other organizations, have provided support to our countries in

the development of various options for long-term resolving of the Aral Sea Basin problem.

Naturally, all of them are concerned about the ground, on which water resources of Tajikistan will be used by its closest neighbours. Regarding this issue we are for the establishment of an economic mechanism of water use. I think, everyone will agree that in addition to water being a natural gift, it is also an economic benefit. Water resources monitoring, current, mid-term and long-term forecasts, accumulation and supplying consumers with a necessary quantity of water during a necessary time – all this requires a huge work, expenditure of material and financial resources, construction and operation, repair of water management constructions of interstate significance, which have been invested into each cubic meter of life-giving moisture. Therefore, all of us in the region need dialogue and cooperation embodied in concrete two and multilateral agreements on the economic mechanism of water use, indemnification of the missed benefit and damages arising from flow regulation by one state in interests of other states. A certain economic mechanism existed in the Soviet Union when the states exchanged water, electric power, coal, gas, grain, mineral oil and solved issues of the population's social security. Now we should reanimate the economic mechanism of water use on a new basis. The delay in resolving of this issue is fraught with big economic losses, degradation of unique water management constructions, ecological disasters, and increase in tension in the society and between the states. Only through cooperation built on concluded legal documents we can solve national and regional problems. To this end we need real integration, coordination of actions, establishment of a most favourable economic regime with neighbour and distant countries and an open dialogue with the international community.

The process of establishing and development of a neighbourly cooperation is going on with hard efforts of the heads and people of our countries. Our duty is to promote strengthening mutually beneficial contacts. In fact, water is life, and the life will depend on how much we will effectively cooperate.

To elaborate on this, I want to emphasize, that despite of the radical changes taken place in a political and economic situation in the post-Soviet space, in the new Water Code adopted in November, 2000, Tajikistan has ensured the following: in its policy in the field of water relations Tajikistan builds on the necessity of ensuring steady development of the economy, rational use and protection of water resources on the basis of observance of principles of the international water law, mutually beneficial and friendly cooperation with foreign states, universal ecological security, and development of the international cooperation.

We should note, that despite of current difficulties, cooperation in the water management domain in the Central Asian region as a whole develops in a civilized manner with observance of the international standards. In that perspective, UNECE conventions represent big interest for us. For us were and remain a norm:

- commitments to cooperate;
- consultation mechanisms;
- transboundary notification;
- exchange in information and technologies;
- public awareness and participation;
- bilateral and multilateral cooperation;
- mutual assistance;
- bilateral and multilateral agreements;
- joint assessment of projects and their monitoring.

Tajikistan needs and relies on world community support in the following issues:

- ❖ rehabilitation of irrigation and collection-drainage systems with constructions on them to upgrade lands efficiency that will significantly trigger poverty reduction;
- ❖ development of new irrigated lands, especially those, where already in the former years constructions have been started;
- ❖ complex reconstruction of old irrigated lands that gives an increase in crops;
- ❖ improvement of land reclamation conditions of salted and boggy lands that will enable including them in an agricultural turnover and get additional products;
- ❖ rehabilitation of a machine irrigation zone, where 2 million inhabitants (1/3 of the whole population) are living;
- ❖ addressing issues of drinking water supply;
- ❖ creation of an information system;
- ❖ construction of water reservoirs and HPSes to cover the present deficit in water and energy resources;
- ❖ countering floods and mudflows;
- ❖ expanding production of bottled fresh and mineral water;
- ❖ introduction of new technical equipment and technologies of irrigation and water-measuring equipment;
- ❖ studying glaciers, blocked lakes, climatic changes.

The last issue is very important, as problems of protection of the territory of Tajikistan from floods and mudflows are directly connected with ecological issues, big attention in republic is paid to this direction of activities. There are about 1300 lakes in Tajikistan, which due to inaccessibility are poorly studied. To study them is important in terms of their stability and prevention of possible breakthrough to a plenty of regional scale. Only the Sarez lake in the East Pamir, where nearly 17 km<sup>3</sup>

of crystal-clear water is accumulated, in case of breakthrough can catastrophically affect 55 thousand km<sup>2</sup> of the territory of Tajikistan, Afghanistan, Uzbekistan and Turkmenistan with the population about 6 million person. Let me elaborate on this lake and its breakthrough consequences for Tajikistan.

The Sarez lake has emerged as a result of a seismically formed blockage of the Bartang valley on 18 February, 1911. Its basic parameters are brought in Table 3.

Slide 3

Table 3

**Some physical-geographical and morphometric characteristics of the Sarez lake**

Average long-term air temperature	1,0 °C
Average temperature in January	«-» 13,9 °C
Average temperature in July	«+» 14,7 °C
Average annual summary rainfall	135 mm
Average annual surface inflow to the lake	1,48 km <sup>3</sup>
Average annual outflow from the lake	1,44 km <sup>3</sup>
The lake mirror area	80 km <sup>2</sup>
Length of the lake	60 km
The greatest width of the lake	3,3 km
Middle width of the lake	1,5 km
The greatest depth of the lake	505 m
Middle depth of the lake	202 m
Length of a coastal line	162 km
Volume of water weight	17 km <sup>3</sup>
Annual amplitude of the level fluctuations	3-12 m
Estimate altitude of the wind wave (once in 100 years)	2 m
Freezing-over duration	4-



	4,5 months
Ice cover thickness	0,6-0,7 m

The process of the lake filling is continuing and it is considered that a break of waters from the lake can cause a wave with height up to 90-100 m. In that perspective, it is supposed to decrease the lake level, and at the same time to use the surplus water for irrigation. It is considered that 90-100 m decrease in a water level will remove the danger of water gush over the blockage, and a one time 40m (that constitutes 4 km<sup>3</sup> of water capacity) decrease in a level will allow watering of at least 0,5 million hectares of cotton fields in a dry year.

The problem of the Usai blockage stability and catastrophic breakthrough of the lake has been acute with the detection on the right board in 4 km from the Usai dam of a large landslide with the capacity of 0,9 km<sup>3</sup> up to 2 km<sup>3</sup>. On the lake model with the area of 140 m<sup>2</sup> the processes of the landslide falling into the lake have been simulated. It was found out, that dynamic "tsunami" type waves are formed with height up to 180 m, with overflow capacity of 200 million m<sup>3</sup>, and the crest washout will reach 100 m.

As a result, all settlements located at the height of up to 50 m above the current channel can be affected in the Bartang River valley (where the width of near channel area constitutes average 200-600 m).

As a result, in scientist's opinion, all bridges through Bartang River will be destroyed; the Rushan district centre, many kishlaks, 20 % of the Western Pamir sowing lands, etc. will be flooded.

It has been calculated that in the Bartang River Valley and middle stream of the Pyanj River 31 thousand persons will be subject to evacuation, in the lower stream of the

Pyanj River the total area of flooding can constitute 810 km<sup>2</sup> with 126 settlements and the population of about 350 thousand, with industrial production losses constituting 22 %, and those of agriculture - about 38 %.

Totally, on the territory of Tajikistan nearly 280 thousand persons and about 150 settlements will be a subject to evacuation.

The Sarez Lake safety can be carried out through strengthening the dam body and slow downturn of a water level in it (with the speed of 0,8 km<sup>3</sup> in a year) during winter time by creation of drainage tunnels and gradual sliding into lake of separate micro-blocks of the "Right-bank" landslip by directed explosions.

To this end, the complex resolving of the Sarez Lake problem for the protection of the population and objects of drinking water supply, hydropower engineering, recreation and an irrigation, development of rich bowels of the territory with participation of the neighbour and foreign states represents big regional interest. For this purpose a "Sarez" Agency has been created in Tajikistan and some countries have already started funding this project.

Taking into account the regional significance of rational use of the Sarez Lake water resources the President of the International Aral Sea Rescue Fund (IASRF), the President RT Emomali Rahmon in the message to the parliament and the public has noted, that 'from year to year the problem of water resources deficiency in the Central Asia becomes more acute, there is a special potable water shortage. Moved by feelings of friendship and genuine philanthropic values Tajikistan suggests using the cleanest waters of the Sarez Lake for drinking needs of the region population. Its volume of 17 billion m<sup>3</sup> is enough to provide about half of the region population, if to lay the pipeline with the capacity of 50 m<sup>3</sup>/sec. We suggest creating an international

consortium, to involve means of neighbour states and donors for the construction of this unique conduit. To give water to the thirsty is considered to be one of the noblest deeds in the holy religion of Islam.

It is quite clear, that all the listed problems have the economic mechanism of investments return, therefore we urge everybody to cooperation. Participation of the Asian Development and World Banks in the rehabilitation of irrigational systems in various pilot areas of Tajikistan is a good example of cooperation.

Undertaking the International Decade of actions “Water for Life - 2005-2015” is inherently a good sign and should serve as the catalyst in the matter of deepening of the international cooperation in the field of water. All kinds of assistance to this noble process are a duty for each of us, all people of the planet. It is necessary to do everything for our countries to prosper; our people live peacefully that for each person to have access to clean water and comfortable living conditions. A human being deserves it!

We are grateful to organizers of the 15<sup>th</sup> Economic Forum, which is taking place a beautiful city of Prague, for the invitation and its excellent organization.

Thank you for your attention.