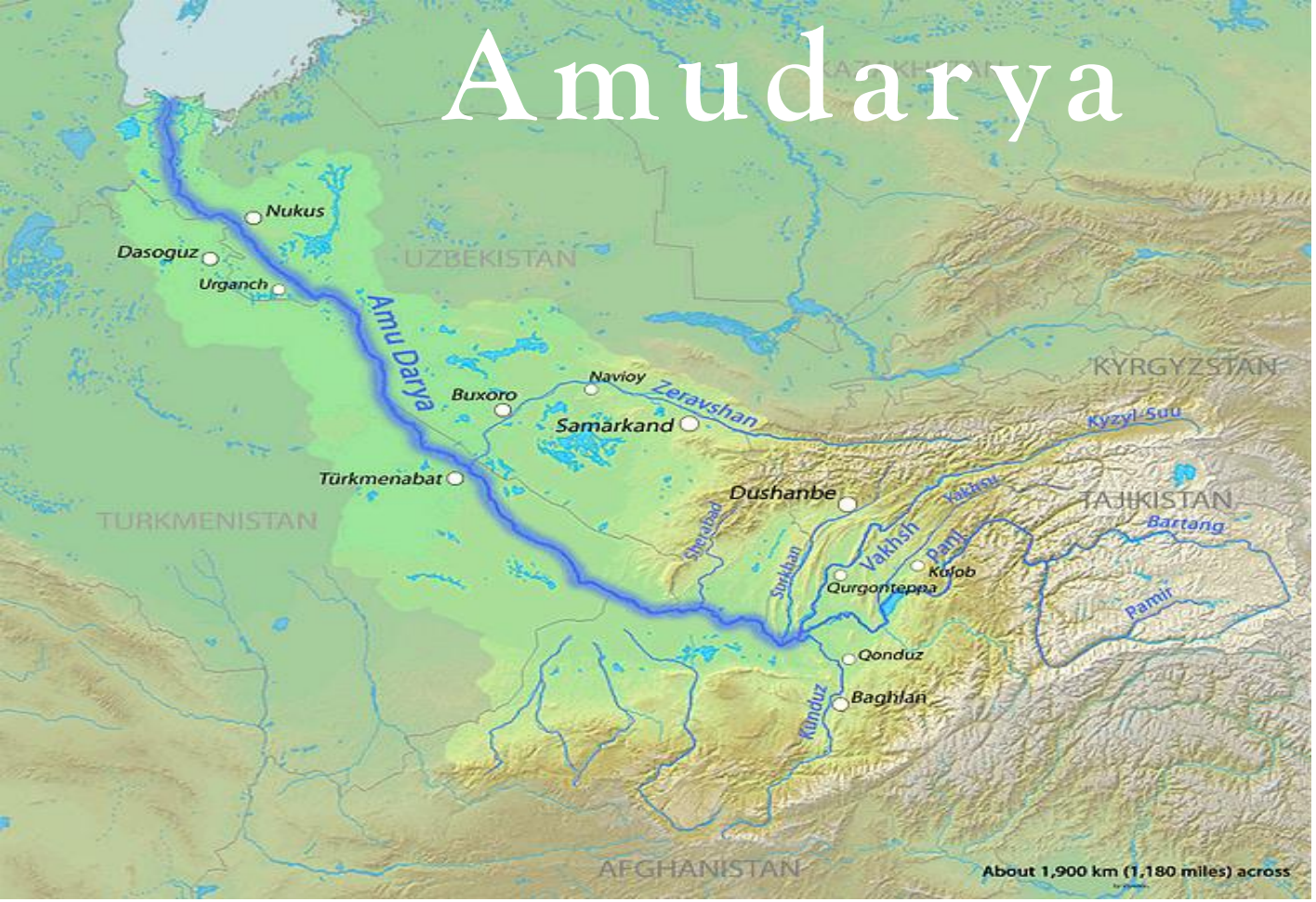
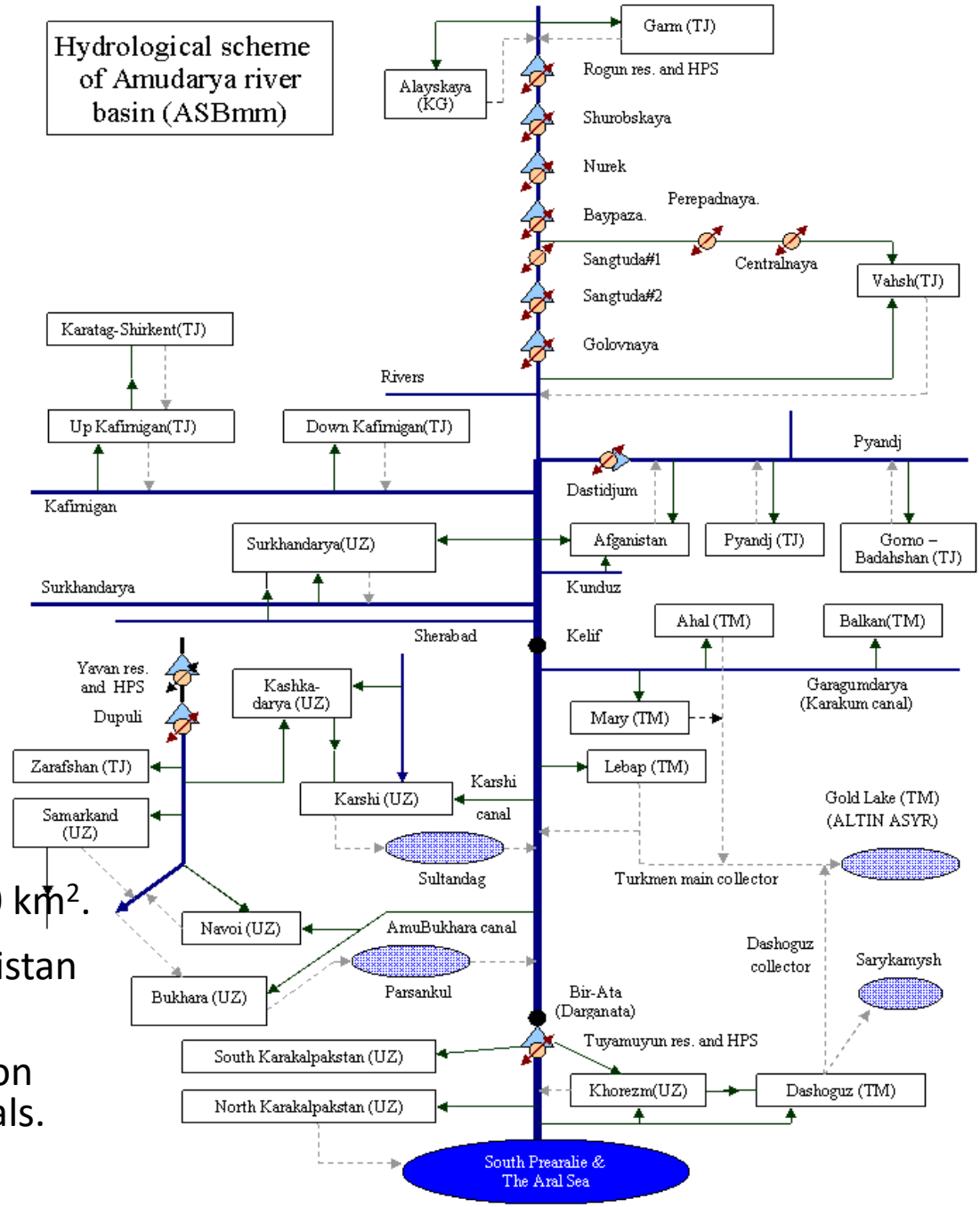
16th International Conference "Europe-INBO 2018"
Seville – Spain - 17 - 20 October 2018

Future of the Amu Darya Basin in the context of adaptation to climate change

Oygul Usmanova
Scientific Information Center
of Interstate Commission for Water Coordination in Central Asia (SIC ICWC)

Amudarya



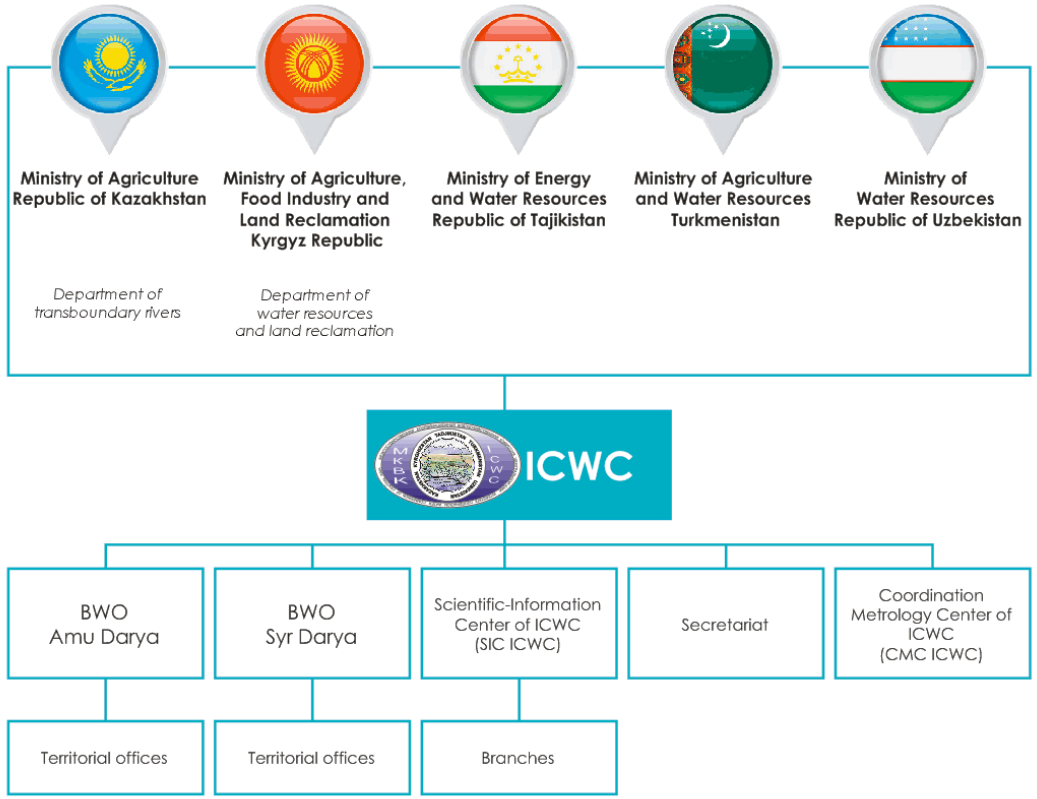


Annual runoff: 78.4 km^3/year, three main tributaries **Catchment**: 309,000 km^2.

Riparians: Afghanistan (~13%), Kyrgyzstan (2%), Tajikistan (74%), Turkmenistan (1.7%) & Uzbekistan (8.5%).

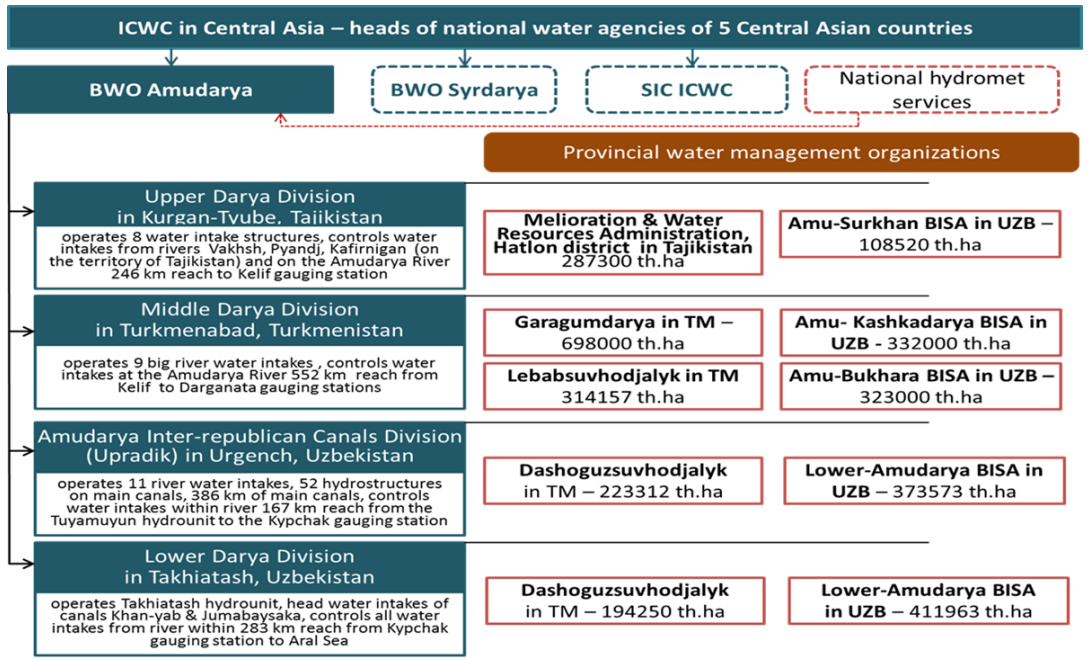
Flow regulation: Nurek on Vakhsh (total capacity 10.5 km3), Tuyamuyun on Amudarya (total capacity 7.3 km3), a network of small reservoirs & canals. **Proposed large facilities**: Rogun on Vakhsh & Dashtidjumn on Pyandzh.

TRANSBOUNDARY WATER MANAGEMENT



Regional level –
Interstate Commission for Water Coordination in Central Asia

Annual and daily operational basin water management –
Basin Water Organization for Amu Darya



Water allocation between states

Water allocation set on the basis of the countries' historical and present water use, the area of irrigated land in use, and estimated unit water use against the level of full water exhaustion (Protocol 566)

Withdrawal limits for basin countries	Reservoir operation regimes	Inflow to the Aral (deltas) and the Priaralie
Kyrgyzstan – 0,6% Tajikistan – 15,4% Turkmenistan – 35,4% Uzbekistan – 48,2%	Growing & non-growing seasons	Minimum sanitary flow - 3.15 км^3/year

Afghanistan's share (2.10 км^3/year) taken from 'available water resources"

Water allocation in the Amu Darya River Basin is mainly **conflict-free**.

EMERGING ISSUES

- **Growing water demand** due to population growth and socio-economic development - Demographic pressures 320 th.persons/year
- **Climate change** - estimated reduction of flow by 1.5 km^3 (moderate warming scenarios)
- **Late irrigation development** in Afghanistan - water diversion increase by 3 km^3 by 2050
- Potential changes caused by **hydropower development**

- Completion of large Rogun dam and possible construction of Dashtijum dam – 2 km^3

- Imperfect **legal and institutional framework** - different interests of riparians; weak compliance and dispute settlement provisions; existing agreements lack provisions for future potential changes;

Thus, in our estimations, the **total water deficit** is expected to be

9.6-10 km^3 in the Amu Darya Basin in average flow years.

ADAPTATION MEASURES

- **Reduce river flow losses** at interstate level – catch 3-4 km^3

- Improve **accuracy of water accounting**

along main and inter-farm canals – effect 3.7 km^3

- Change **flow regulation** regimes – effect 3 km^3;

- Adapt **legal framework** and make it flexible;

Рис.3.18. Сокращение периодов вегетации (хлопок ранний)

-Revision of **irrigation scheduling** and **norms**

potential saving - 12-15% of net consumptive water use or approx.700-800 m^3/ha – effect 1.4-1.6 km^3

- Use of **drainage waters** – additional 2 km^3

- W**ater saving** platforms

Learn more

on the project that seeks to build adaptive capacity of the countries sharing the Amudarya basin to manage effectively their transboundary waters under climate change and other uncertainties at http://cawater-info.net/projects/peer-amudarya

Visit our web-portal:

cawater-info.net