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Integrated Management Strategy of Transboundary Water Resources of Central Asia

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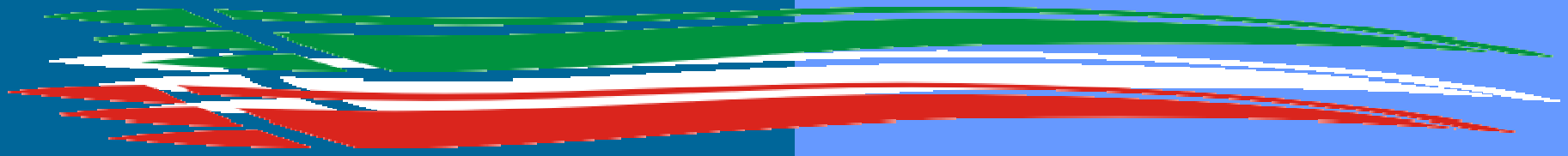
October 6-9,2009
BEIRUT, LEBANON



INTRODUCTION

The concept Central Asia (the former name is Middle Asia and Kazakhstan) that is used nowadays includes the republics of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Hydrographically the Central Asia Region (CAR) is distinguished as the Aral Sea basin, which in its turn consists of two basins – the Syrdarya and the Amudarya Rivers.

Indicators of macroeconomic development of CAR

Country	Territory, th. km^2	Pop-on, mln. people	Per capita gross inland output by purchasing capacity parity, th. dollars/man	Per capita energy consumption, tons of conventional fuel /man
Kazakhstan	2636,20	14,95	3,56	3,67
Kyrgyzstan	198,50	4,90	0,68	0,66
Tajikistan	143,10	6,20	0,99	0,84
Turkmenistan	488,00	4,70	1,52	3,30
Uzbekistan	447,36	24,60	2,26	2,70
CA	3913,16	55,35	2,22	2,64

Surface water resources of the Aral Sea basin

Country	Amudarya River basin, km^3/year	Syrdarya River basin, km^3/year	Aral Sea basin	
			km^3/year	%
Kazakhstan	—	4,50	4,50	3,9
Kyrgyzstan	1,90	27,4	29,30	25,3
Tajikistan	62,9	1,1	64,00	55,4
Turkmenistan	2,78	—	2,78	2,4
Uzbekistan	4,70	4,14	8,84	7,6
Afghanistan	6,18	—	6,18	5,4
CA	78,46	37,14	115,6	100,0

The principal spheres of water resources use in Central Asia today are irrigated agriculture and hydropower engineering.

By the beginning of the 20th century about 3.5 mln ha have been already irrigated in the region.

Dynamics of irrigation and hydropower engineering development in CAR

By 1990s of the past century total area of irrigated lands in the region has increased up to 8,8mln ha, including:

- up to 2.8mln ha
- up to 1.1mln ha
- up to 0.7mln ha
- up to 4.2mln ha

Total established capacity of all electric power stations in the region grew up to 37,8mln kW, including:

- in Kazakhstan - 18.5mln kW
- in Kyrgyzstan - 3.8mln kW
- in Tajikistan - 4.4mln kW
- in Uzbekistan -11.3mln kW

At that time the capacity of hydropower stations in the region reached 11.31 mln. kW, including:

- in Kazakhstan - 2.22 mln. kW
- in Kyrgyzstan - 2.95 mln. kW
- in Tajikistan - 4.40 mln. kW
- in Uzbekistan - 1.74 mln. kW

Unfortunately all these impressive results led to the same great negative consequences. Intensity of processes of ecological equilibrium violation in the region, which especially became apparent in the Aral Sea zone, has sharply increased; lands salting and their desertification has grown; the quality of water especially in the lower stream of rivers has worsened.

Quite recently 28-30 November, 2006 in Kazakhstan held Regional Workshop on “Assessment of Snow-Glacier and Water Resources in Asia”. Participants in the Workshop experts and professionals from Central Asia Region together with international expert nothing that changes in glaciers in the world’s largest and highest mountain system will have significant effects on nearly 1,5 billion people. They recognize that glaciers are key indicators in monitoring and detecting global warming and climate change.

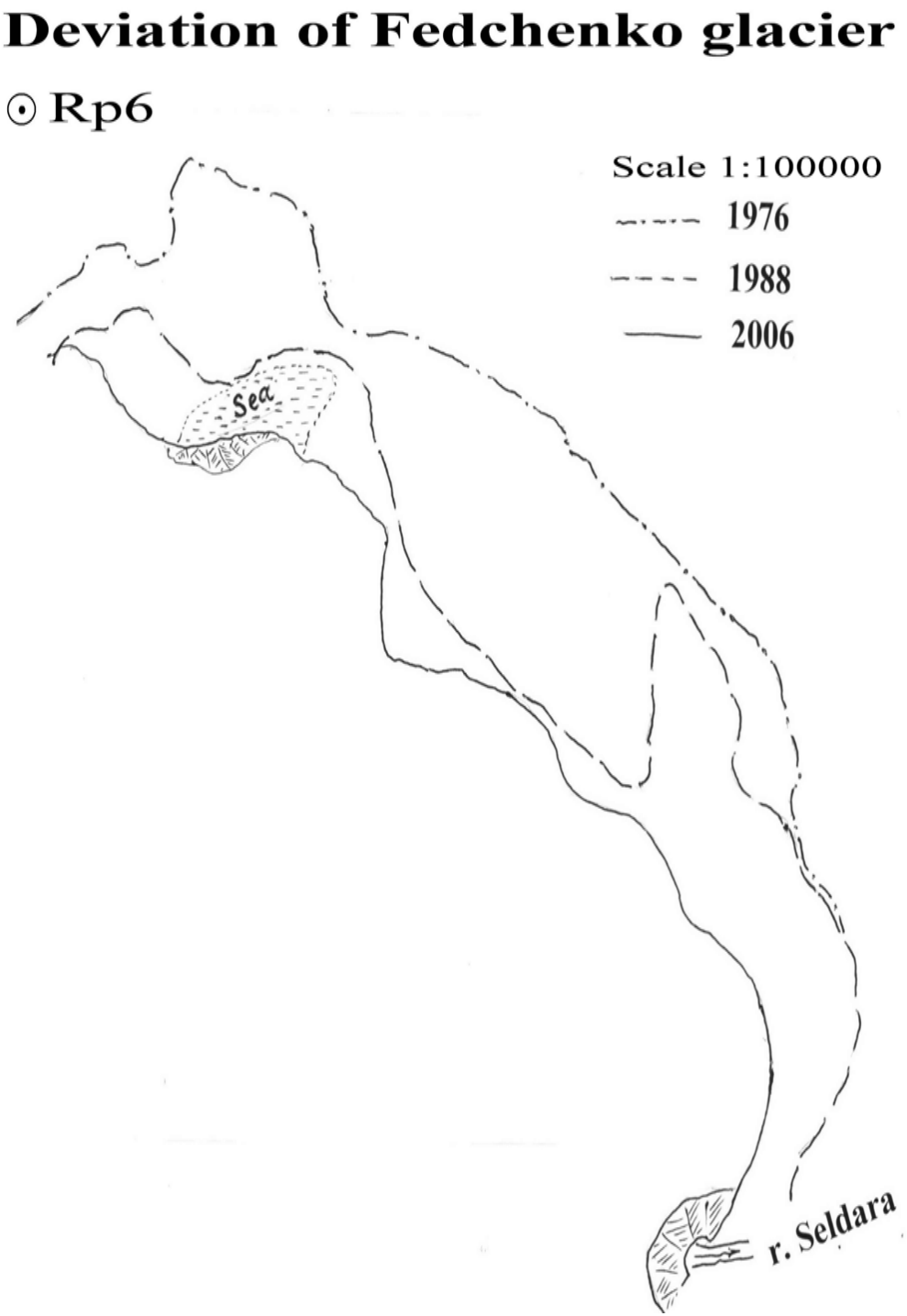
Tajikistan is mountain country which 93% of his territory occupied by mountains and in Tajikistan there are more 8400 glaciers by the total area of 8476, 2 km^2, or about 6% of all territory of the Tajikistan

The center of the main area of glaciations of Tajikistan is Fedchenko glacier - the largest mountain glacier in the world.

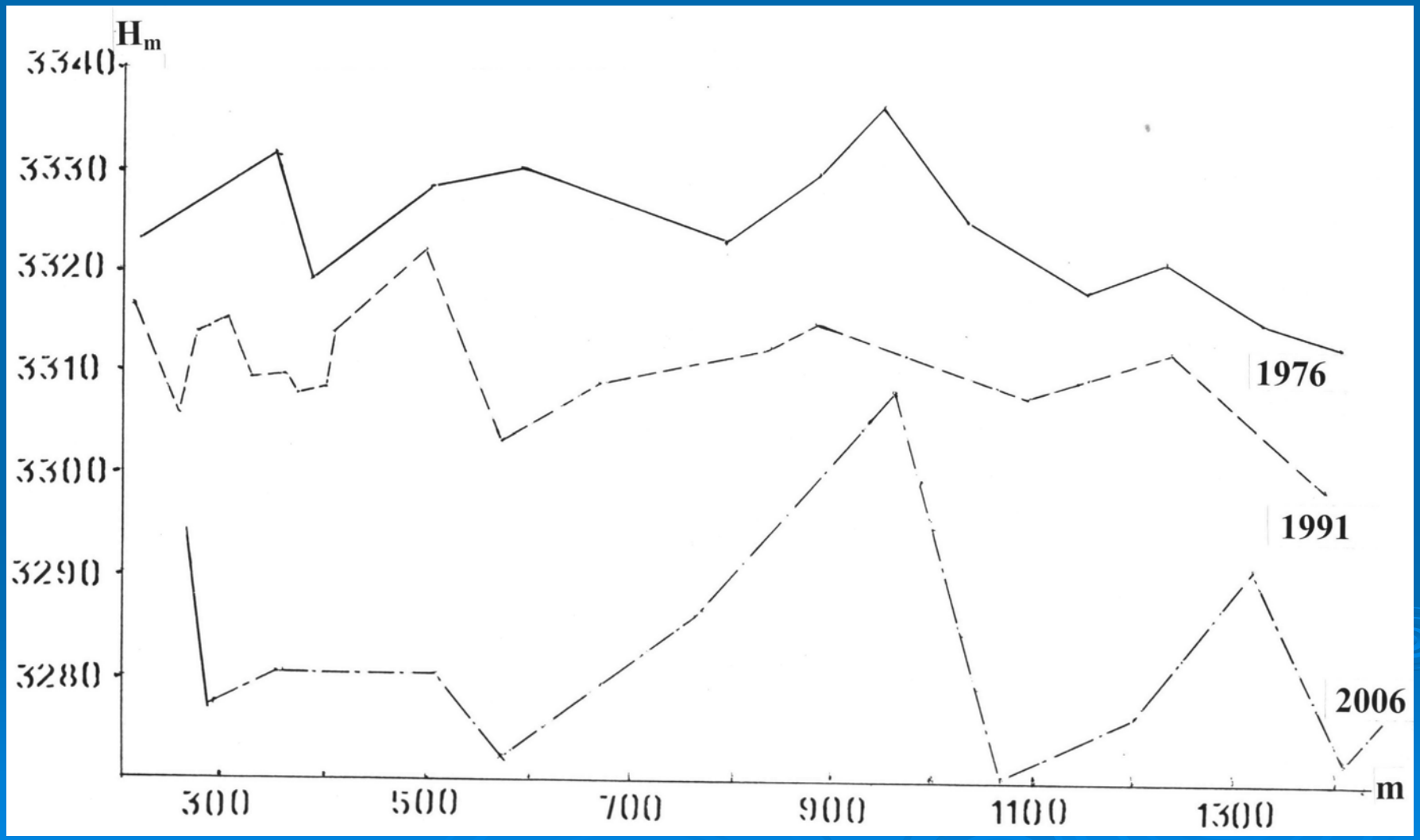
Characteristics of Fedchenko glacier

Length	77 km
Average width	2,5 km
Maximal width	5 km
Area with all tributaries	~ 652 km^2
Ice thickness	~1 km

Only for forty years from mountain range of Academy of Sciences, Zaallay and Kaindi have disappeared **14** not large glaciers the general area of **7,6 km²**. Average speed of movement of glacier in connection with loss of weight has decreased from **72 up to 69 sm daily**. In total for 20-th century the glacier has lost about **12-15 km³** ice.



Cross section change of the profile No.4 of the Fedchenko glacier



The next expedition on glacier Fedchenko in September, 2006 demonstrated that glacier Fedchenko continues to be reduced non-uniformly with speed of 8-10 meters in a year.

Integrate Management of Water Resources (IMWR)

The goal of Integrate Management of Water Resources (IMWR) is to unite on basin level all aspects of water resources control for realizing it under the united leadership. For demonstrating of changeability of IMWR principles there were offered to use approaches "experimental objects" under-basins of the Aral Sea by organize Centers of Planning, which experience may be spread later to another basins include all basin of the Aral Sea.

Existent water-economic organizations in considerable degrees inherit their structures and function from Soviet Union. They are structured vertically reflect soviet command economy. These vertical structures work against IMWR and real integration is possible only on common national level. At the some time Ministries and departments are not given necessary attention to problems of integrated control of resources. On interstates context integration is more restricted.

The opportunity of integration is discussed only at restrict numbers of chance meeting between ministries of one sector.

In CAR during the independent years were conducted a few legislative acts on support of integration in water sector. However effectiveness of these integration reforms is too restricted, as in former no two sectors on regular base discuss together having problems.

The first aim IMWR could be in establishing formal mechanism for integration on minimum accessible level according to two main models:

a) to organize the Working Group (WG)

and

b) to found Basin Commissions (Committees inculcate basin method of water resources control)

Strategy of IMWR for Basin of Vakhsh

The main goal - elaboration the national (Tajik) strategy of integrated water resources control of Vakhsh part of Amudarya River transboundary basin on condition affirmed by Government with purposes, conception and program of country development for 2015-2020 years and high uncertainness of real possibility and term for realizing these plans.

The strategy of IMWR bases on main principles which provide achievement of three goal of ecological steady development (ESD):

~ economical development

~ social development

~ protection of environment

On this strategy of IMWR sub-basin Vakhsh River bases on international right of Tajikistan as an independent sovereign state to use all having water resources in bound of its territory according to national legislative standards and with account of another states' interests situated in transboundary basin of Amudariya River.

In this case priority will be given to:

- Many branches approach to control of water resources include protection of all fresh water sources and resources. There is effective use of water resources in irrigation in compare to widening sewage-farm.
- Planning the stable and rational use, protection, economy and control of water resources in the base of demands and priorities of society on framework of national development's politics with account of economical effectiveness, social usefulness and necessity of realizing projects

Proposed Measures for Improvement of Water Resources' Control

In framework of IMWR Strategy with purpose of improvement the control of water resources are proposed to accelerate passage to hydrographic method of control. For this as the first step it is proposed to conduct Republican Commission and in its structure Working Group. The main task of Commission is harmonization interdepartmental interest, planning to use water resources and solution of practical problems of passage to integrated control of water resources, cooperation on conducting administrations (Committees) of channels, basin administrations.

The main tasks of Commission are:

- Long term planning of water resources' use and planning of development
- Drawing up recommendations on definition and agreement political aspects on sphere of using and guarding water resources
- Consideration of suggestion on improvement of regional and interstate water dividing, improvement of regimes of water resources using
- Informing society about development plans and water resources using.

All activity of Commission and Working Group must be directed on improvement of water resources control, gradual achievement of basin Commissions and Committees independence by active participate of all interested parts and sectors.

Short - Term Measures

- In the beginning stage of realization of strategy first of all it will be created active Working Group for preparing necessary documents and suggestions for Republican Commission.
- Fulfilling adopted decisions of Government on conducting administrations (Committees) of channels, refund Administration of Irrigation System according to hydrographical principles of water resources control and providing representations of all interested parts of water using and society;. There will he elaborate and co-ordinate basin plans of control, use and guarding of water resources.

Middle – Term Measures

- As extraordinary measure by end of period it will be redistributed of function and changed structure of main interested sector ministries.
- It needs decentralization of water resources on basined Level.
- There is creation the system of complex monitoring of nature resources and necessary base of statistics.

Long – Term Measures

- There is completion of mastering water-energetic resources of Vakhsh River's basin
- Creation regional marked of water resources

Thank You!