

INTEGRATED WATER RESOURCES MANAGEMENT IN THE ARAL SEA BASIN

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SIC ICWC

Geography



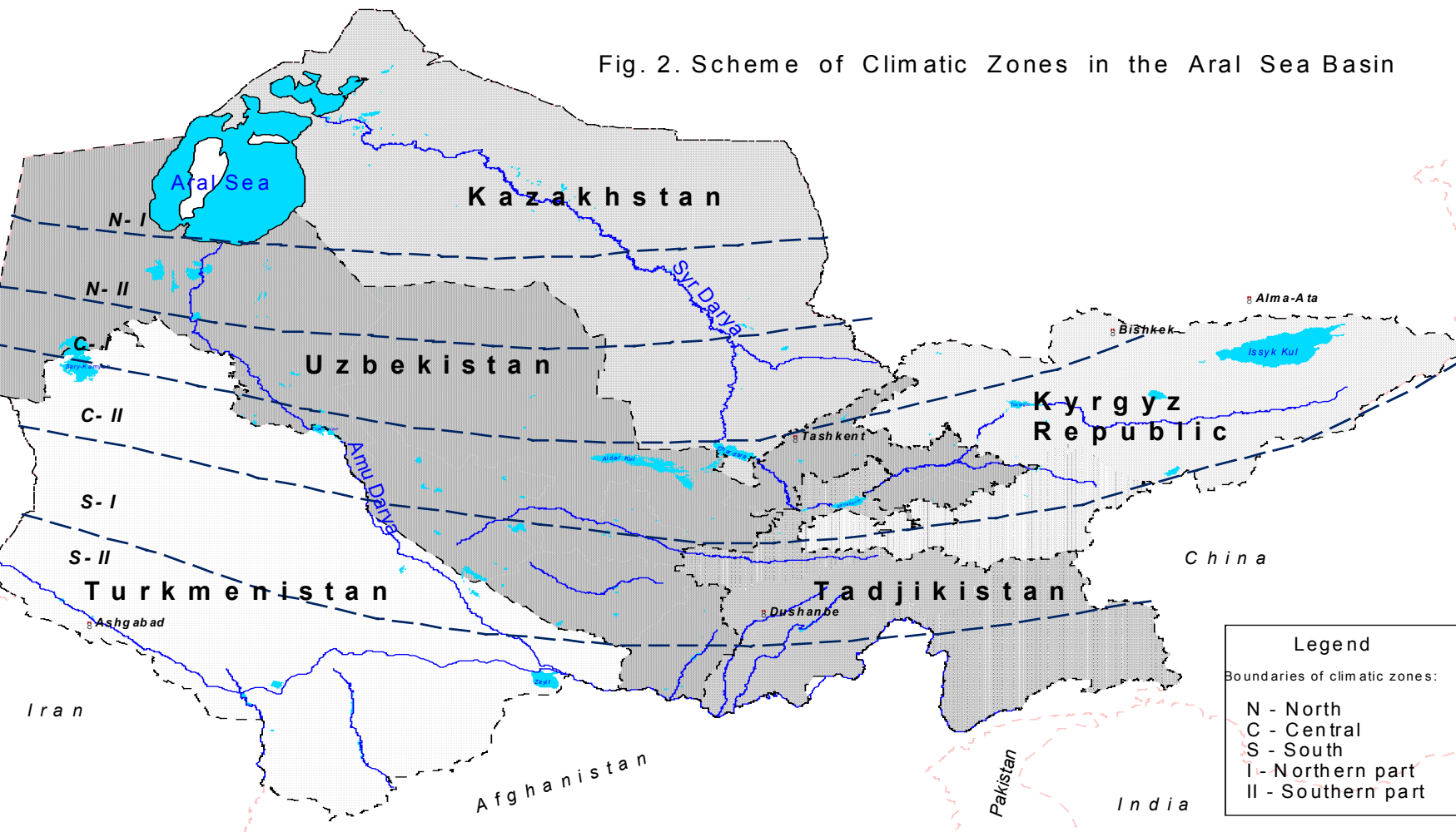
Land Resources in the Aral Sea Basin

Country	Area of the country, mln. ha	Cultivable area, mln. ha	Cultivated area, mln. ha	Actually irrigated area, mln. ha
Kazakhstan*	34,4	23,9	1,66	0,77
Kyrgyz Republic*	12,5	1,26	0,59	0,42
Tadjikistan	14,3	1,57	0,77	0,72
Turkmenistan	48,8	7,01	1,81	1,73
Uzbekistan	44,9	25,4	5,21	4,23
The Aral Sea Basin	154,9	59,14	10,04	7,85

* Only provinces in the Aral Sea basin are included

Scheme of Climate Zones in the Aral Sea Basin

Fig. 2. Scheme of Climatic Zones in the Aral Sea Basin



Surface Water Resources in the Aral Sea Basin (Mean Annual Runoff, km³ / year)

Country	Syrdarya River Basin	Amudarya River Basin	Total Aral Sea Basin	
Kazakhstan	2.516	-	2.516	2,2
Kyrgyz Republic	27.542	1.654	29.196	25,2
Tadjikistan	1.005	58.732	59.737	51,5
Turkmenistan	-	1.405	1.405	1,2
Uzbekistan	5.562	6.791	12.353	10,6
Afghanistan and Iran	-	10.814	10.814	9,3
Total Aral Sea Basin	36.625	79.396	116.021	100

Groundwater Reserves and Use in the Countries within the Aral Sea Basin (km³ / year)

State	Estimated Regional Groundwater Reserves	Reserves Confirmed for Extraction	Total Actual Extraction	Including different users and purposes				
				Domestic water supply	Industry	Irrigation	Vertical Drainage wells	Other
Kazakhstan	1,85	1,22	0,42	0,29	0,12	0	0	0,01
Kyrgyzstan	0,86	0,67	0,41	0,04	0,06	0,31	0	0
Tajikistan	6,65	2,20	0,99	0,34	0,09	0,55	0	0,01
Turkmenistan	3,36	1,22	0,46	0,21	0,04	0,15	0,06	0,12
Uzbekistan	18,45	7,80	7,75	3,37	0,72	2,16	1,35	0,16
Total Aral Sea Basin	31,17	13,11	10,03	4,25	1,03	3,17	1,41	0,3

Central Asia – heritage: positives and negatives

The region has inherited followings from the Soviet period:

Positives:

- ▶ Huge water infrastructure;
- ▶ Strict governing and planning of water resources management from top till down and allowed maintaining of the whole complex system in the same way;
- ▶ High level of technical skills, close cooperation of water specialists of various republics;
- ▶ Establishing of BWOs;

Negatives:

- ▶ Neglecting of the public opinion and participation;
- ▶ Lack of the attention to ecological requirements;
- ▶ Administrative-commanding systems, absence of the transparency and access to information;
- ▶ Incapacity to accept the market mechanism, absence of payable of water use;

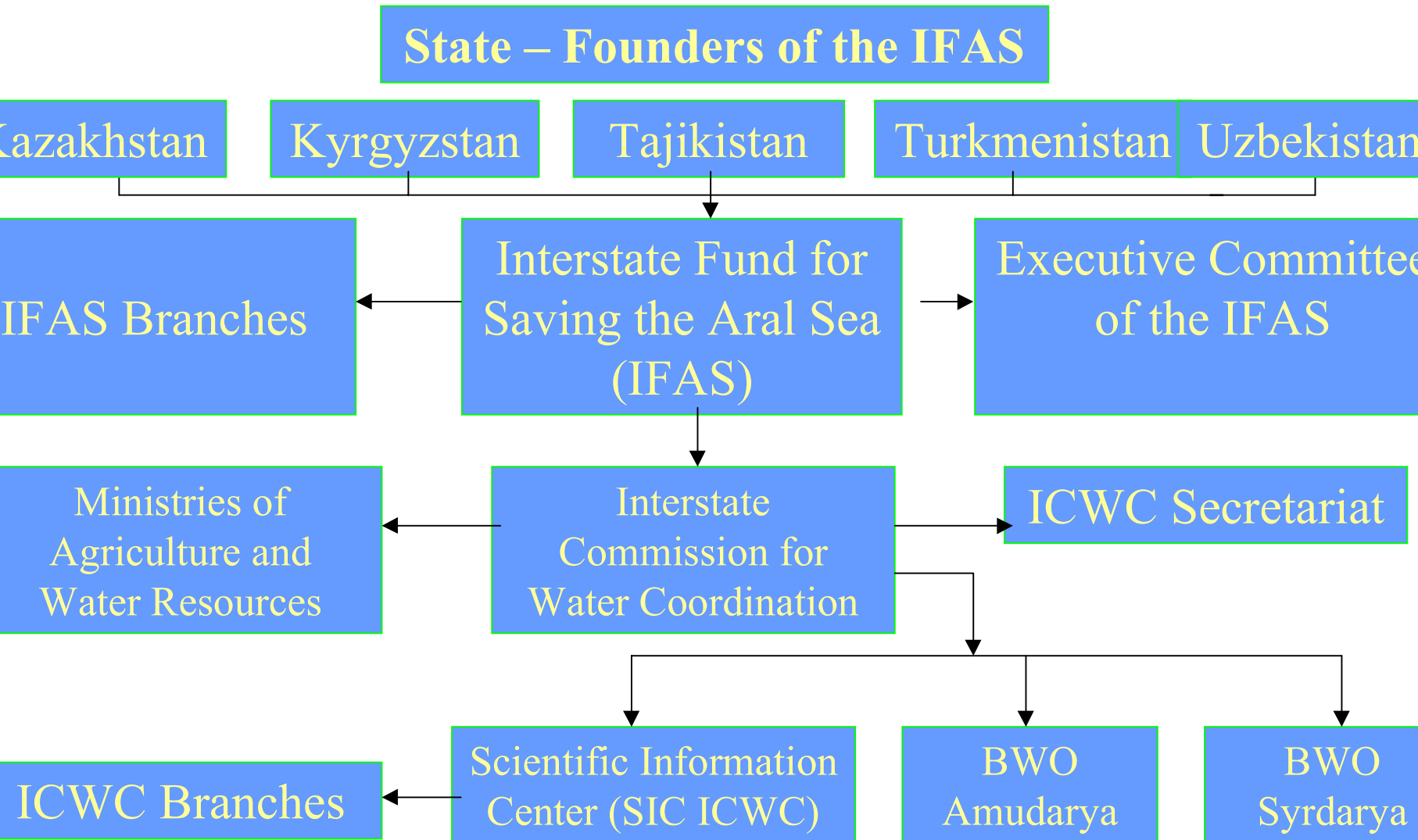
Chronology of the Interstate Events

- ✓ 1986 – Decree of Soviet State No 1088 on “Improvement of social and ecological situation in the Aral Sea Basin”
- ✓ 1987 – Creation of BWO “Syrdarya” and BWO “Amudarya”
- ✓ September, 1991 – Creation of the ICWC
- ✓ February, 1992 – Agreement about collaboration in the field of joint water resources management of the Interstate Councils of the Aral Sea Basin
- ✓ March, 1993 – Decision of State Heads about organization of the International Fund for saving the Aral Sea (IFAS) and Interstate Councils of the Aral Sea

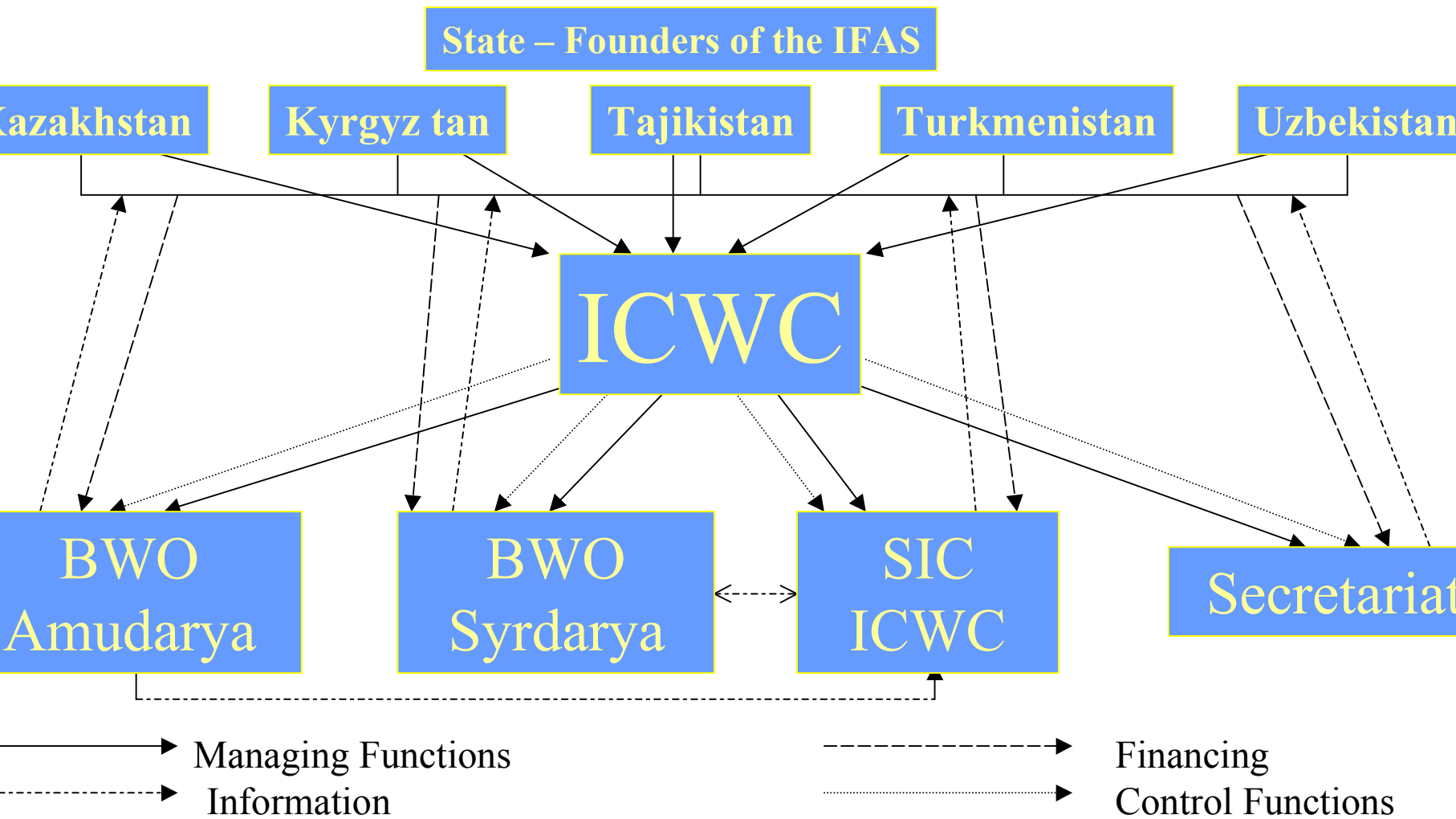
Chronology of the Interstate Events (cont.)

- ✓ January, 1994 – Decision of State Heads on “The program of concrete actions for improvement of ecological and socio-economic situation in the Aral Sea Basin”
- ✓ June, 1994 – Donors conference in Paris for support community
- ✓ September, 1995 – Nukus Declaration
- ✓ April, 1997 – Decision of State Heads about Joint International Fund for the Aral Sea
- ✓ April, 1999 – Decision of State Heads about Adoption of Status of the IFAS Institutions

Interstate Water Resources Management Structure in the Aral Sea Basin



Functional Interrelations between Water Resources Management Organizations on Regional level



WATER MANAGEMENT AT THE NATIONAL LEVEL

	Disadvantages		Measures
1.	Sectoral approach leaded by agriculture	1.	Creation of inter-sectoral public and non-govermental national and provincial bodies.
2.	Administrative principle of water management.	2.	Basin and system approach to water management on hydrographic basis.
3.	Weak public participation at the local level.	3.	Transfer to WUA.
4.	Absence PIP on national and provincial levels.	4.	Organizing of WUA corporations on national and systems levels.
5.	Indefinite of financial policy on government participation.	5.	Strict regulation of full covering expenses by private and public sectors.
6.	Weak attention to Water Saving.	6.	Organization on Water Saving competition. Public awareness about water importance.

ACTION Plan and Vision for future

Short-term action Program

- Organization extensive water saving and agricultural services at the local level
- Establishment the Basin Water User's Counsels in the River Basin River Authorities (BWOs)
- Network of Independent consortiums
- Development of the common information system on water use and management
- Implementation of the SCADA systems for the management of the infrastructure at the interstate and intersystem levels

➤ *In case of successful implementation of the above measures, water use will not exceed 90 km³ per annum by 2010.*

ACTION Plan and Vision for future (cont.)

Medium-term Action Program (2010-2025)

- ◆ Development of a system of mutual benefit and regional cooperation in agricultural production
- ◆ Create a technical base to develop a local (drip, microsprinkler, etc.,) irrigation systems
- ◆ Develop the management systems for water allocation in the upper catchments
- ◆ Wide use of waste and saline drainage water for irrigation

In case of successful implementation of the above measures, water diversion will not exceed 75 – 80 km³ per annum.

ACTION Plan and Vision for future (cont.)

Long-term Action Program (2025-2050)

- Automation of water operation, water supply and drainage flow management
- Development the system of strict distribution of drainage water
- Management and use of drainage water by cascade management for growing salt-resistant crops and forestation of unproductive lands
- Developing full irrigation facilities over the whole of the irrigated area
- Developing methods for the control of changing soil conditions and assessing the consequences of these changes

➤ *In case of successful implementation of the above measures water diversion will not exceed 75 km³ per annum.*

The main principles of future progress in the water sectors and irrigated agriculture

Improve cooperation of governmental and non-governmental organizations on the management of transboundary river basins

Develop common political approaches and measures for preventing transboundary water pollution

Develop and implement (interstate) regional investment projects, attract funds from international and bilateral donors for a well balanced use of water in the Aral Sea Basin

Gradually reduce surface water diversion and increase the water demand of the environment of transboundary rivers and the Aral Sea zone as natural consumers (water users)

Develop and implement measures for creation of a sustainable ecological profile around the Aral Sea

Develop a plan for a common agricultural market in Central Asia. This plan should include the regulation of custom procedures, import tax, etc.

CONCLUSION

Using a new philosophy, “water is sacred”, the society can survive, by rehabilitating its ancient traditions and using international experiences in efficient water management and use

Under the conditions of market-oriented economy, great attention should be paid to low-cost activities and reducing organizational losses through the introduction of the appropriate economic, information, legal and organizational mechanism for water conservation

Public awareness should become a basis for society to influence and change the attitudes of water users and government bodies