



PEER research project
“Transboundary water management
adaptation in the Amudarya basin to
climate change uncertainties”



Amudarya – the great river in anticipation of momentous decisions

Prof. Viktor Dukhovniy,
Dr. Dinara Ziganshina,
Dr. Galina Stulina,
Ir. Anatoly Sorokin

- SIC ICWC in Central Asia
- Eastern European Caucasus Central Asia Network of Basin Organizations



International Summit on "Water and Climate; Meeting of the Great Rivers of the World",
23-25 October 2017 Rome, Italy

Amudarya – a river of 5 states

Climate change impacts in the Amu Darya river basin



Sources: Second National Communications on climate change of Tajikistan, Turkmenistan and Uzbekistan; Climate Change in Central Asia: A visual synthesis report (2009); Environment and Security in the region: regional consultations in Ashgabat (Sep 2007) and Kabul (Nov 2007) and regional field missions (May 2008).

Hydrological scheme of Amudarya river basin (ASBmm)

Rogun

Natural river runoff and intake of water

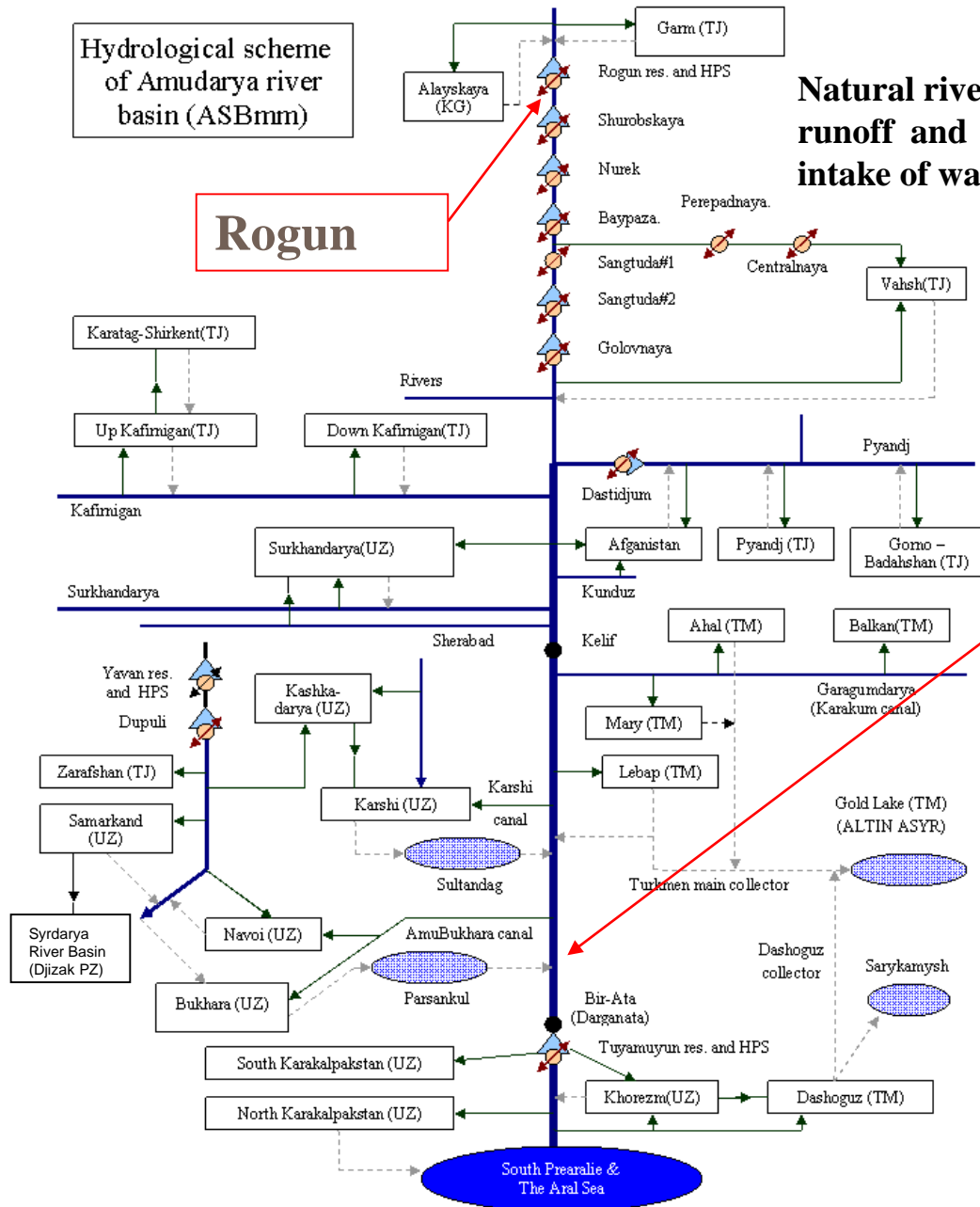
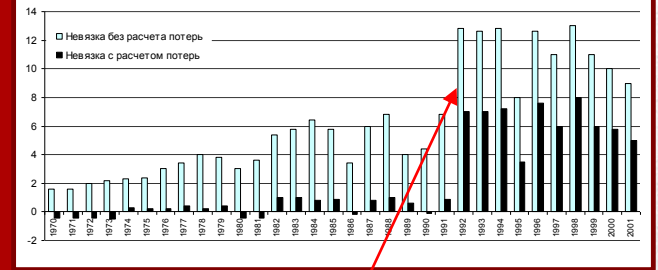
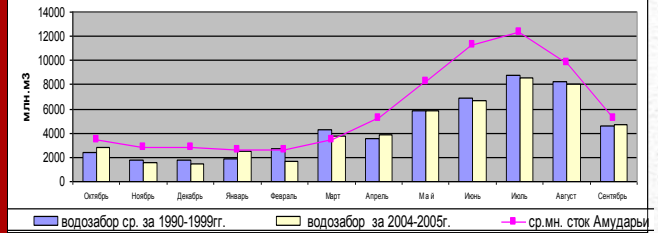
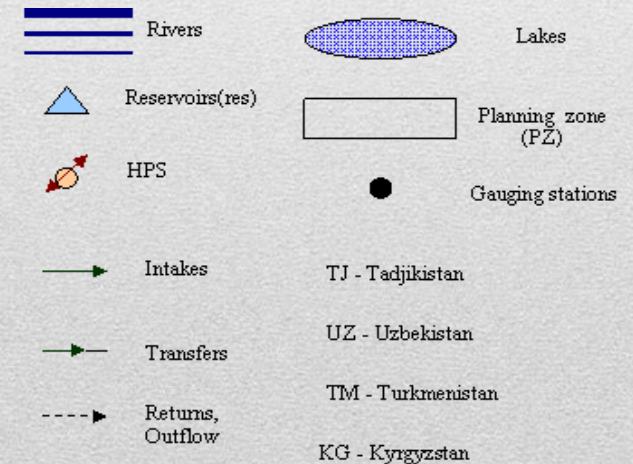


Рис. 1.1. Сравнение естественного стока Амударьи с водозабором из реки.

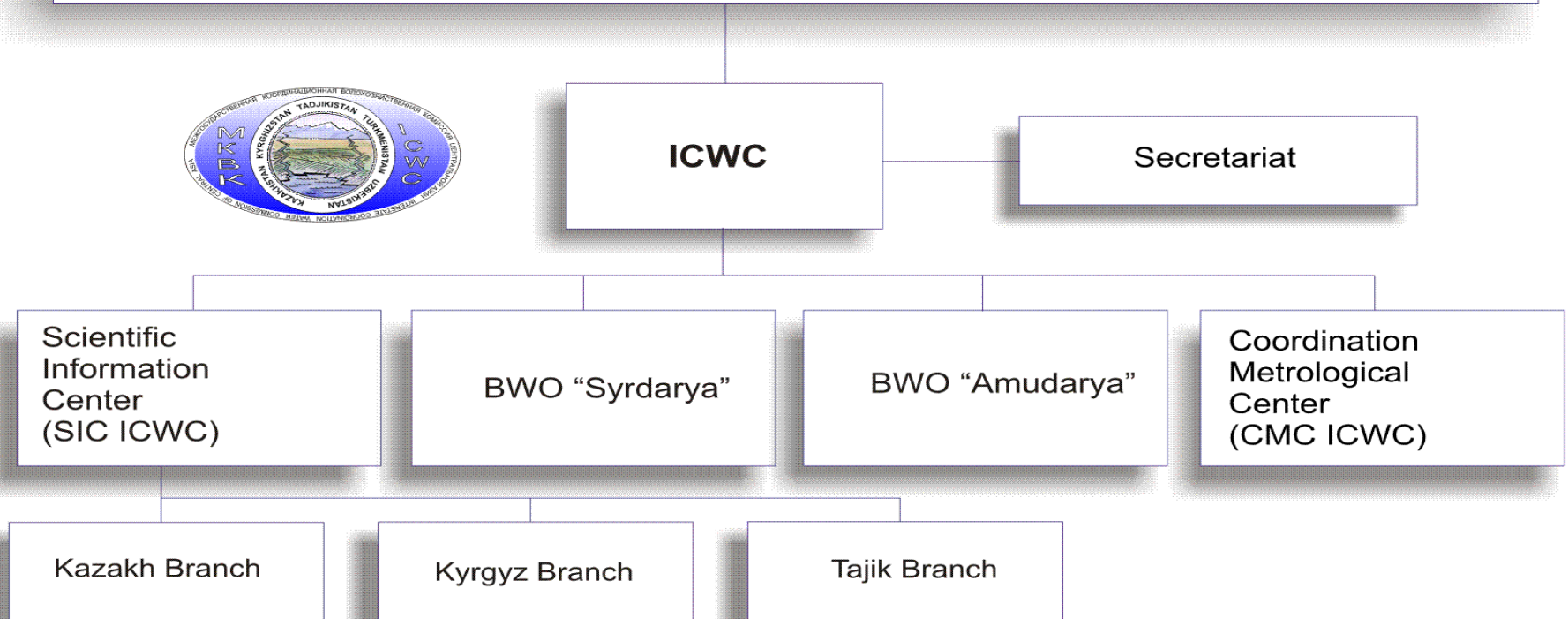


Increase of losses after 1993



STRUCTURE of Interstate Coordination Water Commission of Central Asian states

FOUNDERS OF ICWC



Water allocation between riparian states

States	km ³ /year	%%
Uzbekistan	29.6	48.2
Tajikistan	9.5	15.4
Kyrgyz Republic	0.4	0.6
Turkmenistan	22.0	35.8
Total:	61.5	100

ICWC in Central Asia – heads of national water agencies of 5 Central Asian countries

BWO Amudarya

BWO Syrdarya

SIC ICWC

National hydromet services

Provincial water management organizations

Upper Darya Division in Kurgan-Tvube, Tajikistan

operates 8 water intake structures, controls water intakes from rivers Vakhsh, Pyandj, Kafirnigan (on the territory of Tajikistan) and on the Amudarya River 246 km reach to Kelif gauging station

Melioration & Water Resources Administration, Hatlon district in Tajikistan
287300 th.ha

Amu-Surkhan BISA in UZB –
108520 th.ha

Middle Darya Division in Turkmenabad, Turkmenistan

operates 9 big river water intakes, controls water intakes at the Amudarya River 552 km reach from Kelif to Darganata gauging stations

Garagumdarya in TM –
698000 th.ha

Amu- Kashkadarya BISA in UZB -
332000 th.ha

Lebabsuvhodjalyk in TM
314157 th.ha

Amu-Bukhara BISA in UZB –
323000 th.ha

Amudarya Inter-republican Canals Division (Upradik) in Urgench, Uzbekistan

operates 11 river water intakes, 52 hydrostructures on main canals, 386 km of main canals, controls water intakes within river 167 km reach from the Tuyamuyun hydrounit to the Kypchak gauging station

Dashoguzsuvhodjalyk in TM –
223312 th.ha

Lower-Amudarya BISA in UZB –
373573 th.ha

Lower Darya Division in Takhiatash, Uzbekistan

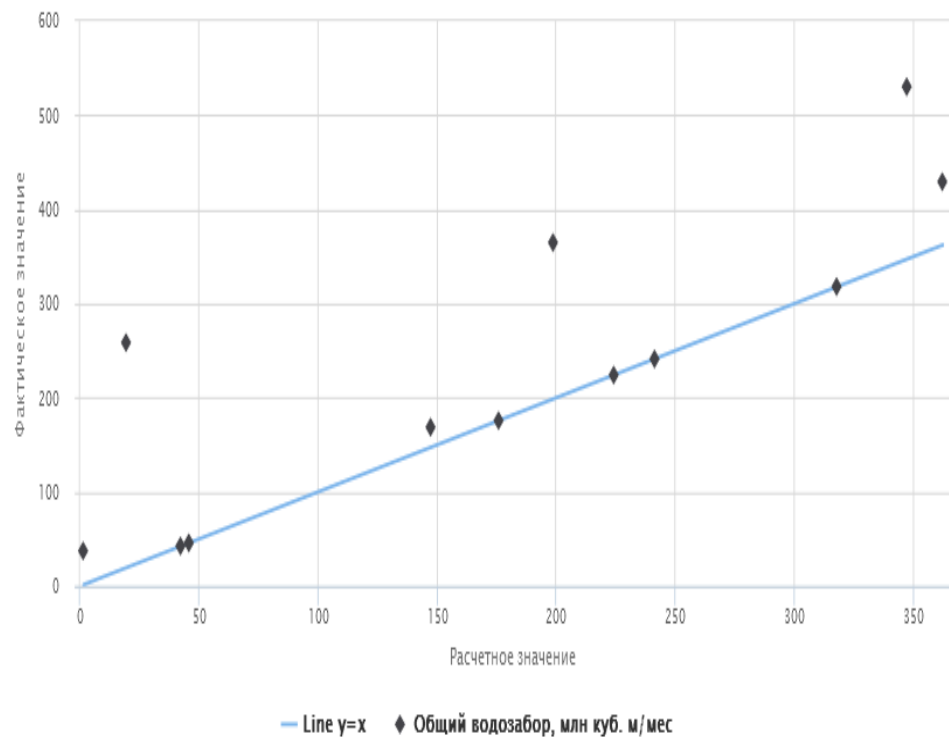
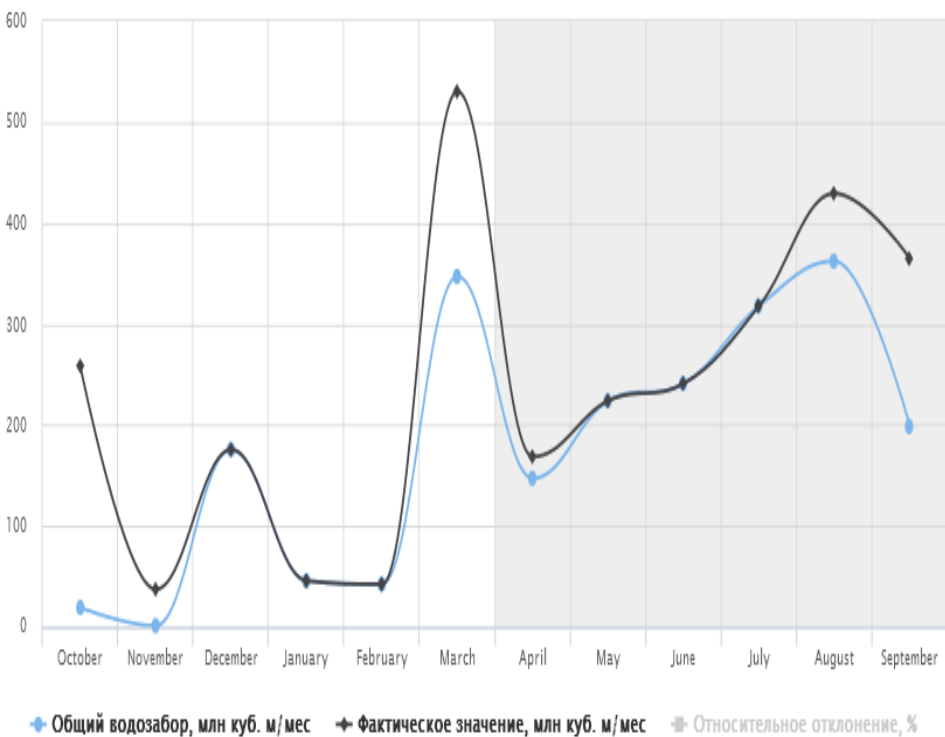
operates Takhiatash hydrounit, head water intakes of canals Khan-yab & Jumabaysaka, controls all water intakes from river within 283 km reach from Kypchak gauging station to Aral Sea

Dashoguzsuvhodjalyk in TM –
194250 th.ha

Lower-Amudarya BISA in UZB –
411963 th.ha

Reduction of vegetation period of cotton





Modeling water demand of planning zone in comparison with actual

Challenges

Challenge	Water
Demographic pressures (320 th.persons/year)	2.5 km ³
Reductions of flow due to climate change	1.5 km ³
Growth demand of North Afghanistan	3.0 km ³
Growth of water demands in irrigation lands of Tajikistan, Turkmenistan and Uzbekistan	1.0 km ³
Total	8 km³

Adaptation measures

- Implementation of IWRM in the basin
 - Reassessing water demands of irrigated lands, taking into account the advantages of temperature growth (Dr. Stulina's research findings)
 - Implementation of SCADA system.
 - Shift in regimes of flow regulation from priority hydropower production to combined hydropower and irrigation regime
-



Data, information & knowledge management

Databases & regional info systems

- ✓ Practical tool to assess water situation with data on water availability, distribution, reservoirs operation, losses, environmental flows, etc

Analytical models

- ✓ Aral Sea Basin Management Model (ASBmm)
- ✓ Scenarios for water management situation in Amudarya & Syrdarya

Knowledge base

- ✓ 14 thematic knowledge bases
- ✓ Knowledge tools: reference database, glossaries, e-library, reviews & training materials
- ✓ Rubricator with 13 sections

Publications

- ✓ distribution to government officials, policy makers, development partners, and scholars within Central Asia and beyond;
- ✓ more than 900 books & brochures in more than 400000 copies



Main features:

- Ensuring that **all levels of water hierarchy** are covered by **demand-driven training**
- Building new **skills and knowledge** but also fostering new **mindset and attitudes**
- Enhancing linkages between **training, applied research and best practices**
- Introducing an **innovative cycle of knowledge transfer**
- Link to **user-friendly databases and knowledge bases**
- Providing a **platform for communication and dialogue** to foster peaceful cooperation
- Investing in the **future water leaders**



Key training modules (1) Integrated Water Resources Management, (2) Improvement of Irrigated Agriculture, (3) International Water Law and Policy, and (4) Regional Cooperation on Transboundary Waters.

- We expect that it is possible to transform effect of climate changes in positive view - to use increase of temperature for reduction vegetation period of crops and to reduce on this base water consumption;
- - Implementation of IWRM permitted to reduce water demand especially in water scarce years (2008) that was control for our decision;
- -Dissemination of information about water expected situation and measures for readiness to it should be bring to each water entities and each water users by two ways - special information portal (50 GB information on each case of water life with 8 thousands visitors each days) and regular training.

Conclusion



Thank you for your attention!

Learn more

http://cawater-info.net/projects/peer-amudarya/about_e.htm
