« EURO INBO 2012»
10th EUROPEAN CONFERENCE
ON THE WATER FRAMEWORK DIRECTIVE IMPLEMENTATION




Use of water and energy resources in Central Asia

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Dear ladies and gentlemen,

Dear participants of the Conference!

I'm very glad I was given a chance to speak at this « **EURO INBO 2012» 10th EUROPEAN CONFERENCE ON THE WATER FRAMEWORK DIRECTIVE IMPLEMENTATION** .

Taking the opportunity I would like to express my own gratitude for being invited to participate at so significant international event.

Certainly, such a representative conference, which brought together the most authoritative audience of experts on water and is a very important event.

CENTRAL ASIA: GENERAL INFORMATION

Area:	about 4mln. km^2
Population:	about 60 mln. people
Irrigated area:	8,3 mln.ha
Main rivers:	Amu-Darya & Sir-Darya
Seas :	Aral, Caspian
Climate:	continental, arid & semiarid

CENTRAL ASIA: WATER RESOURCES

Major link of national and regional security;

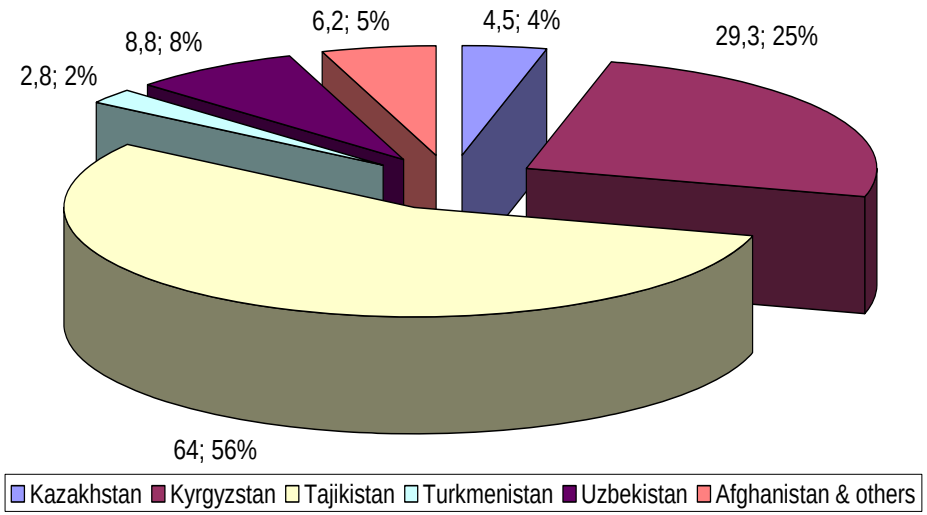
Key factor of socio-economic development;

About 30% of the regional GDP (only at the expense of irrigation);

About 30% of electricity consuming by the region (at the expense of HPP);

Maintenance of ecosystems;

WATER RESOURCES OF THE ARAL SEA BASIN

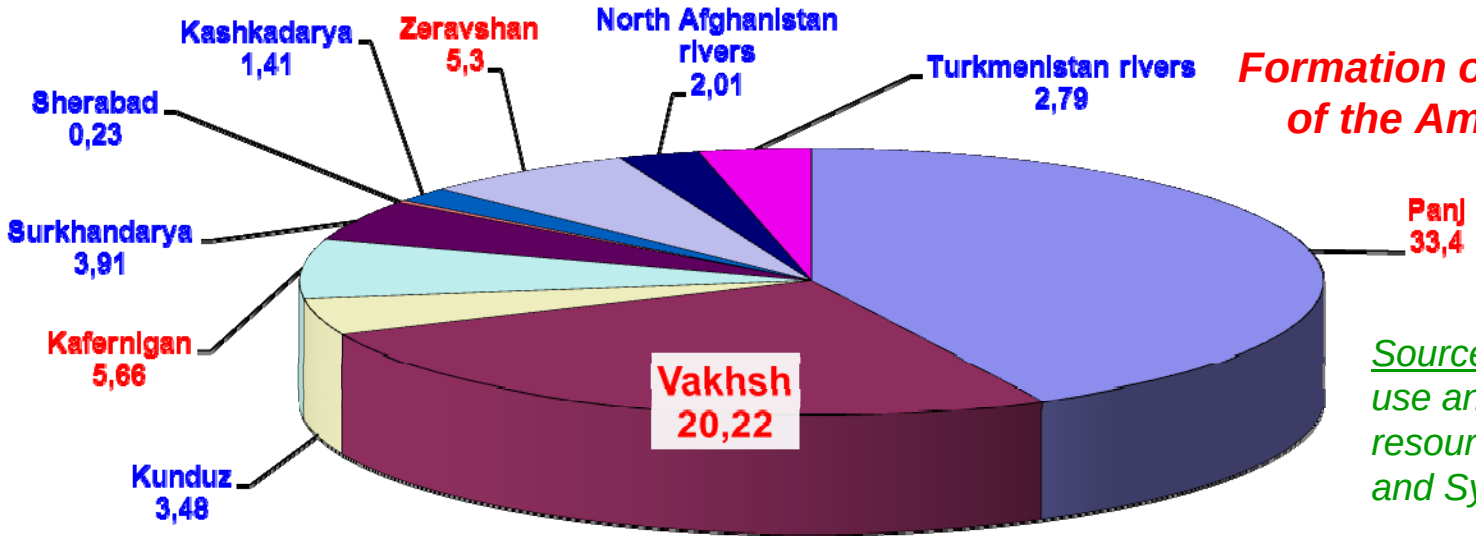


Formation of water resources in the Aral Sea Basin

A unique mountainous nature of Tajikistan generates 64 km³ per year or 55,4% from the total runoff in the Aral Sea Basin including the Amu Darya 62.9 km³ (80.17%) and Syr Darya 1.1 km³ (3%).

Country	Amu Darya		Syr Darya		Total	
	km3	%	km3	%	km3	%
Kazakhstan	-	-	4,50	12,12	4,50	3,89
Kyrgyzstan	1,90	2,42	27,40	73,77	29,30	25,35
Tajikistan	**62,90**	**80,17**	**1,10**	**2,96**	**64,00**	**55,36**
Turkmenistan (with Iran)	2,78	3,54	-	-	2,78	2,40
Uzbekistan	4,70	5,99	4,14	11,15	8,84	7,65
Afghanistan	6,18	7,88	0,00	0,00	6,18	5,35
Total	**78,46**	**100,00**	**37,14**	**100,00**	**115,60**	**100,00**

WATER RESOURCES OF THE AMUDARYA RIVER



Formation of water resources of the Amudary by rivers

Source: Master Plans of use and protection of water resources of Amudarya and Syrdarya river basins

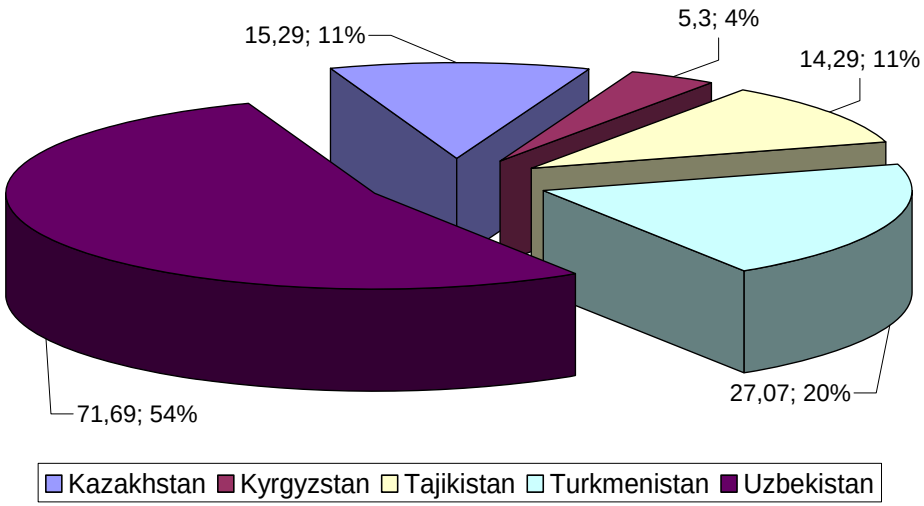
More than 80% of water resources of Amudarya forms in the territory of Tajikistan mainly by Panj, Vakhsh, Kafernigan and Zeravshan rivers.

The Vakhsh River, where the Rogun HPP is being to built, makes only 25,8% of the Amudarya river flow.

Formation of Water resources of Amudarya by countries

Country	Volume of flow	
	km3	%
Afghanistan	6,18	7,8
Kyrgyzstan	1,90	2,42
Tajikistan	62,90	80,17
Turkmenistan	2,78	3,54
Uzbekistan	4,70	6,0
Total	78,46	100

INTERSTATE WATER SHARING IN THE ARAL SEA BASIN



Water resources sharing in the Aral Sea Basin

The distribution of water resources in the Aral Sea basin based on Master Plans of use and protection of water resources of Amudarya (1987) and Syrdarya (1984).

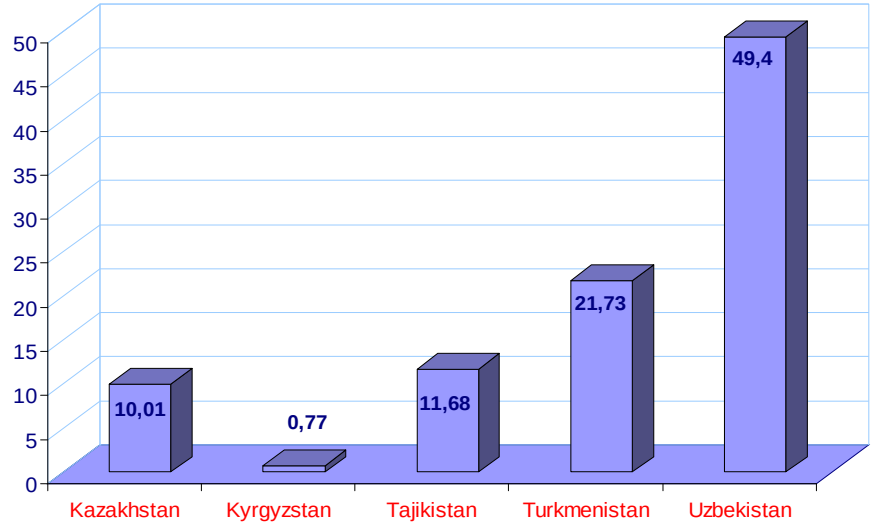
According to calculations, the amount of available water resources, which are composed of surface water, groundwater and recycled waste and drainage water, made 133.64 km³ per year.

Source: Master Plans of use and protection of water resources of Amudarya and Syrdarya river basins

Country	Amu Darya		Syr Darya		Total	
	km3	%	km3	%	km3	%
Kazakhstan	-	-	15,29	31	15,29	11,44
Kyrgyzstan	0,42	0,5	4,88	9,89	5,3	3,97
Tajikistan	**10,63**	**12,607**	**3,66**	**7,42**	**14,29**	**10,69**
Turkmenistan (with Iran)	27,07	32,1	-	-	27,07	20,26
Uzbekistan	46,2	54,79	25,49	51,68	71,69	53,64
Total	**84,32**	**100**	**49,32**	**100**	**133,64**	**100**

WATER INTAKE FROM THE AMUDARYA AND SYRDARYA BY THE CENTRAL ASIAN COUNTRIES

Source: Master Plans of use and protection of water resources of Amudarya and Syrdarya river basins



Water allocation with the direct intake of water from the the Amu Darya and Syr Darya rivers intended water withdrawals in the amount of 84.19 km³ (63% of available water resources).

Country	Amu Darya		Syr Darya		Total	
	km3	%	km3	%	km3	%
Kazakhstan	-	-	10,01	44,12	10,01	11,9
Kyrgyzstan	0,40	0,60	0,39	1,72	0,79	0,9
Tajikistan	**9,50**	**15,40**	**1,81**	**7,98**	**11,31**	**13,4**
Turkmenistan	22,0	35,80	-	-	22,0	26,1
Uzbekistan	29,60	48,20	10,48	46,19	40,08	47,6
Total	**61,50**	**100**	**22,69**	**100**	**84,19**	**100**

WATER RESOURCES OF TAJIKISTAN

Glaciers – 845 km^3 (volume), 11 146 km^2 (surface area)

Surface water resources – 64 km^3 (55.4% of the Aral Sea Basin river flow)

Lakes - 46 km3 (volume), 705 km2 (surface area), 1300 (number)

Reservoirs – 15.34 km3 (volume), 664 km2 (surface area), 1300 (number)

Underground water resources – 18,7 к м 3 (2,8 km3 – useful resources)

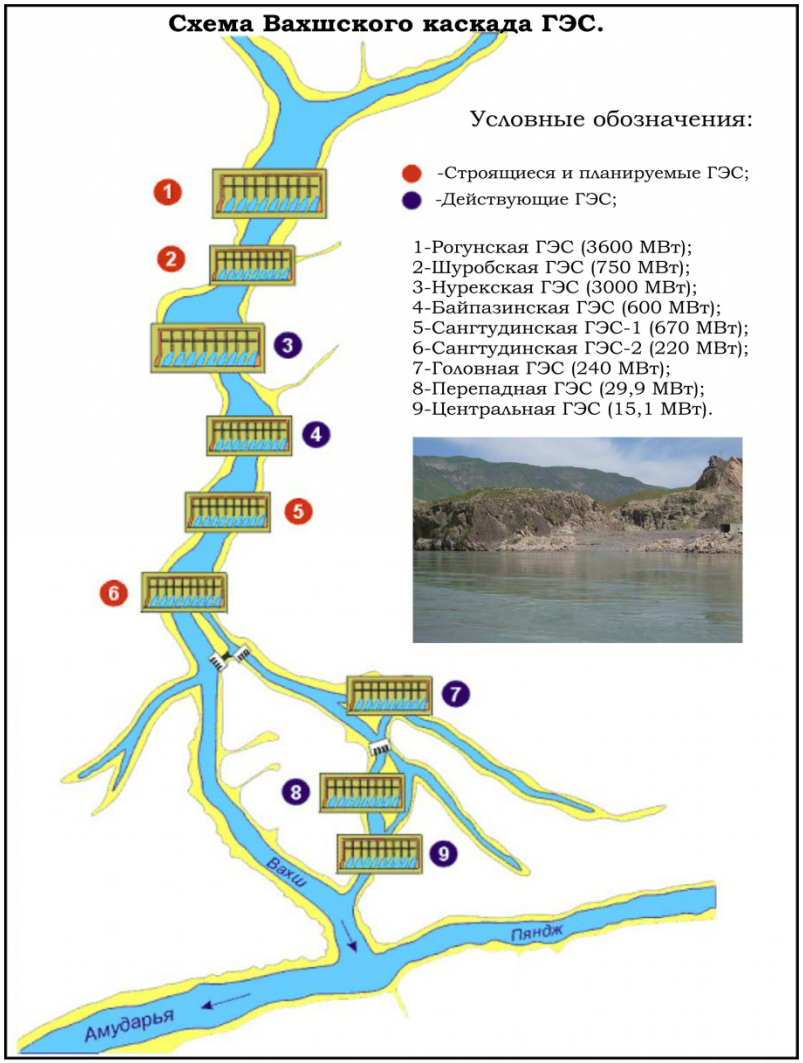
ENERGY RESOURCES OF THE ARAL SEA BASIN

Structure of production of the initial fuel and energy resources, in percent (%)

Countries	Gas	Oil	Coal	Hydro power	Total
Kazakhstan	16	50	33	1	100
Kyrgyzstan	2	5	11	82	100
Tajikistan	2	1	1	96	100
Turkmenistan	83	17	0	0	100
Uzbekistan	84	13	2	1	100
As a whole	48	33	17	2	100

Source: Fuel and energy balances of the countries by IEA, 2004

Republic of Tajikistan among other CA countries has a great hydropower potential equals 527 bln. kW.h. Its economic effective capacity is 317 bln. kW.h



Cascade of HPPs in the Vakhsh river

HYDRO POWER POTENTIAL OF TAJIKISTAN

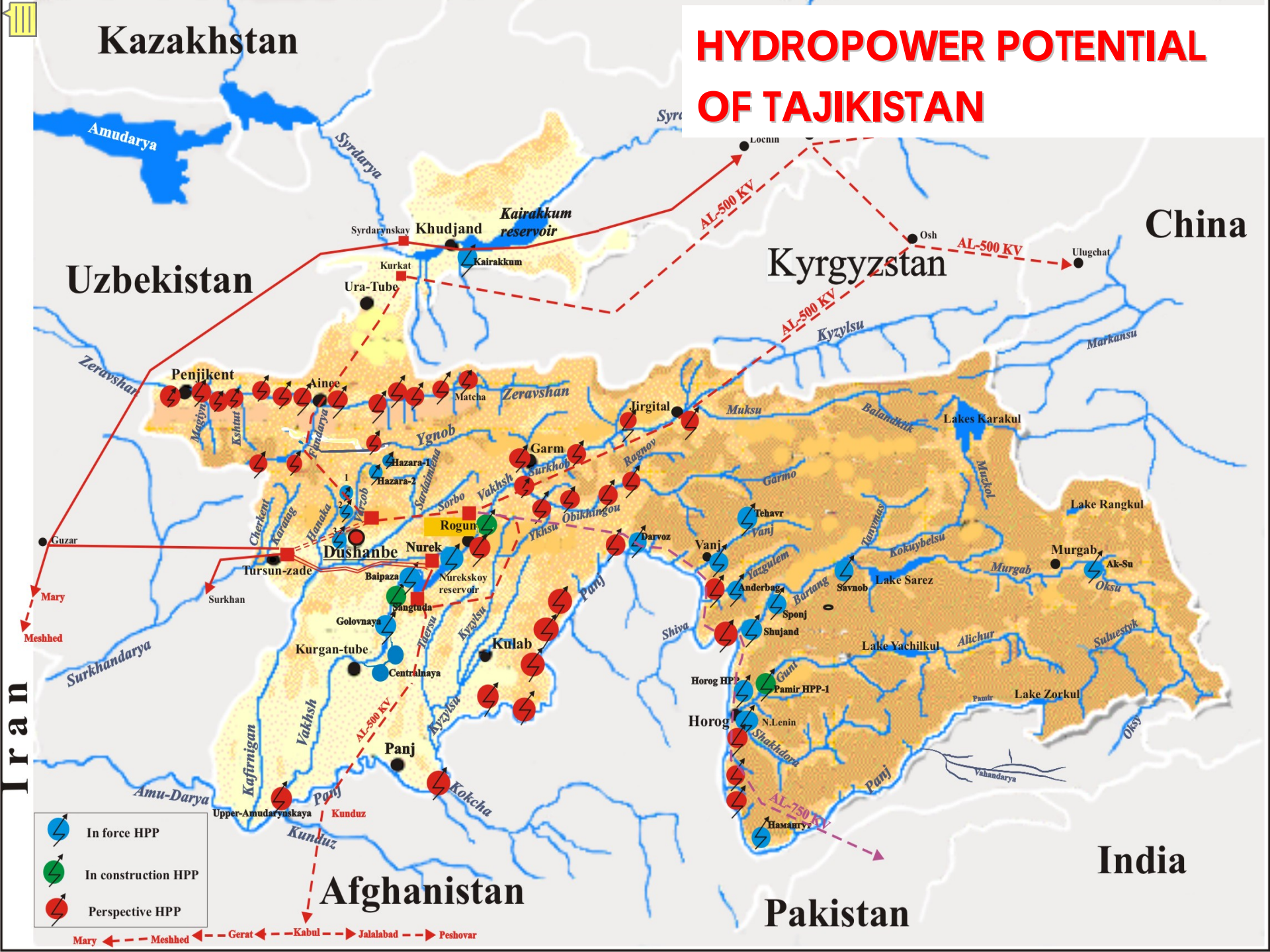
Tajikistan has the huge, inexhaustible hydropower, ranking 8 th in the world for total (*527 bln. kW.h.*) quality, and first place in the specific reserve. The Republic of Tajikistan in its hydropower produces an average of 17 billion kilowatt hours of electricity per year. The necessity of a need is 22-24 billion kilowatt hours, that is a deficit of 5 billion kilowatt hours in winter (in summer surplus amount to 2 billion kilowatt hours).

Tajikistan, 93% of which is mountainous, has no alternative but to development as the basis of the economy of hydropower resources of the rivers. It is therefore vitally important for the country is to complete the construction, which began in the Soviet era Rogun and other hydroelectric plants on the river Vakhsh and Panj, Zarafshan and others. Rogun considered in the scheme of complex use and protection of water resources of the Amu Darya River Basin, developed at the Institute "Sredazgiprovodkhlopok" in Tashkent.

HYDRO POWER POTENTIAL OF THE CENTAL ASIA COUNTRIES

Countries	HPP Capacity, MW	Power generation by HPP (2005), bln. kW.h	Economic Hydropower capacity, bln. kW.h	Use of Hydro-power capacity, %	Share in Hydropower capacity of Central Asia %
Kazakhstan	2248	7,9	27	29	6
Kyrgyzstan	2910	14,0	142,5	14	22
Tajikistan	4037	17,1	317	5	69
Turkmenistan	1	0	2	0	0
Uzbekistan	1420	6,0	15	49	3
TOTAL	10616	45,0	503,50	10	100

Source: Report of SPECA «To strengthening of cooperation on rational use of water and power resources of Central Asia», UN, 2004, publications of Statistic Committee of CIS, materials of seminar «Dams and hydropower in Russia and other CIS countries», 2007


HYDROPOWER POTENTIAL
OF TAJIKISTAN
Kazakhstan
Uzbekistan
Kyrgyzstan
China
Afghanistan
Pakistan
India
Iran
Amudarya
Syrdarya
Kairakkum reservoir
Syrdarynskay
Khudjand
Kairakkum
Kurkat
Ura-Tube
Locnin
Osh
Ulugchat
AL-500 KV
AL-750 KV
Penjikent
Ainee
Matcha
Zeravshan
Magiyon
Kshtut
Fondarya
Ygnob
Hazara-1
Hazara-2
Sardaimona
Jirgital
Muksu
Balandkuk
Lakes Karakul
Kyzylsu
Markansu
Garm
Surkhob
Ragnov
Garmo
Muzkol
Lake Rangkul
Tehavr
Vanj
Darvoz
Obikhingou
Ykhsu
Vakhsh
Sorbo
Rogun
Dushanbe
Nurek
Nurekskoy reservoir
Tursun-zade
Baipaza
Sangtuda
Guzar
Surkhan
Mary
Meshhed
Surkhandarya
Chorkent
Karatag
Hanaka
Tirzob
Golovnaya
Kurgan-tube
Centralnaya
Tigersu
Kulab
Panj
Shiva
Yazgulem
Anderbag
Savnob
Lake Sarez
Tarvmas
Kokuybelsu
Murgab
Ak-Su
Oksu
Bartang
Sponj
Shujand
Lake Yachilkul
Alichur
Suluestuk
Horog HPP
Gunt
Pamir HPP-1
Pamir
Lake Zorkul
Horog
N.Lenin
Shakhdara
Oksy
Vahandarya
Kafirnigan
Amu-Darya
Upper-Amudaryinskaya
Kunduz
Kokcha
Namangan
In force HPP
In construction HPP
Perspective HPP
Mary
Meshhed
Gerat
Kabul
Jalalabad
Peshovar

BENEFITS FROM HYDROPOWER DEVELOPMENT

To ensure water security and guaranteed water for irrigation of all Central Asian countries in dry years by building reservoirs to regulate river flow in long-term and seasonal aspect.

The construction of only Roghun HPP with reservoir capacity of 13,3 km3 in Tajikistan will provide reliable irrigation of about 4 million hectares of land the Amu Darya basin in dry years, as well as learn more than 300 thousand hectares of new land.

BENEFITS FROM HYDROPOWER DEVELOPMENT

Development of cheap and environmentally clean electricity, which could meet the growing demand not only in Tajikistan, but also neighboring countries.

Over the last 10 years the people of Tajikistan live in conditions of severe shortages in the winter. For the third year in a row because of the termination of transit, in the coldest period of the year the population of the country electricity is 2-3 hours a day, and in some areas the population and did not get electricity for 2-3 months in a row.

BENEFITS FROM HYDROPOWER DEVELOPMENT

Hydropower development also contributes to a significant reduction in emissions of carbon gases. Thus, hydropower development and fits well into the mainstream of efforts at the global level, the steps for the transition to renewable energy, regarded now as a top priority in the way of improvement of the ecology of our planet.

Out of more than 200 countries, Tajikistan in terms of specific emissions of carbon dioxide (CO2) is located at 154 place. Greenhouse gas emissions per person in Tajikistan make up less than 1 ton per person per year, while its share of emissions at the regional level is only 5%.

BENEFITS FROM HYDROPOWER DEVELOPMENT

Development of cheap hydroelectric power would save a lot of oil, gas and coal, which are intensively used by some countries in the region to produce electricity. Thus, hydropower is also important from the perspective of sustainable use of natural resources in the long term.

According to the strategy of regional cooperation on rational and efficient use of water and energy resources of Central Asia, developed by experts in the region under a special UN program - SPECA, oil and gas reserves in the region remained for 60 years. With the depletion of these reserves will need to switch to coal or nuclear power, which are known for their "environmental purity." Thus, Central Asia can not really expect brighter prospects.

BENEFITS FROM HYDROPOWER DEVELOPMENT

Water storage will help prevent such extreme weather events like droughts, floods, mudslides and floods each year causing enormous economic damage to almost all countries in the region.

BENEFITS FROM EFFECTIVE WATER & ENERGY COOPERATION IN CENTRAL ASIA

EFFICIENT & USEFUL WATER RESOURCES MANAGEMENT;

INCREASING OPPORTUNITY OF THE ELECTRICITY EXPORT;

HUGE ECONOMICAL EFFECT AT THE RATE OF 5% REGIONAL GDP;

SUSTAINABLE USE OF THE NATURE RESOURCES FOR LONG TERM PERSPECTIVE;

ENSURING THE REGION WITH CHEAP & ENVIRONMENTLY FRIEND ELECTRICITY;

ADAPTATION TO THE CLIMATE CHANGE AND EFFECTIVE FIGHT AGAINST NEW CHALLENGE;

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BENEFITS FROM EFFECTIVE WATER & ENERGY COOPERATION IN CENTRAL ASIA

Tajikistan clearly understands that its own energy security can not be achieved at the expense of the security of neighboring states. The measures taken for the construction of water and energy facilities are primarily aimed at balancing the energy and water issues and mobilize their own resources to achieve the stability of the entire Central Asian region.

TAJIKISTAN IS READY TO DISCUSS ALL ISSUES RELATED WITH WATER & ENERGY RESOURCES USE WITH ALL REGIONAL COUNTRIES IN MUTUAL RESPECT & BENEFIT, CONSTRUCTIVE AND EQUAL RIGHTS MANNER!

Thank you for your attention!