TA 6163-REG:
Improved Management of Shared Water Resources in Central Asia

FINAL REPORT

Prepared by
Chu Talas Joint River Commission
and Scientific-Information Center
of Interstate Commission for Water Coordination
in Central Asia

for

Asian Development Bank
Water Resources Committee of Kazakhstan,
Water Economy Department of the Kyrgyz Republic,
Ministry of Water Resources and Land Reclamation of Tajikistan,
Ministry of Water Resources of Turkmenistan and
Ministry of Agriculture and Water Resources of Uzbekistan

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Volume I

Improving Trans-boundary Water Management on a Pilot Basis (Chu and Talas River Basins)

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ABBREVIATIONS

ADB	Asian Development Bank
AMS	Administrative and Management Staff
BWMD	Basin Water Management Department
CAR	Central Asian Region
CNR	Construction Norms and Rules
CSKR	Control Structure of Kirov Reservoir
HPP	Heat and Power Plant
HPS	Hydro-Power Station
ISD	Irrigation Systems Department
MAWRPI	Ministry of Agriculture, Water Resources and Processing Industry (the Kyrgyz Republic)
MIS	Management Information System
MOA	Ministry of Agriculture (Kazakhstan)
OSCE	Organization of Security and Cooperation in Europe
O&M	Operation and Maintenance
UN ECE	United Nations Economic Commission for Europe
UN ESCAP	United Nations Economic and Social Commission for Asia and Pacific
WED	Water Economy Department
WRC	Water Resources Committee
WUA	Water Users Association

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4. The Organizational Structure of the Commission of Kazakhstan and the Kyrgyz Republic on the use of interstate water facilities on Chu and Talas Rivers
5. A draft Protocol on revisions and amendments to the Agreement between the Government of the Kyrgyz Republic and the Government of Kazakhstan on the use of interstate water facilities on Chu and Talas Rivers

EXECUTIVE SUMMARY

Joint use of water resources in transboundary basins is one of the key directions for regional cooperation among the Central Asian Republics (CAR). This is caused by dependence of most of the sectors of economy and environment from availability of safe fresh water resources in natural sources and their rational use. During the recent decades the region faces the trends of degradation of water ecosystems, increased shortage of water resources and their pollution. The risks of further aggravation of these challenges due to increasing water consumption require adequate reaction from national water management and nature protection agencies of the CARs, including improved coordination among them. The experience of international water partnership indicates that joint basis institutions such as multilateral commissions could serve as an effective mechanism for such interaction.

An Agreement between the Government of the Kyrgyz Republic and the Government of Kazakhstan on the use of interstate water facilities on Chu and Talas Rivers signed in 2000 provided a legal framework for establishment of bilateral commission aimed at regulating joint water management activities on the territory of the abovementioned basins.

The process of establishment of this Commission was successfully accomplished in 2006, largely due to support from international organizations. In particular, during 2003-2006 notable organizational, financial and methodological support was provided by UN Economic Commission for Europe (UN ECE), UN Economic and Social Commission for Asia and Pacific (UN ESCAP), European Union (EU) and Organization for Security and Cooperation in Europe (OSCE). The Asian Development Bank (ADB) during 2005-2007 under its RETA 6163: Improved Management of Shared Water Resources in Central Asia has made considerable contribution by providing support to establishment of the Commission and organizing the work of its permanent Secretariat and experts' groups during the initial stage of their formation.

This report highlights main outcomes of activities accomplished under ADB RETA 6163: Improved Management of Shared Water Resources in Central Asia as part of Activity 1: Improving Trans-boundary Water Management on a Pilot Basis (Chu and Talas River Basins). These activities were aimed at implementation of the following tasks:

(a) assess climatic, hydrological and socio-economic aspects, technical condition of water management infrastructure and other specific factors that have impact on water use and bilateral water management in the Chu and Talas river basins;

(b) assess current water legislation and legal and regulatory framework of Kazakhstan and the Kyrgyz Republic, and perspectives of their development in the context of international water law;

(c) assess existing institutional systems for water resources management and perspectives of their development under the model of integrated water resources management with participation of representatives of water users associations and communities;

(d) summarize experience in establishing a bilateral commission and develop policies and concrete procedures for short-term and long-term operation of the commission;

(e) summarize past experience of joint financing of operation and maintenance (O&M) costs for interstate water facilities;

(f) develop sustainable mechanism for financing operation of the commission and perspective investment plans for O&M of interstate facilities by applying a scheme of joint and external financing of these costs;

(g) assess existing and necessary information for efficient operation of the commission and develop recommendations on improving information exchange among national and basin water management authorities;

(h) develop recommendations on further improving legal and regulatory framework regulating bilateral water relationship in transboundary basins;

(i) disseminate required information though a series of training workshops and through a web-site.

Final materials related to implementation of these tasks are provided in details in reports of the Secretariat and four expert groups.

Informational base, recommendations and concrete technical solutions developed in accordance with the terms of reference of RETA 6163 will serve as a reliable basis for future operation of the Commission and its Secretariat.

In addition to that, ADB also assisted in institutional and technical capacity building. This includes detailed design, installation and commissioning of a management Information System at control structure of Kirov Reservoir, provision of office and computer equipment to selected interstate water management facilities. The use of this equipment, access to internet and modern water use technologies has improved capacity of national basin organizations in the water resources management and effective coordination. This also contributed to improving reliability and efficiency of data exchange among the water management authorities of the two countries.

This successful experience of joint efforts of executing agencies of Kazakhstan and the Kyrgyz Republic, international organizations and donors on creation of the Commission could be viewed as an example of effective cooperation and could be of interest to the neighboring countries in the region for replication on other transboundary river basins.

Figure 1: A map of the Chu and Talas Basins

I. BACKGROUND INFORMATION AND PERSPECTIVE DEVELOPMENT OF WATER USE IN THE CHU AND TALAS BASINS

A. General Description of the Basins

1. Chu and Talas river basins are located within the northern part of mountaneous Tian-Shan and eastern part of Turan depression (Figure 1) on the border territory of the Kyrgyz Republic (the Kyrgyz Republic) and Republic of Kazakhstan (Kazakhstan). The climate on the territory of the basins is continental and is changing as the altitude goes down from 2400 to 600 m on the territory of the Kyrgyz Republic and from 600 to 500 m on the territory of Kazakhstan. Both basins are characterized by diversity of climatic conditions typical for highly mountaneous and mountaneous steppe zones (the Kyrgyz Republic), mountaneous steppe, desert-steppe and desert zones (Kazakhstan).

2. The population of Jambyl province of Kazakhstan covering the territory of both basins is above 620,000 people. In the Kyrgyz Republic, on the territory of three provinces within the Chu basin the population is above 800,000 people, in Talas province it is more than 200,000 people. Population density in the Chu basin is significantly higher than in the Talas basin. The share of urban population in the Chu basin and in Kazakh part of the Talas basin is above 50% of total population, and in Talas province of the Kyrgyz Republic it is about 25% of total population. Surplus of labor resources is widely noted due to underemployment of able-bodied citizens, especially in the rural areas. Since 2001, stabilization of population in Jambyl and Talas provinces is noted while in Chu province inflow of migrants is evident.

3. Total area of the Chu river basin is 62,500 km², comprising 26,600 km² (42.5%) in the Kyrgyz Republic and 35,900 km² (57.5%) in Kazakhstan. The length of Chu River is 1,186 km, including 336 km on the territory of the Kyrgyz Republic. Total area of the Talas river basin is 52,700 km², comprising 11,430 km² (21.7%) in the Kyrgyz Republic and 41,270 km² in Kazakhstan. The length of Talas River is 444 km, including 217 km on the territory of the Kyrgyz Republic.

4. Irrigated area of the Chu basin within the Kyrgyz Republic is 329,000 ha in Chu province and about 33,000 ha in Naryn and Issyk-Kul provinces. Irrigated area of the Talas basin within the Kyrgyz Republic is 115,000 ha. Total irrigated area of both the basins on the territory of Kazakhstanis about 231,400 ha in Jambyl province and 1,300 ha in South-Kazakhstan province.

5. Agriculture occupies dominant place in the structure of economy. The share of crop production from irrigated lands, pastures, flood plains and hayfields during the last several years stays at above 2/3 of total volume of agricultural production. However, after 1991 development of new irrigated or rain-fed arable lands stopped, moreover, annually part of previously cultivated land was taken out of production, especially in Kazakh part of the basins.

6. Industry on the territory of both the basins is predominantly presented by mining, agricultural processing and construction enterprises. In Jambyl province important role is payed by chemical and mineral fertilizer manufacturers. Chu province is the most industrially developed region of the Kyrgyz Republic with relatively high concentration of food, construction and other industries. Following a long period of depression, in recent years, gradual increase of industrial production and intensive development of the service sector is being observed.

7. Total hydro-energy potential in the Chu basin is estimated at 360,000 kWt, and in the Talas basin 354,300 kWt. But this potential has not been used efficiently, mostly through a

cascade of small hydropower stations in the Chu Valley in the Kyrgyz Republic. On the plain terrains of Kazakhstan there are no conditions for construction of hydropower facilities, therefore power supply mostly comes from Jambyl HPS. Power supply of Chu and Talas provinces of the Kyrgyz Republic is arranged from the Cascade of Lower Naryn HPS and Bishkek Termal Power Station.

8. Natural environment on the territory of both the basins is characterized by peculiarities of natural and climatic conditions, man-made impacts and during the last decade tends to be relatively stable. However, there are notable signs of deforestation, decreasing number of grasses and bushes in the flood plains, and as a consequence, decrease of natural biodiversity due to deteriorated conditions of flora and fauna.

9. The main problems related to hazardous impact of water in the Kyrgyz part of the basins are intensive soil erosion caused by significant surface slopes, mudflows and landslides in the foothill valleys, deformation of river beds during flooding and flooding of vital infrastructure in the areas of high groundwater tables.

10. In Kazakh part of the basins decreases of environmental discharges in the downstream of Chu and Talas rivers are observed, which causes degradation of lake systems in the deltas, flood plains, meadows and hayfields. More than half of land resources available for production are considered to be in poor ameliorative condition and prone to desertification.

11. Currently, quality of surface and sub-surface water resources in the basins is assessed as satisfactory. However, there are facts of short-term increases of some pollutants in natural aquifers compared to permissible norms. In the surface flows previously unavailable ingredients have been noted: carbolic acid, zinc, copper, fluorides, oil products, etc. although in small quantities. The main water pollution sources are communal and livestock discharges, mining and processing industries, and transport. Serious danger is presented by waste storages of mining industries, especially those containing radioactive and toxic substances.

12. During the recent years there was no evidence of increased morbidity of population due to deteriorating water quality. Nevertheless, sanitary conditions of protection zones of potable water supply sources has deteriorated widely.

B. Water Resources

13. Water resources of Chu and Talas basins are formed from surface, subsurface and return waters. According to surveys conducted during 1960-1980, average annual flow of water resources for the Chu river basin is 6.64 km², and for Talas river basin – 1.62 km². More recent surveys confirm the correctness of these estimations with annual fluctuations not exceeding ±6 %. Water agencies of the Kyrgyz Republic and Kazakhstan share the view that it is expedient to validate the base of these estimations for proper planning of interstate water allocation.

14. Total resources of groundwater sources, such as “Karasu” on the territory of the Kyrgyz Republic in the Chu river basin equal to approximately 1.29 km³/year, and in the Talas river basin – about 0.1 km³/year. Annual average return waters on the territory of the Kyrgyz Republic in the Chu river basin equal to approximately 0.81 km³, and in the Talas river basin – 0.26 km³. The volumes of return waters in the Kazakh territory of the Talas river basin are estimated at about 1.0-1.2 km³/year, and in the Chu river basin they are not determined and require verification.

15. The volumes of fresh subsurface water within two basins also have not been estimated properly. Operational water supply of four sources in Talas province is estimated at about 228,000 m³/day, although the forecast parameters exceed 925,000 m³/day. Similar water supply source in Talas-Assa in Jambyl province is estimated at 320,000 m³/day. Operational supply of fresh subsurface water in the Chu artesian basin in the territory of the Kyrgyz Republic is 3,255,000 m³/day, and the forecast parameters indicate about 5,900,000 m³/day. In the Kazakh part of the Chu river basin confirmed volumes of subsurface water are much less and equal to 323,000 m³/day. Currently, only about 15% of forecasted operational water resources from subsurface sources are used.

16. Thus, current assessment of surface water resources could be considered as reliable in general in both basins, whereas operational resources of subsurface waters and the volumes of return waters require further verification.

17. Allocation of water resources between the Kyrgyz Republic and Kazakhstan is carried out based on the following documents: (a) in the Talas river basin – in accordance with Regulation on sharing water flow in the Talas river basin dated 31 January 1983 and additional Protocol of 18 July 1983. According to these documents, water resources of this basin in the amount of 1.616 km³/year in the Kirov Water Reservoir site should be divided between both Parties on a parity basis; and (b) in the Chu river basin - in accordance with Regulation on sharing water flow in the Chu river basin dated 24 February 1983 and additional Protocol of 18 February 1985. According to these documents, water resources of this basin in the amount of 6.64 km³/year should be divided between both Parties in the following proportion: 58% for the Kyrgyz Republic and 42% for Kazakhstan. The text of additional Protocol specifies conditions for water use by both countries in the Chu River, starting from the river head, i.e. upstream of Orto-Tokoy Water Reservoir up to its border site.

18. The official positions of the two countries confirm that the abovementioned conditions for water sharing meet the requirements of both parties and should be complied in the foreseeable future.

19. Irrigation water supply on the territory of both basins mainly depends on the annual rainfall precipitation and the acreage of irrigated land. For the Talas province of the Kyrgyz Republic, it is characterized by declining irrigation water supply from 0.82 to 0.61 km³/year during 1990-1995 with subsequent marginal increase during 1996-2005. In Chu province of the Kyrgyz Republic irrigation water supply during 1990-1995 declined from 2.3 to 1.6 km³/year. On the territory of Jambyl province of Kazakhstan, which includes both river basins, irrigation water supply also declined during the same period from 2.00 to 1.79 km³/year. In addition to these facts, decline of water supply could be attributed to unreliability of official statistics.

20. Different forecast data that take into account national programs for socio-economic development suggest that resumption of water consumption at 1990 level on the territory of Chu and Talas basins is expected during 2010-2020. Thereafter, gradual increase of water deficit is projected due to increased demand for water. Therefore, already now it is expedient to plan and implement preventive measures aimed at protection and rational use of surface and sub-surface water in both basins.

C. Irrigation Infrastructure

21. During the last 70 years extensive irrigation and drainage network was formed in both basins. In Jambyl province of Kazakhstan main irrigation facilities are presented by 35 water reservoirs, including 3 large reservoirs with storage capacity beyond 30 million m³, 11 diversion units, 34 state irrigation systems with total length of 1,330 km of inter-farm and 4,710 km of on-farm canals. Besides, in the downstream of Chu river in South- Kazakhstan

province there are 8 water reservoirs with aggregate capacity of more than 13 million m³. In the Kyrgyz part of the Chu basin there are 3,948 diversion units, 1,704 km of inter-farm and 5,199 km of on-farm canals. Talas province of the Kyrgyz Republic has Kirov Water Reservoir, 1,154 diversion units, 978 km of inter-farm and 1,977 km of on-farm canals. Drainage network covers 35,870 ha of irrigated land in Jambyl province, 33,000 ha in Chu province, and 115,000 ha in Talas province.

22. Technical condition of water facilities, especially of on-farm irrigation and drainage network, is unsatisfactory. This is mainly caused by insufficient investments allocated by both countries after 1991 for repair and modernization of equipment on the irrigation facilities. Nevertheless, in recent years annual capital investments for rehabilitation of irrigation systems are increasing, mostly due to external loans and donor support.

23. The following strategically important interstate water facilities are located on the territory of the Kyrgyz Republic:

(a) In the Chu basin:

- Orto-Tokoy Water Reservoir with storage capacity of 470 million m³, water discharge capacity of 275 m³/sec, servicing 120,000 ha of irrigated land;

- Bypass Chu canals with total length of 40 km, water discharge capacity of 70 m³/sec, servicing 88,000 ha of irrigated land;

- Western Big Chu Canal with total length of 147 km, water discharge capacity of 55 m³/sec, servicing 85,000 ha of irrigated land;

- Eastern Big Chu Canal with total length of 97 km, water discharge capacity of 55 m³/sec, servicing 41,000 ha of irrigated land;

- Chumysh Control Structure with water discharge capacity of 665 m³/sec, servicing 41,000 ha of irrigated land;

(b) In the Talas basin:

- Kirov Water Reservoir with storage capacity of 550 million m³, water discharge capacity of 390 m³/sec, servicing 197,000 ha of irrigated land.

24. Coordination of operational regimes of irrigation facilities referred to in para. 23, and fair cost-sharing arrangements for operation and maintenance are subjects of bilateral interstate cooperation. Therefore, priority tasks in the water management sector of both countries include rehabilitation of infrastructure up to the required standard and guaranteeing effective and safe operation of these water facilities.

D. Legal and Regulatory Framework

25. The main legal acts regulating water relationship at national level are:

(a) Water Code of Kazakhstan adopted on 9 July 2003;
(b) Water Code of the Kyrgyz Republic adopted on 5 January 2005.

26. Water legislation of Kazakhstan and the Kyrgyz Republic are characterized by a similarity of judicial norms regulating ownership rights for water resources and main water management assets, regimes of paid water use and adherence to the principles of integrated water resources management, etc. This condition promotes successful development of

bilateral water relations. At the same time, Kazakhstan is faster vis-a-vis the Kyrgyz Republic in reforming regulatory framework and other by-laws, as well as in implementing institutional improvements stipulated by legislation. For further development of cooperation between the two countries it is expedient to foresee joint measures for coordinating national legal and regulatory acts, firstly on harmonization of technical, economic, organizational and other standards regulating procedures for management of water resources and water systems.

27. Agreement between the Government of the the Kyrgyz Republic and the Government of Kazakhstan on the use of interstate water facilities on Chu and Talas Rivers dated 21 January 2000 (Annex 1) is an international legal act regulating bilateral water relations in both basins. Provisions of this Agreement:

(a) Recognize the need for using water resources and interstate water facilities in transboundary basins for achieving mutual benefits on fair and reasonable basis (Article 1);

(b) Accept water facilities mentioned in para. 23 as interstate water facilities (Article 2);

(c) Accept the right of the owning country for compensation of O&M expenditures (Article 3);

(d) Stipulate responsibilities of the parties to participate in a fair cost-sharing for O&M of water facilities proportionally to the volumes of water use (Article 4) and annually allocate required financial resources for this purpose (Article 6);

(e) Recognize the need for establishing permanently functioning joint commissions to ensure safe and reliable operation of water facilities (Article 5);

(f) Stipulate responsibilities of the parties to promptly notify about extraordinary situations on interstate water facilities (Article 8) and carry out joint activities for their protection (Article 7).

28. During 2000-2007, provisions of the Agreement in general were fulfilled by both parties. Coordinated conditions for water allocation between countries also were implemented, in general, with periodic minor deviations. In 2006, provision of Article 5 of the Agreement related to establishment of bilateral parity commission was fulfilled. Since 2003, several preparatory measures were implemented and this led to an approval of Statute of the Commission (Annex 2). Official inauguration of this new interstate structure was held on 26 July 2006 with the support from ADB.

29. The abovementioned 2000 Framework Agreement was signed for 5 years and is subject to further extension or revision.

E. Water Resources Management

30. Functions and authority of state management in the use and protection of water resources in Kazakhstan are concentrated in one central agency – Water Resources Committee under the Ministry of Agriculture. The Committee's organizational structure comprises 8 basin water management departments (BWMD), including Chu-Talas BWMD that regulates water relations on the Kazakh territory of both basins. Direct management of water activities in these zones is carried out by a State Enterprise Tarazvodkhoz (Taraz Water Management). Among its functions are operation of water facilities, water allocation

and water supply to consumers of Jambyl province. Water Code of Kazakhstan foresees creation of territorial branches of BWMD but this provision yet to be implemented.

31. In the Kyrgyz Republic, main functions of water management are assigned to Water Economy Department (WED) under the Ministry of Agriculture, Water Resources and Processing Industry. Functions and authority of state management in the use of water resources are currently distributed among several central ministries and agencies that lack proper coordination. The structure of WED comprises 7 basin water management departments (BWMD), including Talas and Chu BWMDs in the territory of transboundary basins. In addition to basin departments, vertical management structure includes district water management departments, management bodies for large control structures and operational stations.

32. Water Code of the Kyrgyz Republic foresees reforming of management system of national water fund and water infrastructure. In particular, it is proposed to establish a new national management body – State Water Administration, use models of integrated water resources management based on hydrographic principle, decentralization of management and involvement of water users in the planning and implementation processes. Currently, the Kyrgyz Republic only begins implementation of these institutional reforms.

33. Both countries actively continue forming Water Users Associations and corporate unions of agricultural producers. On the territory of Jambyl province that covers both basins there are already 60 functional WUAs and 13 rural cooperatives of water consumers. In Talas and Chu provinces of the Kyrgyz Republic 59 and 56 WUAs were created, respectively. In 2006, in the Kyrgyz Republic a Republican Federation of WUAs was formed, pilot projects are being implemented for formation of local unions and federations of WUAs and transfer of management responsibilities for part of inter-farm irrigation infrastructure to WUAs. Such experiments have not been carried out in the Chu and Talas basins, however, their implementation is proposed in the nearest future.

34. Priority measures for modernizing a system of joint water use on the territory of both basins include further development of structures of public unions of water users in different forms, transfer of ownership and/or responsibility for managing on-farm and part of inter-farm irrigation infrastructure, as well as extension of their participation in the water resources management.

35. Established in 2006, the Commission is an interstate structure that coordinates development of bilateral water relations in both basins. Since the operational guidelines of the Commission foresee regular meetings, main responsibility for organizing its work is assigned to permanent Secretariat and its working groups. Organizational chart of the Commission that takes into account these aspects is given in Annex 4.

F. Monitoring of Water Resources

36. During 1992-2007, the system of monitoring condition and use of water resources in both basins seriously deteriorated and the current state of its organizational and technical base is considered unsatisfactory. The number of hydro-meteorological stations in the flow formation zone in the Kyrgyz Republic sharply decreased. For example, by the middle of 2007 in the Chu basin out of five main stations only one was working. Closure of large observation stations Alabel and Tuya-Asu-North resulted in notable deterioration in the quality of river flow forecasts. Systemic observations of conditions of glaciers, snowfields and lakes in the mountainous, sub-mountainous and plane zones were completely discontinued. Works on exploration and assessment of fresh sub-surface water were ceased and the number of observation wells in the zones of sub-surface aquifers and poor irrigated lands decreased more than by half.

37. A number of operating water measurement structures on inter-farm irrigation network still remained at the level of early 1990, but most of them require rehabilitation and modernization of equipment. Provision of water measurement devices for on-farm irrigation network and water allocation points for independent water consumers is also an acute problem.

38. Systemic monitoring of quality of surface and sub-surface water on the territory of both basins is lacking. Only periodic analysis of water quality on limited number of sites is carried out. This does not allow determining objective dynamics of pollution of water resources. It is necessary to establish chemical and bacteriological laboratories in each basin and organize monitoring of water quality.

39. In order to ensure fair water resources allocation between the Kyrgyz Republic and Kazakhstan and facilitate sustainable water use the priority measures for improving a comprehensive monitoring system should include the following:

(a) restoration of the quantity and modernization of technical condition of equipment on control structures (CS), first of all, at hydro-meteorological stations on main water sources and at inter-farm water allocation sites:

In the Talas river basin:

- CS Talas (6.2 km downstream of Uch-Koshoy outfall);
- CS Besh-Tash;
- CS Ur-Maral (Octiyabr);
- CS Kumushtag;
- CS Kara-Buura (Koksay Gorge);
- CS Klyuchevka (15 km upstream of water reservoir)
- CS Beysheke Spring;
- CS Kirov Spring;
- CS Chimkent Spring;
- CS downstream of Kirov Reservoir.

In the Chu river basine:

- CS Chu (Kochkorka);
- CS Chu (Cholok);
- CS Chu (Tokmok);
- CS Chu (Minlianfan);
- CS Chu (lower pool of Chumysh Dam).

(b) resumption of regular monitoring of glaciers and snowfields for reliable forecast of river flows;

(c) modernization and unification of monitoring standards to achieve identical results in measuring water resources parameters in both countries;

(d) modernization of technical base, standards and procedures for assessment of the use of water resources, statistical reporting on the use of water and introduction of water cadastres;

(e) improvement of methodology for forecasting reserves of water resources in both basins for subsequent year, and regular forecast based on hydro-meteorological data;

(f) modernization of system of compilation, transfer, processing and dissemination of water resources monitoring data on the basis of modern communication technologies;

(g) formation of unified data base on condition and use of water resources, ensuring its transparency for users of information;

(h) formation of sustainable system of efficient notification of extraordinary situations on water facilities and water systems of the basins based on monitoring data.

40. Since 2004, especially during 2005-2006, on the territory of both basins notably improved activities aimed at rehabilitation of water resources monitoring system due to capital investments of Kazakhstan and the Kyrgyz Republic and several international projects. Achievements in this area include: (a) development and introduction of a computer software for planning water resources allocation and assessment in the Talas river basin (the first version of the software was developed under the EU funded TASIS Project 30560: ASREWAM and it was further improved under ADB RETA 6163); (b) notable progress in development of a similar computer software for the Chu river basina with financial support under ADB RETA 6163; (c) development and installation of automated technical devices for water allocation, assessment and informational support at Chumysh Control Structure on the Chu river basin with financial support under OSCE, UN ECE and UN ESCAP projects; (d) development and installation of a Management Information System at control structure of Kirov Reservoir under ADB RETA 6163; (e) reconstruction of main hydrological stations at Georgievsky and At-Bashinsky main canals of Chumysh Control Structure under joint financing of these works by both countries; (f) formation of basin information-measurement systems and computer data bases with exchange of information among subscribers through Internet, SV-radio and CDMA cellular communication. Local pilot serves of these systems were already installed and tested during the second half of 2006 at Kazakh and Kyrgyz water facilities of both basins (Chu and Talas BWMD, Kirov and Orto-Tokoy Water Reservoirs, Chumysh Control Structure, Taraz Water Department, Korday Irrigation Systems Department, etc.). Financing of these activities was provided under ADB RETA 6163.

41. Since 2004, along with the abovementioned projects a national program for reconstruction of hydrological stations and meteorological station of Kazakh Hydromet is being implemented in Jambyl province. Under this program in 2006 rehabilitation of 5 stations was completed, and during 2008-2010 another 14 stations should be commissioned, four existing meteorological stations modernized and two new ones constructed. In the Kyrgyz Republic such programs were not implemented due to lack of financing. Attraction of external donor support for rehabilitation and development of water resources monitoring system is a priority task, especially for the Kyrgyz Republic.

G. Participation of Kazakhstan in Operation and Maintenance of Interstate Water Facilities

42. A mechanism for determining Kazakhstan's contribution in O&M of such facilities was in fact developed even before the signing of bilateral Agreement in 2000 on the basis of a Joint Protocol between WRC of Kazakhstan and WED of the Kyrgyz Republic dated 11 March 1998. During 1996-2007, Kazakhstan provided about $2.8 million) for repair and O&M works of Kirov and Orto-Tokoy Water Reservoirs, Chu Main Canals and Chumysh Control Structure.

43. The dynamics of current and projected investments from Kazakhstan for O&M of water facilities included in a bilateral agreement of 2006 is characterized by the following indicators:

(a) On Kirov Reservoir

- 2005: KAZ Tenge 28.4 million ($247,000);
- 2006: KAZ Tenge 28.9 million ($251,000);
- 2007 (planned): KAZ Tenge 34,36 million ($299,000);

(b) On Orto-Tokoy Reservoir

- 2005-2006: KAZ Tenge 7 million ($61,000);
- 2007 (planned): KAZ Tenge 8 million ($70,000);

(c) On Chumysh Control Structure

- 2005-2006: KAZ Tenge 15.37 million ($134,000);
- 2007 (planned): KAZ Tenge 18.14 million ($158,000).

44. During recent years bilateral water and economic relations in the Chu and Talas river basins are being actively developed. Creation of a Joint Commission in 2006 should become an additional impetus for smooth and sustainable development in a long-term perspective. To achieve this it is necessary to ensure, in the first place, that the Commission during its initial stage of operation receives adequate support for building staffing, technical, legal and organizational capacity.

II. OPERATIONAL MECHANISMS OF THE COMMISSION

45. The Commission of Kazakhstan and the Kyrgyz Republic on the use of interstate water facilities on Chu and Talas Rivers operates on the basis of Statute of the Commission (Annex 2) approved on 26 July 2006 by heads of WRC of Kazakhstan and WED of the Kyrgyz Republic on behalf of Governments of both countries.

46. The Commission is established on a parity basis and operated under the guidance of two co-chairs appointed by Governments of Kazakhstan and the Kyrgyz Republic (further in the text referred to as Parties). Co-chairs and members of the Commission have equal rights. Composition of the Commission is defined based on the principle of equal representation.

47. Functions and authorities of the Commission at present are limited to implementation of the following tasks:

(a) Coordination and review of activities of the Parties regarding the implementation of the Agreement;

(b) Development and implementation of joint measures for protection and rational use of water resources;

(c) Comprehensive assessment and forecasting of conditions of water facilities, and regulation of the water resources use;

(d) Endorsement of indicators on water use and water allocation, assessment and measurement of water as well as of methodologies for carrying out hydrological monitoring;

(e) Endorsement of documents regulating procedures for O&M of interstate water facilities and cost-sharing in financing of O&M activities;

(f) Endorsement of operational regimes of water reservoirs and revisions of regimes and water use limits depending on actual water availability and requirements of water users;

(g) Definition of procedures for joint actions in extraordinary situations, coordination of measures on flood and mudflow control and other natural disasters;

(h) Organization of exchange of hydrological forecasts and data on water and environmental situation in the Chu and Talas river basins and other relevant information;

(i) Endorsement and coordination of monitoring programs for assessment of water facilities, water flow and hydro-technical structures, and maintenance of water cadastre to form a system of water resources monitoring in the Chu and Talas river basins;

(j) Organization of joint surveys and investigations to ensure proper implementation of O&M activities and safety of water facilities, and regulation and rational use of water resources in the Chu and Talas river basins.

48. The main form of activity of the Commission is organization of meetings to be conducted at least two times a year. Meetings of the Commission are conducted in turns on the territory of Kazakhstan and the Kyrgyz Republic. Expenditures related to organization of meetings of the Commission, as well as meetings of experts are covered by the host country. Expenditures related to business travel and accommodation of members of the Commission, its permanent Secretariat, representatives of working groups and additionally invited experts are paid by each country independently.

49. During 2005-2007, activities of the Secretariat and working groups were carried out with financial support of ADB RETA 6163: Improved Management of Shared Water Resources in Central Asia. It is anticipated that ADB support will continue during 2008-2010. At the same time, co-chairs of the Commission initiated request for provision of state budget financing of the Secretariat of the Commission starting from 2010.

50. At the meetings the Commission reviews issues proposed by the Parties or by the Commission itself. The Commission acts in accordance with approved work plan for current year. Based on recommendations of co-chairs of the Commission the work plans could be revised.

51. Decision on the venue and time of subsequent meeting of the Commission is made jointly during the preceding meeting or in between the meetings based on written proposal of one of co-chairs. The co-chair of the host country chairs the meeting of the Commission. Kazakh, Kyrgyz and Russian languages are official languages of the Commission. Russian language is also used as a working language in the meetings of the Commission.

52. The Commission makes decisions on the issues included in the agenda on a consensus basis. In the case of disagreement, co-chairs of the Kazakh and Kyrgyz part of the Commission will organize additional consultations in order to review disputed issues at a next meeting.

53. Based on the results of the meeting of the Commission two copies of the minutes shall be prepared containing discussion of issues, adopted decisions and procedure for implementation of decisions, including concrete responsible persons and implementation

deadlines. Upon endorsement of the minutes by the Commission on a consensus basis it shall be approved by co-chairs of the Commission.

54. Agendas of meetings of the Commission include regular discussion of results in implementation of previous decisions of the Commission. Annually the Commission summarizes the results of its performance and includes it in an annual report.

55. The Commission implements its responsibilities in coordination with state and local administration, local self-governing bodies, enterprises, public organizations and citizens of Kazakhstan and the Kyrgyz Republic. In its operation, the Commission is guided by legal and regulatory acts the list and content of which is endorsed by Governments of the Parties. If necessary, the Commission initiates and organizes development of new or revision of existing legal and regulatory acts.

56. The Executing Body of the Commission is a permanent Secretariat, which is responsible for preparation and monitoring of implementation of decisions, coordination of activities of the Parties between meetings, business correspondence, collection, processing and archiving baseline materials and other day-to-day activities. The Statute of the Secretariate of the Commission specifying its functions, authority and operational procedures is given in Annex 3.

57. The Commission has the right to engage experts from national research, design, technological, operational and other organizations, and create temporary or permanent working groups. Organizational structure of the Commission that takes account of these provisions is presented in Annex 4.

58. Based on instructions of Governments of Kazakhstan and the Kyrgyz Republic, monitoring of activities of the Commission shall be carried out by national executing bodies - WRC and WED. Assessment of effectiveness of the Commission shall be carried out on the basis of report prepared by its Secretariat and approved at a joint meeting of both parts of the Commission. Recommended forms and procedures for monitoring activities of the Commission and national water management bodies is described in details in Section III of this report.

59. Main effectiveness indicators of the Commission's performance in a short-term perspective are listed below:

(a) Actual implementation of measures foreseen in annual work plans of the Commission in terms of scope of work and disbursement of funds;

(b) Compliance of planned and actual indicators for water resources allocation between the Parties in both transboundary basins;

(c) Sustainable and safe operation of interstate water facilities;

(d) Volumes of investments annually allocated by the Parties under a cost-sharing scheme for joint financing of O&M activities for interstate water facilities and actual disbursement of funds;

(e) Sustainable and conflict-free water use on the territory of transboundary basins.

In future, after refining the status of the Commission and expanding its responsibilities, the number of effectiveness indicators could be extended.

III. RECOMMENDED ACTIVITIES FOR OPERATION AND MAINTENANCE OF INTERSTATE WATER FACILITIES

60. The Secretariat of the Commission reviewed and approved "Recommendations on financing the cost for repair and O&M activities and other measures at interstate water facilities on the Chu and Talas Rivers". Recommendations include proposals for the Commission on the use of different options for decision-making in determining the scope and cost of repair and O&M activities and other measures, and also recommend procedures for determining cost-sharing limits in financing these costs.

61. The Secretariatом of the Commission reviewed and approved "Methodological recommendations on preparation and revision of "Main procedural rules of comprehensive use of water resources from water reservoirs". These Methodological recommendations specify the structure and content of a document titled "Main procedural rules of comprehensive use of water resources from water reservoirs", explain the process of its preparation, required baseline data, including requirements to the regimes of water discharge and water levels at control structures, a methodology for main calculations, and coordination and endorsement procedures. They could be used for preparation and revision of "Main procedural rules of comprehensive use of water resources from Orto-Tokoy and Kirov water reservoirs" as well as for other interstate water reservoirs.

Main provisions of Section III are prepared in compliance with documents referred to in paras. 60 and 61.

A. Interstate Water Facilities

62. Article 2 of 2000 Agreement specifies those interstate water facilities that are presented in para. 23 of this report.

63. An integral part of interstate water facilities are land of water fund, hydro-technical, protection and other facilities, communication lines, equipment listed below:

(a) Water intakes;

(b) Main, bypass, distribution, discharge and drainage canals and collectors and other structures located on them;

(c) Protection dams and other bank enforcement structures;

(d) Water discharge, storm sewage and mud control structures;

(e) Sets of mechanical and electric equipment, automated technical devices and remote control devices;

(f) Observation stations;

(g) Sets of measuring equipment for management and safety control of water facilities;

(h) Dwelling, production and auxiliary buildings and structures;

(i) Operational roads and structures on them;

(j) Power supply and communication lines;

(k) Construction and transportation equipment;

(l) Water protection zones and aquifers;

(m) Forestation.

64. Priority activities of the Commission on defining the composition of interstate facilities should include:

(a) Specification of a list of structures, communication facilities and equipment;

(b) Definition of special boundaries (coordinates) of land belonging to water fund;

(c) Definition of special boundaries (coordinates) of land allocated for interstate water facilities;

(d) Inventory of main assets by each water facility and definition of their depreciated cost in comparable prices;

(e) Assessment of technical condition of main water assets.

B. Types of Activities to be financed on a Cost-Sharing Basis

65. The structure of cost-sharing arrangements for financing O&M cost has to ensure adequate compensation of expenditures for the following activities:

(a) O&M of water infrastructure;

(b) Payment of recurrent costs;

(c) Payment for capital repair;

(d) Prevention and liquidation of consequences of extraordinary situations (breakdowns, natural disasters, etc.);

(e) Carrying out of monitoring activities;

(f) Carrying out of water protection activities;

(g) Development of detailed design documentation;

(h) Carrying out of scientific research and technical surveys;

(i) Creation and maintenance of automated management systems, data bases and information systems, the Commission's web-site.

66. O&M activities should ensure sustainable and safe operation of structures, communication facilities, equipment and other components of interstate water facilities described in para. 62 and should include the following:

(a) Recurrent cost of administrative and management staff (AMS);

(b) Recurrent cost of field service staff who ensure O&M of water infrastructure;

(c) Training and skills improvement of staff and other staff capacity building activities;

(d) Systemic technical maintenance of infrastructure, including periodic inspection, supervision of safety of operations, implementation of fire safety and other preventive measures, regulating works;

(e) Implementation of agreed planning, assessment and reporting procedures;

(f) Development, expertise and endorsement of O&M norms, basin water management plans, annual water allocation regimes and schedules, detailed design documentation;

(g) Interaction with water users for the purpose of planning and enforcement of contract provisions on water supply;

(h) Procurement and maintenance of office and production equipment, and provision of office consumables for staff.

67. Recurrent repair works should be carried out to eliminate minor defects in water infrastructure such as:

(a) Annual canal cleaning;

(b) Replacement of worn-out elements of equipment;

(c) Repair and extension of dams;

(d) Elimination of localized damages in canals, structures, power supply and communication lines, roads, transport and buildings, etc.

(e) Rehabilitation or replacement of measurement devices, office equipment, etc.

68. Capital repair works should be carried out in justified cases when recurrent repair works cannot ensure normative conditions for infrastructure operation. The following rehabilitation works could be considered as capital repair works:

(a) Capital reconstruction of structures with replacement of its major parts;

(b) Elimination of major damages on canals or those cased by landslides;

(c) Change of canal track to reduce its length or bypass dangerous section;

(d) Canal lining or replacement of lining on lengthy section;

(e) Reconstruction or replacement of road surface on lengthy section of maintenance roads;

(f) Implementation of filtration control works on dams;

(g) Rehabilitation of equipment with full disassembly and replacement or rehabilitation of worn-out parts, with subsequent adjustment and tuning of equipment, etc.

69. Activities on prevention and liquidation of consequences of extraordinary situations may include the following:

(a) Formation and maintenance of emergency notification systems to inform about breakdowns and natural disasters;

(b) Implementation of bank enforcement, flood control, anti-erosion and other works;

(c) Implementation of works related to notification and liquidation of consequences of flooding of civil and industrial objects, and decrease of ground water tables in the zones of water facilities;

(d) Implementation of unscheduled repair and rehabilitation works related to liquidation of consequences of breakdowns and natural disasters;

(e) Creation and maintenance of emergency stock of materials.

70. Water resources monitoring system may include the following activities:

(a) Creation and maintenance of a network of stations and posts in the flow formation zones, hydrological and hydro-geological stations at surface and sub-surface water sources, and hydro-meteorological stations at water intake, water allocation zones, transboundary sites, etc.

(b) Provision of hydrological information (including forecast assessment of sources) for water management bodies and water users;

(c) Carrying out recurrent and capital repair and modernization of water measurement and control devices, automation and tele-mechanical equipment at water facilities and observation network;

(d) Metrological support of monitoring methods and means;

(e) Creation and maintenance of basin data bases;

(f) Creation, maintenance and repair of power supply and communication lines;

(g) Monitoring safety of dams and other large water facilities;

(h) Assessment of water resources and statistical reporting on the use of water resources;

(i) Maintenance of basin water cadastres and registers of water facilities.

71. Water protection measures may include the following:

(a) Identification and systemic control of potential and existing sources of water pollution;

(b) Monitoring of water quality at approved sites in accordance with agreed list of indicators;

(c) Maintenance of water protection zones and technical and sanitary conditions of aquifers of water reservoirs;

(d) Maintenance of land and forests of the water fund;

(e) Maintenance, recurrent and capital repair and monitoring of conditions of discharge, sewage, drainage and wastewater treatment facilities;

(f) Carrying out forestation and other works preventing depletion of water resources;

(g) Regulation of economic and other activities on lands of water fund that impact the condition of water resources.

C. Planning and Financing of O&M Activities

72. Planning of water economic and water protection activities is a priority of national executing agencies and their territorial branches. This practice will remain in the foreseen future but with gradual expansion of participation of unions of water users and community stakeholders in the planning processes. At the same time, the role of the Commission in planning joint O&M activities on interstate facilities should eventually increase.

73. The following should form an official basis for planning O&M activities:

(a) National technical standards, legal and regulatory acts, instruction and methodological documents regulating processes of use and protection of water resources, design, construction, operation and maintenance, repair of water facilities, staffing norms, etc.;

(b) Materials of Water Cadastres, registers of hydro-technical structures, monitoring data on conditions and use of water resources;

(c) Basin plans, schemes of integrated use and protection of water resources;

(d) Basin and systemic water balances;

(e) National data bases of water use system and monitoring of water delivery contracts;

(f) Detailed design documentation for construction, reconstruction and capital repair of water infrastructure;

(g) Defect registers with costs for planning recurrent repair of water infrastructure;

(h) Agreed prices for works, services, materials and resources;

74. The costs of rehabilitation and O&M works should be determined on the basis of the following documents:

(a) Terms of reference for development and implementation of targeted basin water management programs and detailed design documentation for works to ensure rational use of water resources, prevention of negative impact of water, safe operation of water facilities, flood control measures, etc.;

(b) Approved defect registers with costs for recurrent repair of water infrastructure and equipment, etc.;

(c) Approved detailed design documentation for capital repair, reconstruction and modernization of main assets of water infrastructure. Detailed documentation should be developed on a contest basis by certified design institutions and pass mandatory expertise in the order agreed by the Parties;

(d) Norms of unit costs, publications on prices and tariffs for materials, resources, works and services for O&M activities. These norms should be endorsed in the order agreed by the Parties;

(e) Estimates confirming actual implementation of works and costs of emergency rehabilitation works;

(f) Norms of unit costs and prices for works related to monitoring of condition and use of water resources, maintenance of basin data bases and water cadastres, organization of efficient notification and information to users, etc. These norms should be also endorsed at national level in the order agreed by the Parties;

(g) Staffing schedules and remuneration scales for staff of organizations and enterprises participating in O&M of interstate facilities endorsed and agreed by the Parties;

(h) Norms for office, business, transport and other expenditures of organizations and enterprises participating in O&M of interstate facilities endorsed and agreed by the Parties;

(i) Tariffs and wholesale prices for the following items endorsed and agreed by the Parties:

- Procurement of tools, consumables and spares;
- Maintenance and rehabilitation of land of water fund, water protection zones, forest plantations, cultural, communal, dwelling and production buildings, etc.;
- Maintenance and repair of water measurement and control devices, automation, tele-mechanical, communication and power supply equipment, etc.;
- Inventory of main water assets, surveys and investigations.

75. Payment for works and services provided by organizations and enterprises contracted through open tender procedures are determined on the basis of negotiated prices within the limits of allocated financial resources. Negotiated prices could be proposed for implementation of works and services not included in existing normative acts, for example:

(a) Carrying out research, development and nonstandard technological works;

(b) Development of software products;

(c) Training and skills improvement of staff, information dissemination, PR-activities, etc.;

(d) Design and manufacture of nonstandard equipment;

(e) Metrological servicing of measuring devices;

(f) Input supply, etc.

76. The Parties should specify procedure for planning and revision of wholesale and negotiated prices for works, services, materials, spare parts used for O&M taking into account market trends, fluctuation of inflation indices, exchange rates and other factors.

D. Procedures for Planning and Monitoring of Implementation of O&M Activities

77. All types of O&M activities, except for emergency rehabilitation works, shall be implemented in accordance with predetermined plans. Plans shall be developed for a long-term perspective and for subsequent year, with breakdown by quarters and months. Plans shall be prepared in agreed format with justified indicators of scope of work, requirements for labor and material resources, construction and transportation means with indication of deadlines for completion of works.

78. In preparing annual plans each Party shall allocate agreed portion of investments for implementation of unforeseen (emergency rehabilitation) works.

79. Planning of O&M activities shall be carried out by basins in general and separately by each interstate water facility. Proposed expenditures for implementation of each activity shall be justified by cost estimates and for implementation of recurrent repair – by tariffs from defect register.

80. Regular technical supervision of implementation of civil and repair works and modernization of equipment shall be carried out in accordance with procedures stipulated in existing CNRs and other normative acts. Special attention should be paid to the quality of works and materials.

81. To determine actual scope of implemented works at the end of each month an instrumental measurement should be carried out to form the basis for progress reports.

82. Commissioning of works on interstate water facilities should be carried out by a Special Commission with participation of representatives of the Parties, O&M organizations and contractor. In the case of large scope of work, interim commissioning could be carried out for completed works at independent facilities of the object. As a result of commissioning, acts on commissioning should be prepared in agreed format.

83. Procedures of joint control of compliance with norms and rules for water use in the zones of interstate water facilities and responsibilities of the Parties and water users for violation of these norms and rules and procedures for compensation of damage should be agreed by both Parties. Compensation may be granted to the damages caused by the following actions:

(a) Taking out of land from agricultural production;

(b) Flooding, salinization, erosion and decreased productivity of agricultural lands;

(c) Flooding of civil and industrial objects;

(d) Economic damages caused by liquidation of technical breakdowns as a result of non-compliance with O&M norms and rules;

(e) Losses of water resources caused by illegal water use and violation of O&M norms and rules.

E. Cost-Sharing in Financing of Joint O&M Activities

84. The principle of cost-sharing in financing of expenditures should be in line with Article 4 of bilateral Agreement of 2000, which foresees that ‘the Parties participate in cost-sharing

in compensation of expenditures for O&M of interstate water facilities and other agreed measures proportionally to the volume of received water'.

85. It is recommended to determine the cost-sharing in compensation of expenditures for each basin and for each interstate water facility. The share is determined in accordance with approved schedule and limits of water supply. A list of control structures that assess the volumes of received water and procedures for water assessment and measurement should be agreed by the Parties.

86. The volume of water supplied to Kazakhstan in excess of approved water supply schedule shall not be included into the estimated volume of received water and shall not be accounted for in defining the cost-sharing limits without preliminary agreement.

87. At the year end in accordance with received volumes of water by each Party the financing share is revised proportionally to these volumes with subsequent compensation or relocation of expenditures for next year.

88. In preparing detailed design documents for reconstruction (rehabilitation), technical modernization and capital repair of large facilities and equipment it is necessary to foresee cost-sharing arrangements of the Parties in compensation of expenditures proportionally to the volume of received water. The responsibility for defining and refining cost-sharing proportions between the Parties in compensation of expenditures shall rest with the Commission.

89. Financing of works for compensation of expenditures on a cost-sharing basis can be done by the Parties in the following forms:

(a) Cash transactions;

(b) Joint implementation of works;

(c) Provision of materials, equipment, etc. Proportionally to the share of expenditures.

Volumes and types of works (activities) shall be defined on a complete cycle basis for each Party. Selection of forms of compensation can be made on a stage-by-stage basis according to harmonization of legislation and regulatory and methodological bases of the Parties.

90. Financing of expenditures for carrying out repair works and other activities on facilities that supply water only for water users of one Party shall be provided by that Party independently.

91. The following could be the sources of financing of works: budget resources of the countries, bank credits, loans, participation in operation and rehabilitation of interstate water facilities, provision of inputs and machinery by another Party for implementation of works, funds from investors (domestic and external), grant funds.

92. In order to fulfill responsibilities of the Parties budget legislation of Kazakhstan and the Kyrgyz Republic could foresee for the subsequent year targeted expenditure items titled 'Financing of works on interstate water facilities in the Chu and Talas basins' as well as a creation of specialized investment and insurance funds could be considered.

93. Unit costs for each type of works and services could be used for preparing O&M financing plans. Based on actual results of production and economic activity during previous year, total amount of O&M expenditures could be refined with adequate compensation or

relocation of unused funds for next year. O&M costs should not include expenditures related to financing of national executing agencies and other expenditure items that were not agreed by the Parties.

F. Role of the Commission in Coordination of Interactions between the Parties

94. Perspective functions and authorities of the Commission and its executing structure, i.e. permanent Secretariat may include:

(a) Support in preparation of terms of reference, facilitation of development, expertise, endorsement and approval of the following documents in the established order:

- basin programs for use and protection of water resources and water management activities;
- standards, legal and regulatory acts guiding bilateral water relations in the Chu and Talas basins;
- detailed design documentation for capital repair, rehabilitation, modernization of equipment and development of interstate facilities;
- programs for research, development, design and investigation, technological and other works;
- programs for development of monitoring systems, informational training, skills improvement for managerial staff, public education, etc.;

(b) Preparation of register of main assets of interstate water facilities, their original and depreciated costs in comparable prices, boundaries of land of water fund allocated for this purpose and other indicators required for carrying out O&M activities;

(c) Organization of and participation in the work of joint working groups and commissions:

- for carrying out surveys, inventory and diagnosis of technical conditions of water facilities and measures for their rehabilitation and development;
- for carrying out expertise of legal and regulatory acts, detailed design documentation, etc.;
- for commissioning of completed rehabilitation works, civil works, etc.;
- for testing new or modernized machinery, equipment, tools and devices and other technical means and technologies;
- for preparation and revision of perspective and current plans of water resources allocation, O&M of water infrastructure, operational regimens of main water intake structures, etc.;

(d) Identification and organization of mandatory measures agreed by the Parties related to operation, recurrent and capital repair and maintenance of water

facilities, monitoring and protection of water resources and other activities under cost-sharing arrangements;

(e) Coordination of development by national executing agencies of justified proposals on composition and cost of jointly financed works for subsequent year, organization of development and approval, on this basis, of agreed Plans for subsequent year;

(f) Facilitation of development and endorsement of annual schedules for water intake and supply, and water limits for concrete periods with due consideration of water availability in natural sources for each interstate facility;

(g) Refining of these schedules and limits in the order agreed by both Parties;

(h) Control of the Parties' compliance with implementation of provisions of 2000 Agreement, approved programs and plans of joint activities on the use and protection of transboundary water resources;

(i) Carrying out preventive measures and regulating, if necessary, water disputes between the Parties and their economic entities in both transboundary basins;

(j) Facilitation of effective exchange of information under an agreed list on indicators and formation of basin data bases, information systems and relevant communication networks;

(k) Facilitation of interaction of national executing agencies and water management organizations with water users and local communities.

IV. RESULTS OF ACTIVITIES IN SUPPORT OF BILATERAL COOPERATION IN WATER MANAGEMENT UNDER ADB-FUNDED RETA 6163

95. Implementation program of ADB's RETA 6163 comprised assistance to national executing agencies of Kazakhstan and the Kyrgyz Republic in developing the following directions of joint activities:

(a) Improvement of legal and institutional framework;

(b) Improvement of technologies for water resources assessment and interstate allocation in transboundary basins;

(c) Assessment of technical conditions of interstate water infrastructure and estimation of cost-sharing volumes for the Parties in financing O&M and rehabilitation works;

(d) Improvement of cooperation in environmental protection, monitoring and data exchange.

Main outcomes of these activities are presented below:

A. Improvement of Institutional and Legal Framework

96. Para. 5 of Article 4 of Statute of the Commission specifies requirement for joint endorsement of documents regulating procedures for carrying out water management and other joint activities. In this connection, in 2006-2007 with support from ADB, OSCE, UN ECE

and UN ESCAP international consultant and national experts of Kazakhstan and the Kyrgyz Republic accomplished preparatory works for formation of the legal base for future operation of the Commission.

97. Under ADB project, comprehensive review of international water law, national water legislation of Kazakhstan and the Kyrgyz Republic as well as global and regional experience of interstate water cooperation was carried out. These detailed materials are included in the report of working group on legal and institutional issues and comprise the following:

(a) Review and analysis of international conventions, rules and agreements on joint use and protection of water resources of transboundary river and lake basins;

(b) Review of practices for establishment and operation of joint institutional structures in transboundary water basins;

(c) Summary of guiding international principles and rules for regulating the use and protection of water resources in transboundary basins;

(d) Comparative analysis of water legislation of Kazakhstan and the Kyrgyz Republic and their compliance with the norms of international water law;

(e) Retrospective analysis of practices of interstate water resources allocation and operation of interstate facilities in the Chu and Talas river basins;

(f) Review of social, environmental and economic aspects that require adequate consideration in planning the use of water resources in both basins;

(g) Assessment of quality of water resources and main factors and sources of their pollution in the Chu and Talas river basins;

(h) Assessment of the value of water ecosystems and effectiveness of use of water resources in both basins;

(i) Possible approaches and measures aimed at prevention of pollution of surface waters;

(j) Proposals on introduction of mechanisms of integrated water resources management in both basins, including the following aspects:

- decentralization of management system with partial transfer of responsibilities from national to basin level;
- public dissemination of information;
- involvement of representatives of water users and local communities in the processes of planning and implementation of decisions;
- expansion of inert-sectoral and interstate cooperation in water use between interested parties;
- formation of basin councils that are represented by associations of water users and community;

(k) Proposals on developing mechanisms for safe and conflict-free water use in both basins, including the following aspects:

- development of system of effective notification about extraordinary situations (breakdowns, natural disasters, etc.);

- prevention and regulation of water related disputes;

- development of agreed procedures for compensations for damages.

98. On the basis of this review working group prepared a set of preliminary conclusions and recommendations for subsequent consideration by bilateral Commission. These recommendations include the following priority actions:

(a) Further development and harmonization of national water and environmental laws and bylaws of the Kyrgyz Republic and Kazakhstan;

(b) Completion of reformation of institutional structures in both countries on the basis of models of integrated natural resources management;

(c) Development of detailed mechanisms and procedures for joint use of water resources in both transboundary basins with due consideration of environmental aspects and impact of water management activities on natural ecosystems and environment;

(d) Improvement of legal and methodological bases for economic planning of water management and water protection activities that take into account gradual increase, consolidation and rational and transparent use of investments from national and local budgets, private and corporate sources, water delivery fees and donor funds;

(e) Legal regulation of responsibilities of management bodies and budgets at different levels for performance of functions and authorities in then use and protection of water resources;

(f) Detailed development and implementation of national programs of Kazakhstan and the Kyrgyz Republic related to joining to global water and environmental conventions and fulfillment of its commitments. Development of activities for ensuring sustainable organizational and economic framework for fulfillment of these commitments;

(g) Development of perspective plan for inclusion of bilateral Commission into regional integration processes, i.e. under Euroasian Economic Community, Shanghai Cooperation Organization, International Fund for Aral Sea, Interstate Economic Council of CIS, UN Special Program for Economies of Central Asia (SPECA);

(h) Development and implementation of joint program for information dissemination to relevant stakeholders and public in priority water and environmental issues. This program should be implemented in accordance with provisions of Convention on access to information, public participation in decision-making process and assess to justice in environmental issues;

(i) Development of mechanisms for strengthening cross-sectoral partnership at interstate level.

99. Along with these recommendations, experts prepared a list of legal and regulatory acts, technical standards and methodological documents regulating water management, water resources protection and other joint activities in both transboudary basins that need to

be developed or revised in a priority order. These proposals could form the basis for development of legal framework for bilateral water relations in the medium-term perspective.

100. In 2006, in implementing these recommendations on improvement of legal and institutional framework drafts of the following documents were prepared:

(a) Statute of the Secretariat of the Commission of Kazakhstan and the Kyrgyz Republic on the use of interstate water facilities on Chu and Talas Rivers (Annex 3);

(b) Methodological recommendations on preparation and revision of "Main procedural rules of comprehensive use of water resources from water reservoirs";

These draft documents were reviewed and approved at the extended meeting of the Secretariat of the Commission on 22 November 2006. These documents will be further refined taking into account comments and proposals of experts of both countries.

101. During 2007, working group experts developed their recommendations to the draft revisions and amendments to a 2000 Agreement as well as their proposals on gradual expansion of functions and authorities of the Commission for a medium-term perspective. Based on these proposals an international consultant prepared a draft document on revisions and amendments to the Statute of the Commission.

These documents were reviewed at the fourth meeting of the Commission on 20-22 September 2007 with participation of representatives of water agencies, foreign offices, border control, customs and other interested agencies of Kazakhstan and the Kyrgyz Republic.

102. At the fourth meeting of the Commission a draft Protocol on revisions and amendments to the Agreement between the Government of the Kyrgyz Republic and the Government of Kazakhstan on the use of interstate water facilities on Chu and Talas Rivers was discussed and agreed by the parties (Annex 5). In particular, the parties agreed on the new wording of Article 5, which foresees financing of the Secretariat of the Commission from the state budgets of two countries. The wording of Article 11 was also revised, it establishes a simplified procedure for border crossing for personnel, goods and vehicles without payment of customs duties in accordance with the list approved by the Commission. The second part of Article 11 was also revised, which covers important area of interstate relationship, namely payment of land tax. The sides exchanged views on possible expansion of the list of interstate water facilities that are managed by the Commission and it was agreed to conduct more detailed consultations on each water facility that was proposed for inclusion into the new list.

B. Improvement of Technologies for Assessment and Allocation of Water Resources

103. Modernization of existing mechanism for planning and control of volumes of used water resources on the territory of transboundary basins is a priority task both in term of ensuring conflict-free water use and formation of a reliable basis for preparing financing plans for joint O&M activities. According to provisions of Protocol of 1983, interstate allocation of water resources in both basins should be planned on the basis of annual average indicators of water availability in main surface water sources that should be refined with due consideration of forecasts for next year, vegetation period and next decade. However, in practice such refinements often were not carried out due to complexity of manual estimations without application of computer technologies.

104. Due to that, ADB project provided support in developing a mathematic model for formation and allocation of water resources in the Talas river basin. This model is based on assessment of volumes of water resources for four main surface sources of the basin –Talas, Besh Tash, Ur Maral and Komush Too (Kumyshtag) rivers, as well as permanent water resources deriving from the flow of local sources, tapering out from "karasu"-type sources, river bed filtration, etc. This model allowed for the first time properly assess volumes of 'permanent water resources' on the basis of disbalance between actually assessed water resources in Kirov Reservoir and the volume of water resources estimated on the basis of flow monitoring at four main control structures.

105. On the basis of this model, computer software for assessment of water resources was developed to address the following tasks:

(a) Preparation of plans for allocation of water resources between Kazakhstan and the Kyrgyz Republic in the Talas river basin.

(b) Assessment and control of actual use of water resources by both Parties.

Computer software was developed on the basis of DELPHI 7 programming language and INTERBASE 6.5 database management system. A mechanism for formation of baseline data used in the software allows calculate several options and select the most suitable ones for water users of both Parties. Results of calculations are presented either on paper or in electronic form (as tables and charts) for subsequent dissemination to concerned parties of both countries by email. A Scheme of Formation and Allocation of Water Resources of the Talas basin, which is used in computer software, is presented in Figure 2.

106. During 2006-2007, a pilot testing of computer software and water resources allocation plans for Talas river basin was carried out. Computer equipment was procured and installed at Talas BWMD (the Kyrgyz Republic) and Chu-Talas BWMD (Kazakhstan) to prepare necessary calculations. Two special training sessions were delivered to the staff of the above basin water management agencies to familiarize with application of new software.

107. The analysis of assessment of water resources in 2007 demonstrates the following progress:

(a) A comparison of projected and actual volumes of water resources to be shared between the two countries in 2007 indicates higher accuracy of the average projected water allocation during vegetation period by the sources controlled by Kyrgyz Meteorological Agency (the deviation rate between actual volumes of water received during vegetation from four control structures and the projected volumes is about 6 million m^3 or less than 1% of the total projected volume). Figure 3 gives projected and actual data of water resources by decades of vegetation period of 2007.

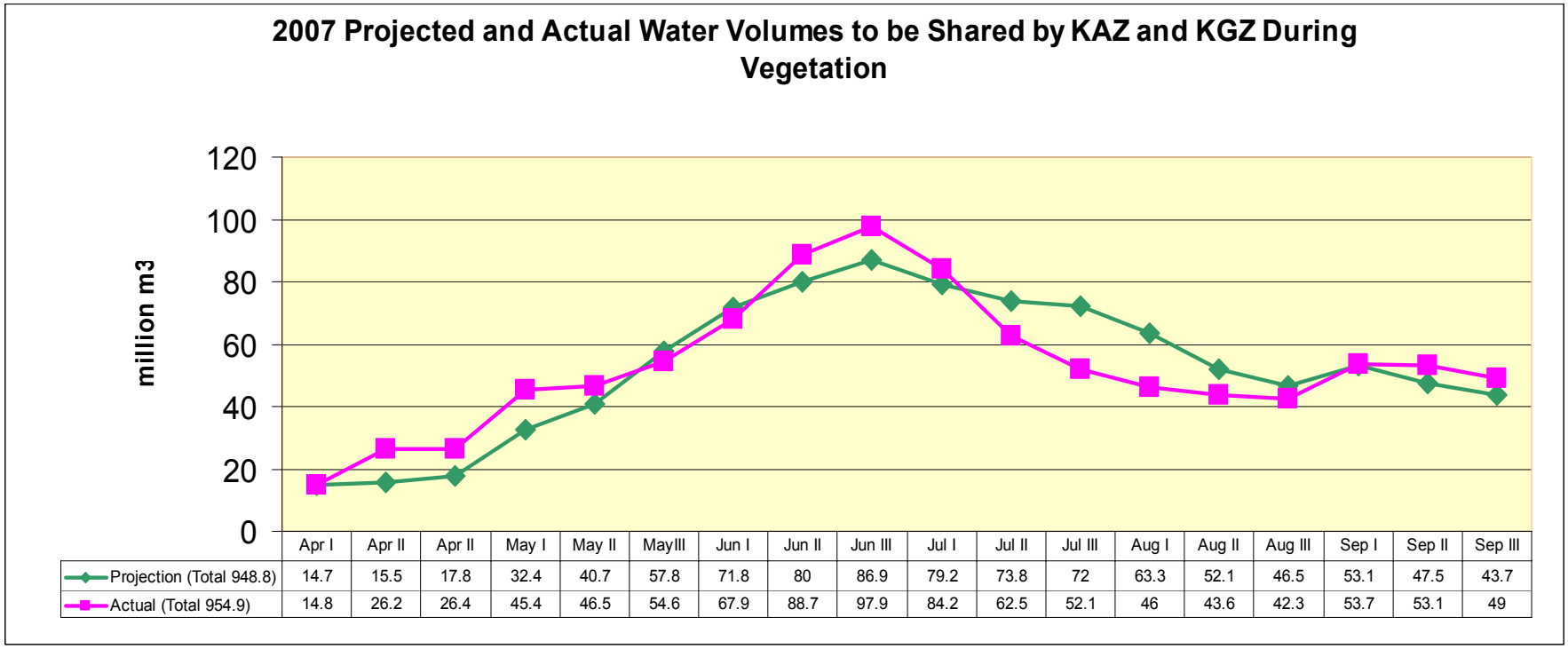
(b) Another important indicator of compliance of the software application to the real processes of formation and allocation of water resources in the Talas basin is the comparison of projected and actual volumes of water in Kirov Reservoir. Figure 4 gives projected and actual data of water in Kirov Reservoir by decades of vegetation period of 2007.

108. The results of comparison demonstrate that indicators of projected and actual water volumes in the reservoir are very close to each other, which in turn confirms the adequacy of software application and its compliance to natural processes of water formation and allocation. This confirmation made it possible to endorse the software application for upper part of Talas river and install it by water management agencies of Kazakhstan and the

Kyrgyz Republic by a Protocol decision of the fourth meeting of the Commission held on 20-22 September 2007.

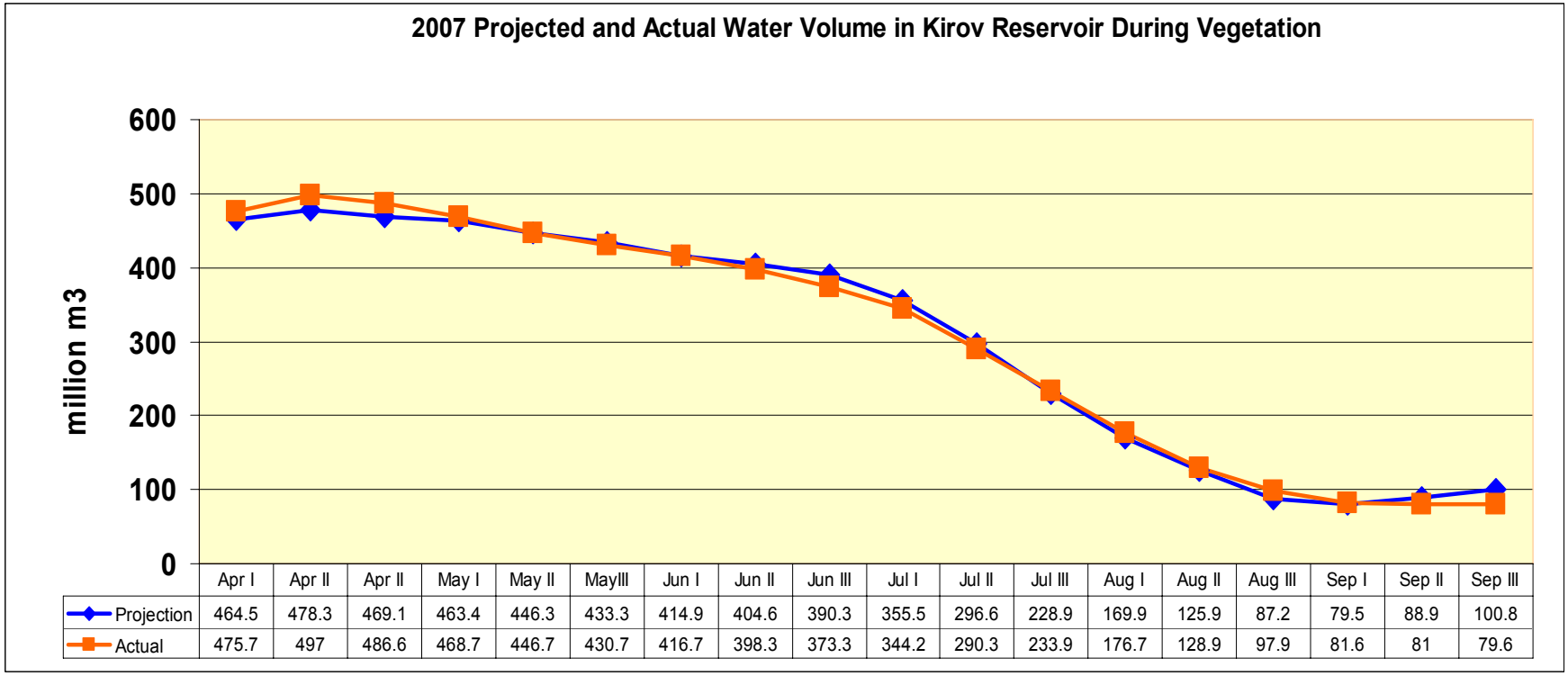
Figure 2: The scheme of formation and allocation of water resources in Talas River Basin

Figure 3: Comparison of projected and actual volumes of water resources to be shared by two countries in 2007.



	Apr I	Apr II	Apr II	May I	May II	MayIII	Jun I	Jun II	Jun III	Jul I	Jul II	Jul III	Aug I	Aug II	Aug III	Sep I	Sep II	Sep III
Projection (Total 948.8)	14.7	15.5	17.8	32.4	40.7	57.8	71.8	80	86.9	79.2	73.8	72	63.3	52.1	46.5	53.1	47.5	43.7
Actual (Total 954.9)	14.8	26.2	26.4	45.4	46.5	54.6	67.9	88.7	97.9	84.2	62.5	52.1	46	43.6	42.3	53.7	53.1	49

Figure 4: Comparison of projected and actual volumes of water resources in the Water Reservoir at the end of decades of vegetation period of 2007



	Apr I	Apr II	Apr II	May I	May II	MayIII	Jun I	Jun II	Jun III	Jul I	Jul II	Jul III	Aug I	Aug II	Aug III	Sep I	Sep II	Sep III
Projection	464.5	478.3	469.1	463.4	446.3	433.3	414.9	404.6	390.3	355.5	296.6	228.9	169.9	125.9	87.2	79.5	88.9	100.8
Actual	475.7	497	486.6	468.7	446.7	430.7	416.7	398.3	373.3	344.2	290.3	233.9	176.7	128.9	97.9	81.6	81	79.6

109. A mathematic model for formation and allocation of water resources in the Chu river basin was also developed. It is different from a similar model for Talas river basin in a sense that additionally it takes account of specific conditions for water transportation through main canals. This allowed adequately assess the system of formation and use of water resources in this region, limitation of conveyance capacity of different sections of main canals and estimate the most effective options for water transportation to water allocation points with minimal losses. On the basis of this model, a first version of computer software for formation and allocation of water resources in the Chu basin was developed.

110. Due to the fact that the water management system of the Chu Basin is divided into separate sections for which water allocation limits have been defined by a Regulation on water allocation, the model for water allocation in the Chu Basin has been split into separate blocs that describe water allocation processes for individual sections. Interconnection between the blocs is determined based on the conditions of water allocation at the boundaries of these sections.

111. In accordance with the scheme of formation and transportation of water resources in Figure 5, a scheme for planning and accounting of allocation of water resources of the Chu Basin was prepared and a software application for preparation of water allocation plan and schedule and their monitoring by decades of vegetation period was developed.

112. The analysis of results of a mathematic model and actual data on water allocation in the Chu Basin has allowed to arrive to the following conclusions:

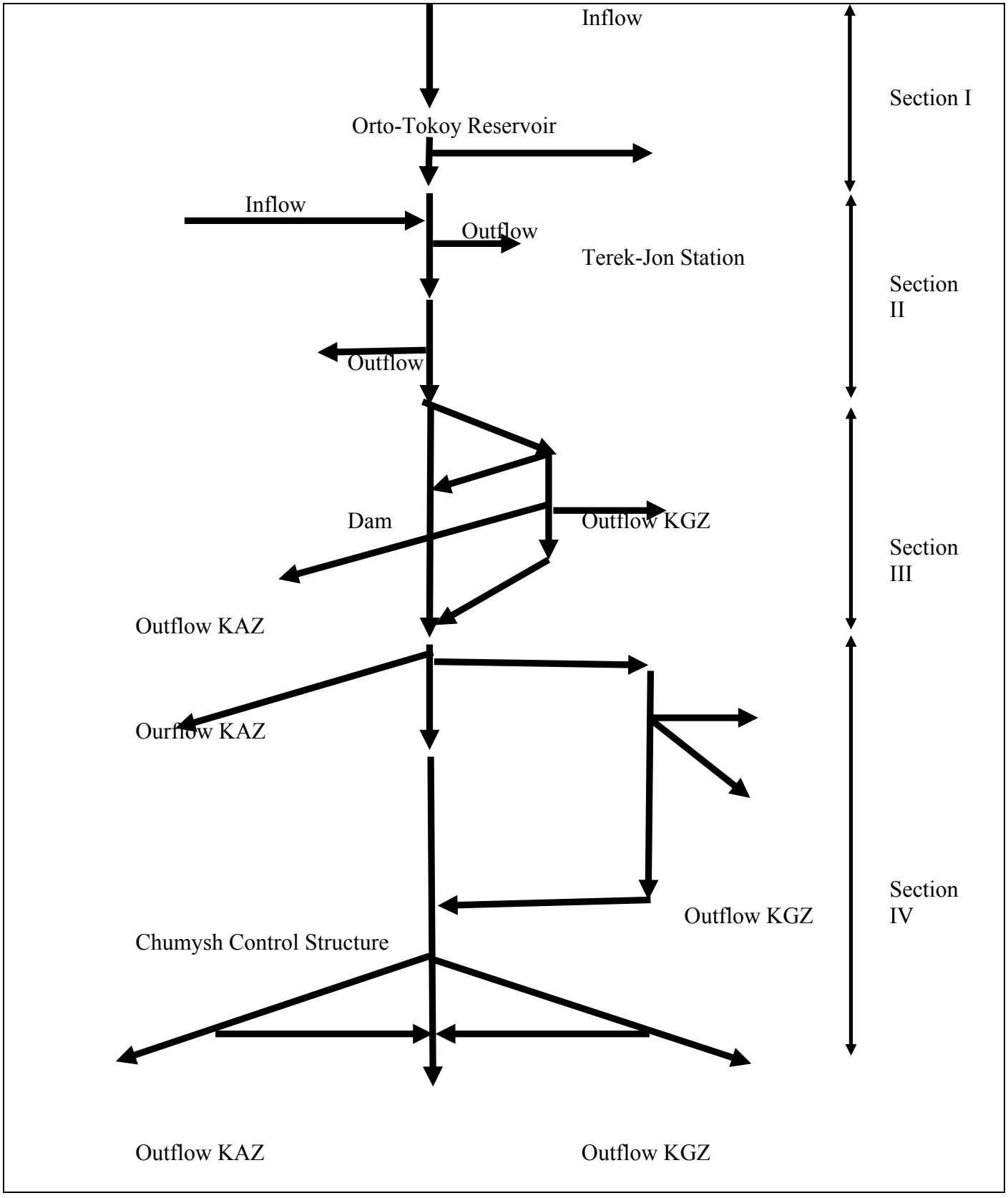
(a) The software for computation of water releases from Orto-Tokoy Reservoir was correctly prepared in accordance with a computation scheme;

(b) The results of computation of water releases from Orto-Tokoy Reservoir in a mathematic model significantly deviate from actual data, which is explained by the lack of data on channel losses and tapering out waters;

(c) Additional surveys are required to collect data on channel losses and tapering out waters.

113. In order to study the specifics of water transportation in the Chu Basin in today's conditions it was decided to carry out a number of hydrometric measurements at control structures in the Chu Basin and also review the status of control structures. During the survey, it was concluded that further computation is impossible due to the fact that a number of control structures on the Chu river bed (Terek-Jon, Chu-Tokmak, Chu-Milanfan, Chu dam) are completely non-operational and had not been neither reconstructed nor rehabilitated.

Figure 5: Scheme of formation and allocation of water resources of Chu River.
(4 sections)



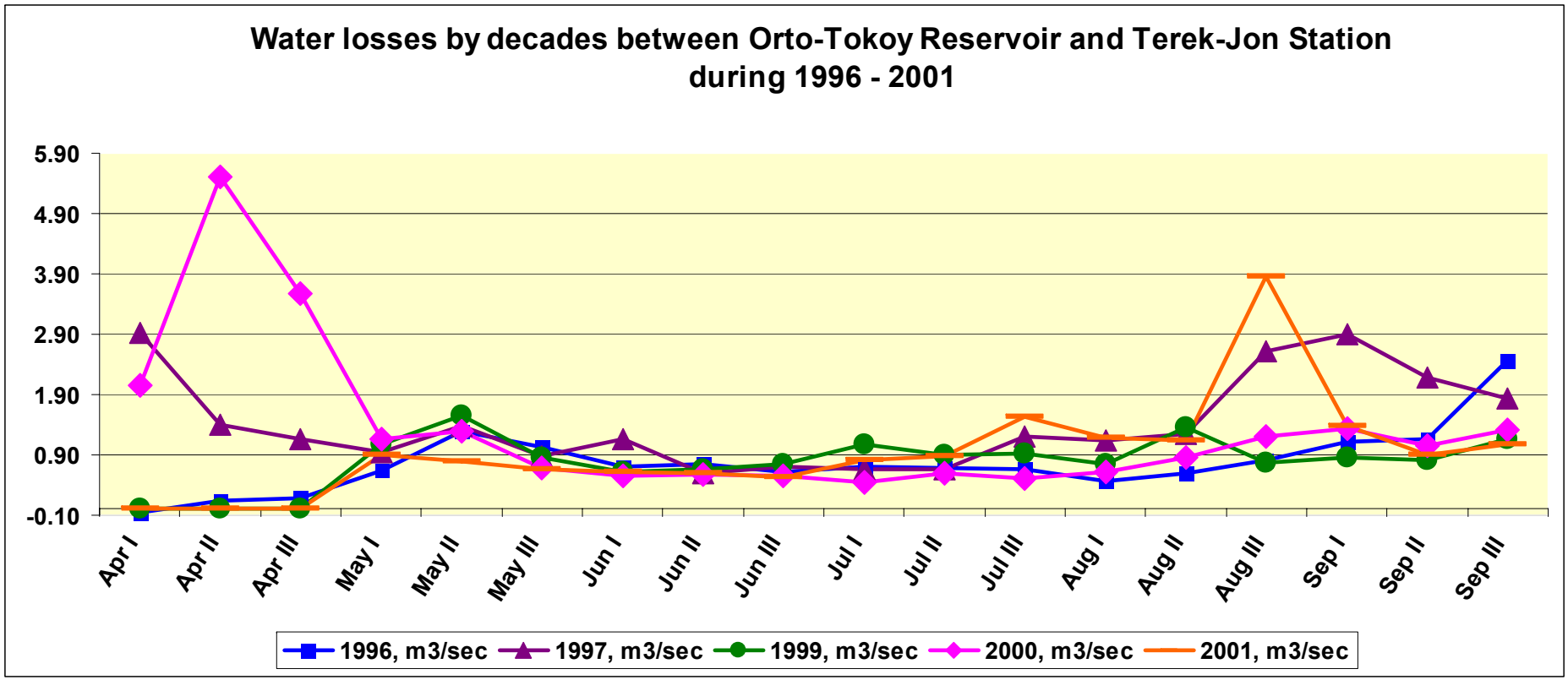


Figure 6: Estimation of water losses between Orto-Tokoy Reservoir and Terek-Jon Station by Chu Basin Water Management Department.

114. Due to impossibility to carry out hydrometric measurements to clarify the parameters of the model, it was decided to restore parameters of transportation of water resources for individual sections of the Chu River base on the data of Chu Water Department. The analysis of these data has identified a misbalance at different sections. Figure 6 demonstrates the results of computed water losses under section Orto-Tokoy Reservoir--Terek-Jon Control Structure for selected decades of vegetation periods of 1996 – 2001. As is evident from Figure 6, for some decades the coefficient of losses is higher than 1. Especially, this is true for the beginning and ending decades of vegetation periods. This indicates about contradicting data and poor quality of reporting on water accounting.

115. These works have enabled to formulate proposals on improving the procedure for interstate water allocation as follows:

(a) It is necessary to improve the quality of water accounting due to implementation of the following activities:

- Rehabilitate a network of control structures;
- Ensure quality hydrometric works on the entire network of control structures of the Chu Valley. For this purpose, it is necessary to carry out the inventory of all control structures, regular checks, enhance the quality of reporting on water allocation by canals;
- Equip the key water control structures by automatic measurement devices to ensure objective monitoring data and register them in the required frequency.

(b) It is necessary to continue works to clarify regimes of tapering out waters and determine the coefficients of water losses by individual sections by employing computation and measurement methods;

(c) It is necessary to continue works to introduce a computerized model for automated planning, allocation and accounting of water resources in the Chu River.

116. Based on the results of the pilot it is proposed to improve both computer software products, carry out several training workshops for staff of water management agencies of both Parties and also ensure vendor's services for operation and maintenance of these software products on a regular basis. However, positive results were already received at the pilot stage and they indicate that new computer technologies for assessment and planning of water resources allocation ensure the following:

(d) Multiple options of calculations for selection of optimal solutions.

(e) Improved efficiency of calculations.

(f) Transparency of water resources allocation.

(g) Timely bilateral control over implementation of water allocation plans and their effective refinement.

117. Further development of computer software prepared under ADB RETA 6163 in a short-term perspective should be carried out in the following directions:

(a) Pilot operation of the software product, its refining based on the results of pilot testing;

(b) Development and pilot of software products for estimation of water demand for major categories of water users of the Kyrgyz Republic and Kazakhstan in both basins;

(c) Creation of a pilot system for automated assessment of actual water supply to water users of the Kyrgyz Republic and Kazakhstan in both basins.

C. Assessment of Water Management Facilities and Volumes of Cost-Sharing in Financing of O&M Activities

118. Reliable assessment of physical deterioration of interstate water facilities and definition of priority measures for their rehabilitation and safe operation is a requisite condition for justification of joint investment plans of Kazakhstan and the Kyrgyz Republic in transboundary basins. To address the above issues, a working group on hydro-technical and engineering works and infrastructure rehabilitation was established under the ADB RETA 6163. During 2006, main activities of this working group were concentrated on developing mechanisms for joint inventory of infrastructure and preparation of the first draft of Perspective Plan for repair and rehabilitation of interstate facilities for 2007-2010.

119. The working group carried out retrospective analysis of projected and actual O&M investments for six interstate water facilities (para. 23) during 1997-2005. The analysis identified that actual financial contribution of both countries for maintenance and rehabilitation of water infrastructure in both basins during these years was 16% of projected requirements. On the basis of this data, concrete proposals on increasing annual investments for water management activities were made.

120. In carrying out inventory of technical and operational conditions of interstate water facilities the members of the working group together with representatives of O&M and design organizations accomplished the following activities:

(a) Visually reviewed and carried out sample survey of water facilities to find out defects that need to be eliminated on a priority basis;

(b) Based on the results of this work prepared survey and defect acts;

(c) Prepared detailed design documents and tentatively defined the volumes of investments for repair and rehabilitation works for 2007-2010;

(d) Determined tentative volumes of annual O&M costs, including the costs for management and operational staff, procurement of materials and resources, maintenance of transport, communication means, equipment, etc.

121. Based on the results of accomplished works, perspective plans for financing O&M and rehabilitation activities for each interstate water facility in the Chu and Talas river basins were prepared. These plans were reviewed and approved at a joint meeting of the Secretariat of the Commission and working groups. Subsequently, these plans should be endorsed by the executing agencies (WED of the Kyrgyz Republic and WRC of Kazakhstan) and approved at a plenary meeting of the bilateral Commission.

122. Along with justification of short-term plans for cost-sharing of joint water management activities in transboundary basins, during 2006 working groups accomplished preparatory measures for formation of regulatory and technical base for further development of water and economic relations between the two countries. For this purpose, national experts prepared overviews of technical standards and methodological documents of Kazakhstan and the

Kyrgyz Republic and procedures for planning investments and supervising the use of funds. On the basis of these overviews the following recommendations were developed:

(a) On improving procedure for establishing norms for rehabilitation works on interstate water facilities;

(b) On streamlining the use of funds allocated for repair and maintenance of water facilities;

(c) On establishing norms for the use of material resources depending on estimated cost of construction and repair works;

(d) On establishing norms for annual expenditures for recurrent and capital repair of main water facilities depending on the book value of these assets;

(e) On establishing norms for the use of inputs, including fuel, lubricants, electricity, etc. Depending on the volume of O&M costs;

(f) On the use and revision of specific norms and technical standards;

(g) On establishing staffing norms for organizations responsible for management of interstate water facilities;

(h) On organizing monitoring of the use of water resources and safe operation of interstate water facilities and adequate financing of these activities.

123. The above recommendations have been included into a draft6 Methodology for preparation of economic justification of shared financing of operation and maintenance of interstate water facilities in the Chu and Talas Basins, which was discussed at extended meetings of the Secretariat and was submitted for review by Water Resources Committee of Kazakhstan and Water Economy Department of the Kyrgyz Republic.

124. According to the common opinion of the members of the working groups, in a short-term perspective it is necessary to increase annual investments of the Parties not only for rehabilitation works but also for development of interstate water infrastructure. The following priority directions are proposed:

(a) Drastic modernization of metal structures and electromechanical equipment of water facilities;

(b) Provision of office equipment and computer technologies for management bodies and dispatch centers;

(c) Development of communication network with provision of communication equipment and internet access for, at least, ten interstate facilities during the next 1-2 years;

(d) Introduction of computerized software and automated management and control systems at all interstate facilities.

125. Based on the results of initial stage of practical activities of working groups in the area of planning joint water management activities in the Chu and Talas river basins the following priority tasks should be implemented in a short-term:

(a) Survey of technical conditions of inventory of main interstate water facilities with clarification of their book values and defects that need to be eliminated;

(b) Accelerated development, revision and endorsement of technical and economic standards for joint water management activities by the Parties;

(c) Development of methodology for definition, revision and endorsement of prices and tariffs for rehabilitation works, services, inputs and resources by the Parties;

(d) Ensure transparency of production activities of national water management bodies, and for this purpose develop procedures for efficient exchange of information in accordance with agreed list of indicators;

(e) Develop procedures for joint control of quality of rehabilitation works and targeted use of funds.

D. Improved coordination in environmental protection, monitoring and data exchange

126. The importance of bilateral cooperation in environmental protection on the territory of both basins is justified by the following environmental issues that have impact on both countries:

(a) Consequences of mudflows, floods, landslides, soil erosion, etc. that often have transboundary impact;

(b) Potential risk of deteriorated water resources quality due to increased water consumption, intensification of economic activities and inadequate measures for protection of water resources;

(c) Degradation of water ecosystems in the zones of formation and dispersion of water flow of transboundary rivers, due to, inter alia, increased water consumption and improper water use.

127. To successfully address these issues in a short-term perspective it is necessary to strengthen coordination of activities carried out by both countries at national level. Subsequently, cooperation in water resources protection should be developed on the basis of comprehensive long-term programs, gradually covering such areas of mutual interest as protection of water resources from depletion, development and introduction of new wastewater treatment technologies, restoration of biodiversity of ecosystems, prevention of epidemics caused by chemical and bacteriological pollution of sources of potable water supply, etc.

128. Working groups identified the following acute problems that have impact on slow development of information base of interstate water relations and monitoring in both basins:

(a) Insufficient number of stations and posts of observation network on transboundary rivers, their tributaries and in the zones of formation of glaciers and snowfields, degradation of technical conditions of observation facilities;

(b) Improper methodologies and procedures for effective processing and analysis of initial information;

(c) Improper methodologies for long-term seasonal and day-to-day forecast of reserves of surface water resources that inadequately assess actual processes of formation of glaciers, snowfields and rains that contribute to transboundary river flows, their distortions due to economic activities, side inflows, and inflows of ground water and return water;

(d) Lack of permanent stations for monitoring the quality of water resources in transboundary rivers and lack of equipment and tools required for establishment of chemical and bacteriological laboratories that should carry our regular analysis of water quality;

(e) Degradation of technical base of communication network and imperfection of procedures for transfer and dissemination of water resources monitoring data at interstate level;

(f) Insufficient compatibility of national norms and technical standards for carrying out monitoring of water resources;

(g) Lack of detailed and legally approved procedures for information exchange, efficient notification and mutual control of reliability of data provided by both countries.

Working groups emphasize on the need for external support in addressing priority organizational, financial and technical issues related to development of monitoring and information exchange systems for joint management of water resources in both basins.

129. With the purpose of improving information exchange, during 2005-2007 the following activities were accomplished under ADB RETA 6163:

(a) 10 sets of office equipment were procured, delivered and installed, including 6 sets for interstate water facilities and 4 sets for basin organizations responsible for O&M activities;

(b) Access to internet was provided to 10 basin water management organizations of Kazakhstan and the Kyrgyz Republic;

(c) Support to maintenance of the Commission's web-site provided.

V. ESTABLISHMENT OF MANAGEMENT INFORMATION SYSTEM AT CONTROL STRUCTURE OF KIROV RESERVOIR

130. under ADB Project RETA 6163, "Water Automation and Metrology" Design Institute has accomplished the design, installation and commissioning of a Management Information System (MIS) at Control Structure of Kirov Reservoir.

131. A Control Structure of Kirov Reservoir (CSKR) is an interstate hydro-technical facility for water diversion and is designed for water allocation for irrigation of land in Kazakhstan and the Kyrgyz Republic. CSKR is a headwork on the Talas River downstream of the dam of Kirov Reservoir. CSKR is used for diversion of water into main canals and discharge of overflow into the bed of Talas River. It is equipped with 7 electric control gates and automation devices named after Makovsky.

132. MIS is designed for automated collection and analysis of information, which is required to optimize technological processes of automated management at CSKR. The objective for establishing MIS is to implement technological processes for interstate water allocation on the Talas River, which will improve the efficiency of water and land resources of Kazakhstan and the Kyrgyz Republic, increase labor productivity in carrying out measurements and estimations, and ensure long-term data storage.

133. Technological processes of water intake, allocation and accounting are carried out by control structures with the help of automation devices and include the following operations:

(a) Accumulation of water at the upper pond of reservoir;
(b) Water diversion into canal within water intake structures;
(c) Water transportation by main canal;
(d) Maintenance of command water levels and water allocation at diversion structures;
(e) Ensure safe canal operation.

134. Water allocation process at MIS technological control and management points is implemented by carrying out the following operations:

(a) Measurement of water level;
(b) Measurement of position of water gate;
(c) Monitoring and control of maximum and minimum technological parameters;
(d) Regulation of water level by regulating the position of gates;
(e) Maintenance of command water levels;
(f) Maintenance of required water flows;
(g) Protection of upper pond from repletion.

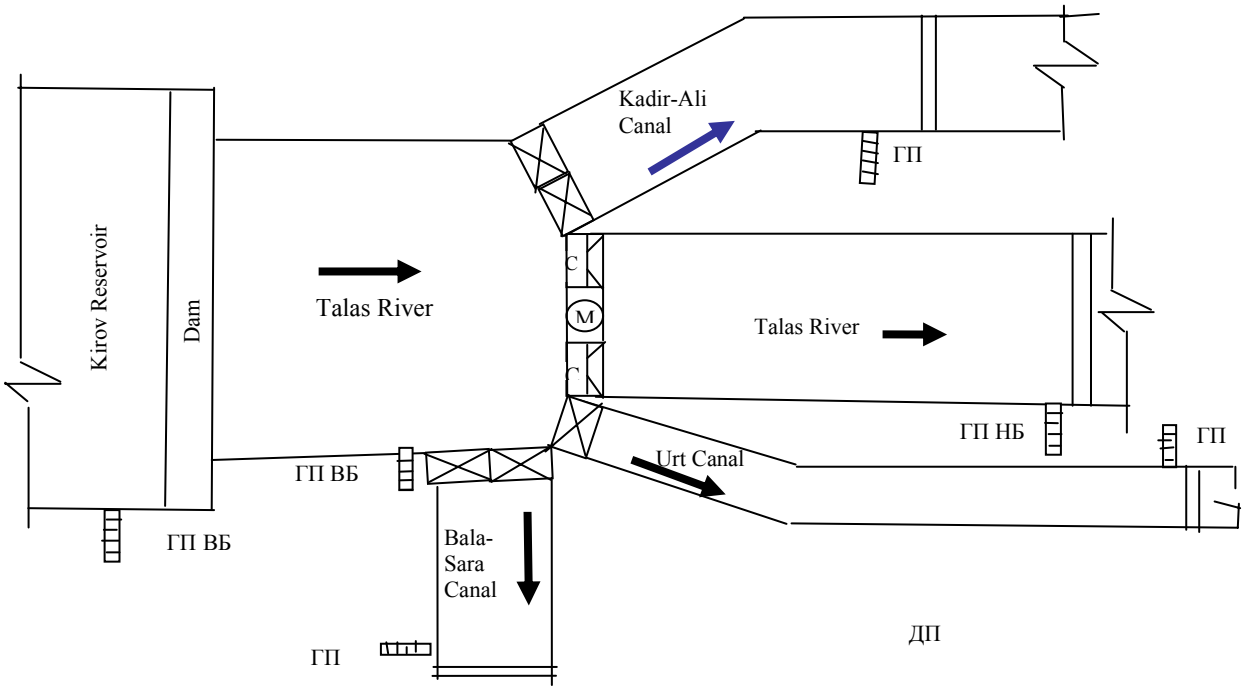


Figure 7: Linear scheme of Control Structure of Kirov Reservoir

135. Special computer software was developed for MIS CSKR, including WINDOWS 2000 (WINDOWS XP), DELPHI 6.0 programming language and INTERBASE database management system. This software organizes the work in a real-time mode, stores commands, exchanges information with control and management equipment, effects inflow and outflow of data and transmits data to the monitor and printer.

136. Special computer software ensures the work of the system in automated regime as follows:

(a) During the start, the system checks the synchronism of clocks in sensors and in case of any deviations fixes these clocks in accordance with clock in a computer;
(b) Checks the latest record time in the database for each parameter;
(c) Transfers information from sensors to database;
(d) Carries out regular checks and reflects the results on the PC monitor;
(e) Analyses contacts with all sensors and controls parameters within certain limits;
(f) Gives command to the gate sensor and mechanical equipment, monitors emergency situation in the structure and in case of emergency stops operation of mechanical equipment;
(g) Refreshes the database on hourly basis;
(h) Controls the condition of alarm systems;
(i) Deviations from normal operational regime are shown on the PC monitor as flushing red-and-white line and sound signal.

137. Aside from abovementioned functions, the application software can perform the following additional functions in parallel with automated functions but under the control of the operator:

(a) Direct operation of gates;
(b) Review of information from database in table and graphic formats;
(c) Input of data by the operator;
(d) Show of data on the monitor and printing of data;
(e) Switching between automated and manual operational regimes;
(f) Additional regimes of system control;
(g) Help Regime to work with the system.

138. The Management Information System at Control Structure of Kirov Reservoir operates in information-control regime and ensures the following:

(a) Collection, analysis, presentation and storage of information received from sensors of water level, position of gates, alarm and security sensors and transmission of data for operation of the control structure;
(b) Database maintenance;
(c) Forecasting of water sources for irrigation, computation of water balance in the system;
(d) Assessment of water reserves;
(e) Computation of operational impact;
(f) Computation of time necessary for use or collection of reserves, etc.
(g) Direct management of water gates.

139. Performance of the above functions is carried out in automated mode with the help of technical devices and application software. Personnel establish the working regime and control automated operations. If necessary, in case of emergency situations and failure of technical devices, the personnel operate the system manually. When the system works in information sharing regime, the personnel monitors the work. In this case, the system's measuring devices provide information about the status of technical infrastructure but the personnel makes decision with regard to regimes of water gates of Kirov Reservoir. The system allows to switch the communication line of each sensor to mobile control device or directly to each sensor. This allows consecutive data collection from each sensor throughout the system during the computer breakdown. All information is displayed on PC monitor.

VI. RECOMMENDATIONS ON CAPACITY BUILDING AND PERSPECTIVE DEVELOPMENT OF THE COMMISSION

140. The Statue of the Commission approved in 2006 actually limits its functions and responsibilities to coordination of joint activities related to operation and maintenance of

interstate facilities in both transboundary basins. At the same time, it is considered that the potential of the Commission is much bigger vis-à-vis its current status and could be used more efficiently for comprehensive development of water relations of both countries.

141. Proposed concept of gradual strengthening of the potential of the Commission and expansion of its areas of activity envisages three stages of its development:

(a) Short-term of 2-3 years starting from 2006;

(b) Medium-term of 10 years;

(c) Long-term, i.e. after completion of a 10-years period of initial operation of the Commission.

142. In a short-term perspective, the work of the Commission will be regulated by provisions of the existing Statute. Priority measures for capacity building during this period should include the following:

(1) Preparation of priority set of legal and regulatory acts, technical standards and other documents that ensure sustainable legal and organizational basis for water management activities in transboundary basins and adoption of appropriate decisions by the Commission;

(2) Carrying out comprehensive inventory of major water assets, and survey of their physical and technical conditions for subsequent preparation of perspective action plans for rehabilitation and development;

(3) Clarification and final endorsement of procedures for definition and approval of norms for annual O&M costs;

(4) development and endorsement of specific mechanisms of joint investment planning and mutual control over receipt and targeted use of funds and other resources allocated by the Parties under a cost-sharing scheme for O&M;

(5) inventory of sources of negative impact of water, development of joint action plans for prevention and liquidation of consequences of such impact;

(6) inventory of the number and technical condition of observation stations and posts, development of joint action plans for modernization of technical means and organizational procedures for monitoring of water resources;

(7) implementation of measures for formation of basin data bases on condition and use of water resources and interstate water facilities. Such measures should include development of software products, provision of measurement and communication devices, computers for national water management agencies, development and testing of mechanisms and procedures for information exchange, efficient notification, etc.

(8) development and testing of improved methodologies for preparation of seasonal and current forecasts of water reserves and hydrological regimes of surface water sources;

(9) set of measures for improving knowledge of members of bilateral Commission, training and skills improvement of staff from national O&M agencies, the Secretariat of the Commission and experts from working groups;

(10) development and piloting of joint programs for improving coordination of national water management agencies with water users and public organizations, their involvement in the decision-making and implementation processes;

(11) development and piloting of programs for public information dissemination on a wide range of water issues;

(12) consolidation of efforts on attraction of additional financial resources from national and external sources for water management and water protection requirements.

143. In a medium-term perspective, under planned review of bilateral Agreement of 2000, it is recommended to revise the Statute of the Commission by extending its status with due consideration of its previous operational experience. Changes of functions and responsibilities of the Commission during this period could be made in the following directions:

(a) elevate the legal status of the Commission to intergovernmental level;

(b) extend responsibilities of the Commission to transboundary basins of Kurkuresuu and Aspara rivers and interstate water infrastructure on the territory of these basins;

(c) regulate the work of the Commission – from primarily coordinating functions in the management of interstate water facilities to integrated regulation of use and protection of water resources in four transboundary basins (Chu, Talas, Kurkuresuu and Aspara);

(d) consistent introduction of principles of integrated water resources management.

144. In case of adoption of positive decisions by the Parties on the above issues, the following adequate measures should be considered:

(a) appropriate revision of legal framework of bilateral water relations;

(b) transition to long-term planning of water economic and water protection activities;

(c) consistent formation of basin systems for regulating quality of water resources, prevention and efficient liquidation of consequences of negative impact of water;

(d) creation of system of sustainable and safe maintenance of water facilities, mining, industrial and communal enterprises that are potential sources of radioactive, toxic and bacteriological pollution of transboundary water resources;

(e) development and implementation of joint programs for improving environmental situation in the zones of formation and dispersion of water flow of transboundary basins, including measures for protection of water sources from depletion, forestation of mountainous and piedmont territories, conservation of flood-lands, etc.;

(f) promotion of integrated water conservation measures due to increasing deficit of water resources caused by intensified water use;

(g) consistent capacity building in integrated water resources management, involvement of representatives of Basin Councils, Federations of Water Users, public commissions on irrigation and drainage and other public organizations in the decision-making and implementation processes;

(h) formation of sustainable system of conflict-free water use on the territory of transboundary basins and implementation of the following measures to this effect:

- regular provision of information to concerned water users and public on key water related issues;

- development of control and inspection activities, with involvement of public organizations;

- tightening administrative, economic and other sanctions to violators of national water laws, norms and rules of water use;

- development and application of mechanisms for compensation of damages due to violation of norms and rules for use and protection of water resources, as well as contractual obligations on water use;

- training and skills improvement for staff of basin water management organizations, WUAs, enterprises using water and other concerned parties on water law, introduction of new management and water use technologies, water protection and other important topics;

(i) involvement of Basin Federations of water users in financing og O&M activities.

145. In a long-term perspective, it is expected that the overall situation in Central Asia would significantly change, including on the territory of transboundary water basins under the jurisdiction of Kazakhstan and the Kyrgyz Republic due to the following factors:

(a) strengthened economies of cooperating states on the basis of market mechanisms;

(b) intensification of integration processes in the region;

(c) completion of institutional reforms in Kazakhstan and the Kyrgyz Republic;

(d) increased man-made impact in environment, including water ecosystems;

(e) increased deficit of water resources and transformation of hydrological regimes due to increased water use and global climate change;

(f) completion of priority rehabilitation and renovation works on irrigation systems that would ensure their sustainable operation.

146. In a longer-term perspective, it is proposed to expand the functions of the Commission to make it a reputable structure that would initiate and coordinate implementation of the following joint activities:

(a) drastic modernization and development of water infrastructure (but not its selected rehabilitation as would have been carried out during the preceding period);

(b) regulation of balance between demand and supply of water resources on the basis of economic mechanisms of water use;

(c) wide introduction of water saving, waste-free and environmentally sound technologies in water consuming sectors of economy;

(d) integrated use of natural water objects and water infrastructure in order to endure maximum benefits for the Parties. Such measures could include, for example, use of water reservoirs for mass water sports and tourism, recreation and development of industrial fishery. Similarly, in parallel lands of water fund could be used for recreation activities, development of industrial greenhouses, and part of water facilities for development of small hydro-power production, etc.

(e) application of models of integrated water resources management within transboundary basins, and for this purpose organization of active interaction between national and local water management and water protection agencies, local administration and local self-governing institutions, WUAs and entrepreneurs;

(f) regulation of quality of water resources;

(g) regulation of conditions of water ecosystems;

(h) more active participation in global and regional water partnership programs, cooperation with other international organizations;

(i) attraction of business partners and donors for provision of investment and implementation of business projects;

147. In this context, in future the Commission could perform in the following capacity:

(a) as an initiator and promoter of new ideas for development of bilateral cooperation in the water sector;

(b) as a coordinator of procedures for strategic planning and implementation of joint water management and water protection programs;

(c) as a main broker in interaction between national management bodies, federations of water users from both Parties, international organizations, donors and other stakeholders on wide range of bilateral water relations;

(d) as an arbiter in resolving water disputes on the territory of transboundary basins;

(e) as an initiator and coordinator of international projects in the water sector;

(f) as an organizer of information exchange, training programs and PR activities.

It is clear that any perspective changes of functions and responsibilities of the Commission will require adequate revision of a legal framework for its operation and appropriate measures for strengthening its staff and technical potential and financial support.

148. During the initial stage, efficient operation of the Commission can be ensured only if there is adequate financial, organizational and methodological support from national Governments and external donors. During 2005-2006, WRC of Kazakhstan and WED of the Kyrgyz Republic created necessary organizational conditions for the start-up of the Commission that included staffing of the Commission, its Secretariat and working groups, provision of office accommodation and equipment. Along with that, during this period substantial contribution was made by ADB RETA 6163 that included the following:

(a) organization and financial support to operation of a permanent Secretariat of the Commission;

(b) organization and financial support to operation of working groups under the Secretariat of the Commission;

(c) participation in preparation of the Statue and other documents regulating operational procedures of the Secretariat;

(d) participation in preparation of Rules of comprehensive use of water resources from interstate water reservoirs.

149. Recommended measures for further comprehensive support of the Commission for a short-term perspective (tentatively, for the next 2-3 years) to be provided through budget allocations of both countries and contribution of donors may include the following:

In terms of supporting development of legal and regulatory, and organizational framework of the Commission:

(a) support in development and piloting of recommendations on financing O&M costs of interstate water facilities and transfer towards aggregate indicators of expenditures depending on volumes of water use by both Parties;

(b) support in preparation and piloting of recommendations defining procedures for development, endorsement, expertise and approval of the following:

- detailed design documentation for O&M and rehabilitation works, modernization of equipment at interstate water facilities;

- technical standards, norms, rules and results of research, development and design works and other documents for river basins;

(c) support in training of staff of the Secretariat of the Commission;

(d) support in maintaining the web-site of the Commission.

In terms of providing informational support to the Commission and development of its international relations:

(a) support in formation of basin information system: Surface and sub-surface water resources of the Chu and Talas river basins;

(b) support in creation and maintenance of the Commission's web-site in English;

(c) support in preparation of information materials about the Commission and its activities and their dissemination through mass media;

(d) support in admission of the Commission into international network of basin organizations and its participation in a twin-basin programs.

In terms of perspective expansion of the functions of the Commission and provision of legal advice in implementation of joint water management activities:

(a) support in preparation of a detailed plan for gradual expansion of functions of the Commission;

(b) support in development of sets of recommendations on revising provisions of 2000 Agreement;

(c) support in development of a legal act regulating the status of interstate water facilities;

(d) support in development of new and modernization of existing legal acts that regulate the following aspects:

- procedures for water allocation, rationing and revision of water use limits;
- functions, authorities and responsibilities of national management bodies;
- procedures for mutual control over compliance with contract liabilities;
- procedures for prevention and regulation of water disputes and other conflict situations;
- unified procedure for monitoring of water resources and basins water cadastres;
- safety standards for water infrastructure;
- Statute on Basin Councils.

In terms of introduction of mechanisms integrated water resources management:

(a) support in forming a potential for integrated water resources management in the Chu and Talas river basins;

(b) support in creation and development of transboundary Basin Councils.

In terms of supporting more active public participation in water resources management:

(a) support in improving and implementing a program of public participation in management processes;

(b) support in training of WUA staff on water assessment, application of new technologies and water measurement devices in the training center in the Kyrgyz Republic;

In terms of technical support to the Commission:

(a) support in provision of water measurement and water assessment devices for interstate water facilities;

(b) support in development and introduction of unified procedures for measurement and assessment of water in transboundary sites;

(c) support in provision of automated management systems to interstate water facilities;

(d) support in development of hydro-meteorological observation network in transboundary basins, especially required for improving the quality of water forecasts from natural sources and floods.

In terms of using and disseminating the experience in establishing the Commission:

(a) support in development of draft bilateral agreements for other transboundary basins.

150. These recommended priority measures for supporting the Commission are proposed for a short-term period and could be further extended with due consideration of forecasted changes in its operation. For this purpose the following is proposed:

(a) activate the work of national executing agencies on attraction of additional external investments and donor support for participation in financing of joint business projects aimed at development of water management activities in the Chu and Talas river basins, including full support to the Commission and its Secretariat;

(b) during then initial stage, the Commission itself should clarify its role as an initiator of attracting external investments and donor support and as a coordinator of effective use of these funds and resources.

Annex 1

AGREEMENT
between the Government of the Kyrgyz Republic and the Government of Kazakhstan on the use of interstate water facilities on the Chu and Talas Rivers

The Government of the Kyrgyz Republic and the Government of Kazakhstan further referred to as Parties,

Guided by an Agreement on establishing a unified economic area between the Kyrgyz Republic, Kazakhstan and Uzbekistan, signed on 30 April 1994 in Cholpon-Ata city,

Acknowledging social, economic and environmental value of water resources,

Attaching high importance to mutual cooperation in the use of water resources and ensuring reliable and safe operation of interstate water facilities,

Having common desire to develop the most appropriate and fair decision in effective use of water management facilities in accordance with generally recognized norms of international water law,

Based on the principles of neighborliness, equality and mutual aid,

agreed on the following:

Article 1

The Parties recognize that the use of water resources, operation and maintenance of interstate water facilities should be carried out for achieving mutual benefits on a fair and rational basis.

Article 2

The following water facilities that are owned by the Kyrgyz Republic are considered by the Parties as interstate water facilities:

Orto-Tokoy Water Reservoir on the Chu River;
Lined Bypass Chu canals on the Chu River from Bystrovskay HPS to Tokmok city;
Western and Eastern Big Chu Canals and its facilities;
Chumysh Control Structure on the Chu River;
Kirov Water Reservoir on the Talas River.

Article 3

The Party that owns interstate water facilities has the right for compensation of expenditures required for ensuring their safe and reliable operation from the Party that uses these facilities.

Article 4

The Parties compensate operation and maintenance costs of interstate water facilities and other agreed activities on a cost-sharing basis proportionally to the volumes of received water.

Article 5

To ensure safe and reliable operation of interstate water facilities, the Parties shall establish permanent commissions that shall define operational regimes and determine the volumes of necessary operational and maintenance expenditures.

Article 6

The Parties annually foresee allocation of necessary funds for operation and maintenance of interstate water facilities.

Article 7

The Parties agreed to implement joint activities aimed at protection of interstate water facilities and their territories from negative impacts caused by floods, mudflows and other natural disasters.

Article 8

In case of extraordinary situations at interstate water facilities caused by natural disasters or technical reasons the Parties shall immediately notify each other and carry out joint preventive, mitigation measures and eliminate their consequences.

Article 9

In order to ensure effective and efficient implementation of repair and rehabilitation works at interstate water facilities the parties acknowledge the necessity to use each other's construction, repair, operational and industrial potential.

Article 10

The Parties agreed to carry out joint research, design, survey works related to effective use of water resources and water facilities.

Article 11

The parties create conditions for unrestricted and duty-free movement through the borders and territories of both countries of personnel, machinery, equipment, raw materials and goods required for operation and maintenance of interstate water facilities.

Article 12

In case of arising disputes or disagreements between the Parties related to interpretation or application of this Agreement, the Parties shall resolve them through negotiations and consultations.

Article 13

By consent of the Parties revisions and amendments may be incorporated into this Agreement in the form of separate protocols that become an integral part thereof.

Article 14

This Agreement becomes effective from the date of last written notification by the Parties on accomplishment of intergovernmental procedures as required by national legislation.

This Agreement is signed for five year term and shall be automatically extended for the next five-year term in case if six months prior to expiry of the Agreement neither Party informed in writing about its intention to discontinue its effectiveness.

Signed in Astana city on 21 January 2000 in two original copies each in Kyrgyz, Kazakh and Russian languages with all texts having the same legal force.

In case of arising disagreements related to interpretation of this Agreement, the Parties shall be guided by the Russian language text.

Annex 2

Statute
of the Commission of Kazakhstan and the Kyrgyz Republic
on the use of interstate water facilities on the Chu and Talas Rivers
(26 July 2006)

I. General

1. The Commission of Kazakhstan and the Kyrgyz Republic on the use of interstate water facilities on the Chu and Talas Rivers (further referred to as "the Commission") is established in accordance with Article 5 of the Agreement between the Government of Kazakhstan and the Government of the Kyrgyz Republic on the use of interstate water facilities on the Chu and Talas river basins signed in Astana city on 21 January 2000 (further referred to as "the Agreement").

2. The Commission is established for implementation of goals and objectives of the Agreement.

3. In its operation, the Commission is based on the Agreement and is guided by the Statute of the Commission of Kazakhstan and the Kyrgyz Republic on the use of interstate water facilities on the Chu and Talas river basins (further referred to as "the Statute").

4. The Stature regulates principles and operational procedures of the Commission on organizing cooperation between the Parties in rational use of interstate water facilities on the Chu and Talas rivers.

5. This Statute defines main tasks and functions, rights and responsibilities of the Commission, as well as main procedural activities for organizing cooperation between the Parties in accordance with the Agreement.

II. The Scope of Work of the Commission

6. The following water facilities that are owned by the Kyrgyz Republic are considered by the Parties as interstate water facilities:

(1) Orto-Tokoy Water Reservoir on the Chu River;

(2) Lined Bypass Chu canals on the Chu River from Bystrovskay HPS to Tokmok city;

(3) Western and Eastern Big Chu Canals and its facilities;

(4) Chumysh Control Structure on the Chu River;

(5) Kirov Water Reservoir on the Talas River.

III. General Principles for Establishment of the Commission

7. The Commission is establish on a parity basis and operates under the guidance of two co-chairs appointed by the Parties. The members of the Commission are determined on the basis on equal representation of the Parties.

8. The Commission comprises the Kazakh part of the Commission presented by the co-chair and its members appointed by the Government of Kazakhstan and the Kyrgyz part of the Commission presented by the co-chair and its members appointed by the Government of the Kyrgyz Republic.

9. Co-chairs and members of the Commission have equal rights.

10. The main form of activity of the Commission is organization of meetings to be conducted at least twice a year.

IV. Main Tasks of the Commission

11. The main tasks of the Commission are as follows:

(1) Coordination and monitoring of activities of the Parties on implementation of the Agreement;

(2) Development and implementation of joint measures for protection and rational use of water resources taking into account the needs of population and economic objects of the Parties in water resources;

(3) Complex assessment and forecasting of conditions of water facilities, regulation of use of their water resources to achieve mutual benefits on fair and rational basis;

(4) Endorsement of norms of water use and water allocation, water assessment and water measurement, as well as of methods for carrying out hydrological monitoring;

(5) Endorsement of documents regulating procedures for organization of O&M activities at interstate water facilities and cost-sharing of O&M expenditures, flood control and other activities that ensure safe operation of these facilities;

(6) Endorsement of operational regimes of water reservoirs and revisions of regimes and water use limits depending on actual water availability and requirements of water users;

(7) Definition of procedures for joint actions in extraordinary situations, coordination of measures on flood and mudflow control and other natural disasters;

(8) Organization of exchange of hydrological forecasts and data on water and environmental situation in the Chu and Talas river basins and other relevant information;

(9) Endorsement and coordination of monitoring programs for assessment of water facilities, water flow and hydro-technical structures, and maintenance of water cadastre to form a system of water resources monitoring in the Chu and Talas river basins;

(10) Organization of joint surveys and investigations to ensure proper implementation of O&M activities and safety of water facilities, and regulation and rational use of water resources in the Chu and Talas river basins;

(11) Review of other issues related to operation of the Commission.

V. Authority of the Commission

12. The Commission enjoys the authority provided by the Agreement and this Statute in coordination with national and local authorities, local self-governing bodies, public organizations and citizens.

13. In its work, the Commission is also guided by previously developed and approved

documents on interstate allocation of water resources of the Chu and Talas basins (Regulation on sharing water flow in the Chu river basin of 1983, Regulation on sharing water flow in the Talas river basin of 1983, Regulation on sharing water flow in the Kurkuresuu and Aspara rivers of 1948, including control structures, irrigation systems, canals and water mains by maintaining their principles and structure of water allocation) and clarifies these aspects, if necessary, based on mutual agreement of the Parties.

VI. Procedure for Border Crossing

14. In accordance with Article 11 of the Agreement, the Commission makes recommendations to the Parties on creating conditions for unrestricted and duty-free movement through the borders and on the territory of these countries of personnel, machinery and equipment, materials and tools required for O&M of interstate water facilities.

VII. Operational Procedure of the Commission

15. At its meetings conducted in turns on the territory of Kazakhstan and the Kyrgyz Republic, the Commission reviews issues proposed by the Parties or by the Commission itself.

16. The Commission approves the agenda for subsequent meeting and its work plan for the next calendar year. At the request of the co-chairs, the Commission may incorporate changes into the work plan.

Co-chairs of Kazakh and Kyrgyz parts of the Commission preliminary agree topics for inclusion into the agenda of the meeting. Co-chairs have the right to propose for review additional issues that were not included in the agenda. Decision on including these issues into the agenda is made by the Commission. Preliminary agenda is endorsed through correspondence.

Special meetings could be conducted, if necessary, based on written request of one of the co-chairs of the Commission. Procedure and agenda of special meetings are to be approved by co-chairs of the Commission.

17. Decision on the venue and time of subsequent meeting of the Commission is made jointly during the preceding meeting or in between the meetings based on written proposal of one of co-chairs. Response to such written proposal should be made within 5 days after receipt of the proposal.

If the proposed venue and time of the meeting of the Commission is not acceptable due to some reasons, then the concerned Party informs about this in its response and proposes alternative venue and time of the meeting.

18. A co-chair of the host country chairs the meeting of the Commission. Accordingly, a co-chair from the other country performs the function of a deputy chair.

19. The Commission adopts decisions on a consensus basis. In case of disagreements on any issues the Parties conduct additional consultations and review these issues at the next meeting of the Commission.

20. At its first meeting, the Commission reviews and adopts procedure and agenda for the meetings and has the right to refine these procedural rules.

21. Official languages of the Commission are Kazakh, Kyrgyz and Russian languages. The working language of the meeting is Russian.

22. Based on the results of the meeting the minutes shall be prepared containing detailed discussion of issues in separate paragraphs. The minutes are made in two copies.

They contain discussion of issues, adopted decisions, responsible persons and implementation deadlines. Upon endorsement of the minutes by the Commission the co-chairs of the Parties sign the minutes. Each Party receives a copy of the minutes.

23. At the meetings, the co-chairs of the Commission inform about measures adopted by the Parties for implementation of decisions made during previous meetings of the Commission.

24. The Commission established a permanent Secretariat. The Commission can engage on temporary or full-time basis experts from specialized research, design and O&M organizations, and create temporary or permanent working groups.

25. The Commission can assign experts of the Parties to develop proposals on different issues for their review at the meetings of the Commission.

26. Staff of the Commission and invited experts can, if necessary, make field visits to familiarize with the situation and have the right for unrestricted visit to organizations and facilities referred to in para. 6 of this Statute, regardless of their affiliation and form of ownership.

27. Each Party is responsible for maintaining documents of the Commission.

28. Annually, the Commission summarizes the outcomes of preceding year and approves work plans for subsequent year. Based on annual outcomes the Commission reviews and approves annual reports.

29. Expenditures related to business travel and accommodation of members of the Commission, representatives of working groups and experts are paid by each country independently.

30. Expenditures related to organization of meetings of the Commission, as well as meetings of experts are covered by the host country.

Annex 3

Statute of the Secretariat
of the Commission of Kazakhstan and the Kyrgyz Republic
on the use of interstate water facilities on the Chu and Talas Rivers
(21 November 2006)

I. General

(1) This Statute defines main tasks and functions, rights and responsibilities of the Secretariat.

(2) The Secretariat of the Commission of Kazakhstan and the Kyrgyz Republic on the use of interstate water facilities on the Chu and Talas river basins was established in accordance with an Agreement between the Government of Kazakhstan and the Government of the Kyrgyz Republic on the use of interstate water facilities on the Chu and Talas river basins signed in Astana city on 21 January 2000 (further in the text referred to as "Agreement") and a Statute of the Commission of Kazakhstan and the Kyrgyz Republic on the use of interstate water facilities on the Chu and Talas river basins (further in the text referred to as "Statute of the Commission") approved on 26 July 2006.

(3) The main task of the Secretariat is to facilitate operation of the Commission and implement its decisions related to bilateral cooperation on the Chu and Talas rivers.

II. Main Tasks of the Secretariat

The Secretariat performs the following tasks:

(1) Carrying out organizational and technical measures to ensure operation of the Commission and implementation of its decisions;

(2) Development of proposals on interaction of the Commission with the Government of Kazakhstan and the Government of the Kyrgyz Republic, ministries and agencies, water management organizations, local administration and concerned organizations, water management enterprises, public organizations and citizens, and participation in their implementation;

(3) Development of proposals on improving water legislation of the countries, creating a unified legal, regulatory and methodological base for operation and maintenance of interstate water facilities, procedures and mechanisms for allocation and use of water resources, financing of repair and O&M costs and other works, and development of system of monitoring indicators;

(4) Participation in forecasting and planning of measures on rational use and protection of water resources and in implementation of these plans.

(5) Participation in preparation of proposals on development of targeted basin programs, detailed design documents, methodological and research activities;

(6) Participation in information exchange, provision of information related to operation of the Commission and the Secretariat.

(7) Participation in development and implementation of measures to ensure operational safety of interstate water facilities, timely allocation and targeted use of funds and inputs;

(8) Participation in control of water use limits, established operational regimes of water reservoirs and facilities, agreed parameters of water allocation in transboundary sites;

(9) Preparation of proposals for financing development and implementation of different programs, projects and works. Coordination of donor financed works under projects, programs, regulatory, methodological and research activities;

(10) Preparation of proposals for the Commission on involvement of all concerned stakeholders in decision-making processes;

(11) Preparation of proposals on improving procedures and mechanisms of financing activities of the Secretariat;

(12) Preparation of materials for and organization of sessions, conferences, meetings and consultations of co-chairs;

(13) Carrying out paper work and filing of documents of the Commission;

(14) Signing of the Commission's decisions, orders and instructions by co-chairs and national executive secretaries;

(15) Carrying out information dissemination, editing and publishing activities;

(16) Preparation of proposals for revising and amending the Agreement and the Statute of the Commission;

(17) Perform other functions defined by the Commission.

III. Organizational Procedures of the Secretariat

(1) The Secretariat is permanent executive body of the Commission;

(2) The Secretariat comprises:

The Secretariat of Kazakh part of the Commission comprising Executive Secretary, his/her deputy, technical and support staff appointed by the co-chair of the Commission from Kazakhstan;

The Secretariat of Kyrgyz part of the Commission comprising Executive Secretary, his/her deputy, technical and support staff appointed by the co-chair of the Commission from the Kyrgyz Republic;

(3) Staffing plan for each part of the Secretariat is established on parity basis;

(4) The Secretariat is established on a parity basis by the decision of the Commission and operated under the guidance of two co-chairs – Executive Secretaries that have equal rights;

(5) The Secretariats are legal entities having bank accounts in local and foreign currencies;

(6) Maintenance of each Secretariat, including provision of office accommodation, communication, office equipment and other necessary equipment and transport is foreseen from the national budgetary funds, contributions of international organizations, bilateral donors and other sources;

(7) Separate working groups can be established under the Secretariat to prepare materials on specific issues and directions;

(8) The Secretariat has its own seal with image selected in the established order containing its short name in Kazakh and Russian languages for Kazakh part, Kyrgyz and Russian languages for Kyrgyz part, and stamps and letterheads for official communication. The seal and stamps are made in two copies and are kept by each Executive Secretary;

(9) Statute of the Secretariat and changes and amendments to thereof are subject to approval by the Commission.

IV. Operational Procedure of the Secretariat

(1) The main form of activity of the Secretariat is organization of joint meetings to be conducted at least once a month. At the request of one of the Parties additional meetings can be organized to make urgent decisions and review emergency issues.

(2) During the meetings that are usually held in turns on the territory of each Party, implementation of the Commission's decisions is reviewed.

(3) An Executive Secretary of the host country of the Secretariat chairs the meeting. Unless otherwise agreed, the task of a clerk is performed by an assistant of national Executive Secretary of the host country.

(4) The Secretariat adopts decisions on a consensus basis. Disagreements and disputes on any issues are reviewed by a regular (special) meeting of the Commission or by its co-chairs.

(5) Based on the results of the meeting the minutes shall be prepared containing detailed discussion of issues in separate paragraphs. The minutes are made in two copies in Russian language. They contain discussion of issues, adopted decisions, responsible persons and implementation deadlines. Upon endorsement of the minutes by the members of the Secretariat, Executive Secretaries sign the minutes. Each Executive Secretary receives a copy of the minutes.

(6) The working language of the meeting is Russian.

(7) All members of the Secretariat, its experts, representatives of local administration, organizations and other invitees participate in each meeting.

(8) Executive Secretaries inform each other about implementation of adopted decisions. In case of situations that could lead to deterioration of water use conditions they immediately inform each other and the co-chairs of the Commission, review and agree mutually acceptable measures for preventing, mitigating or controlling the situation on their territories as well as for eliminating causes and consequences of such situations.

(9) The Secretariat coordinates its activities with state and local administration, local self-governing bodies of Kazakhstan and the Kyrgyz Republic, and informs about the work of the Commission.

(10) Staff of the Secretariat and invited experts can, if necessary, make field visits to familiarize with the situation and have the right for unrestricted visit to interstate water facilities on the Chu and Talas rivers as well as to organizations responsible for their O&M regardless of their affiliation and form of ownership.

(11) Each Party separately covers the costs related to business travels and accommodation of members of the national secretariat, working groups and experts.

(12) The costs related to organization of meetings of the Secretariat, working groups and experts are covered by the host country.

(13) Decisions of the Commission adopted within its mandate are compulsory for implementation by all state, territorial and local authorities, water management organizations, and users of water facilities within the territory of operation of the Commission.

V. Rights and Responsibilities of the Secretariat

(1) The Secretariat has the rights stipulated in this Statute;

(2) In its work on procedural issues related to preparation and organization of meetings of the Commission the Secretariat is guided by Section 7: “Operational Procedures of the Commission” of the Statute of the Commission.

(3) The Executive Secretary performs the following functions:

- Carries out managerial functions, defines the rights and responsibilities of staff;
- In coordination with national co-chair approves staffing plan, regulation about structural divisions and other regulatory documents defining the rights and responsibilities of staff, and financial documents;
- Within his/her authority issues orders and instruction mandatory for staff of the Secretariat, maintains official correspondence;
- On the basis of decision of the Commission gives instructions that are mandatory for implementation;
- Hires an fires staff, provides information about their competencies and qualification;
- Organizes financial activities within the limit of available funds for subsequent year, signs contracts and is accountable for agreed responsibilities;
- Represents the secretariat in meetings with different organizations and government authorities;
- Manages available assets and ensures their safety;

- Meets with citizens;
- In the established order receives information required for implementation of assigned tasks from ministries, agencies, statistical authorities, organizations, enterprises and water users;
- Carries out other functions in accordance with decisions of the Commission or instructions of the co-chair.

(4) The Secretariat is subordinated to the Commission, which controls operation of the Secretariat.

(5) Executive Secretaries are personally responsible for implementation of tasks assigned to the Secretariat in accordance with this Statute as well as for final outcomes.

(6) Reorganization and liquidation of the Secretariat is carried out based on the decision of the Commission in the established order.

VI. Effectiveness of the Statute

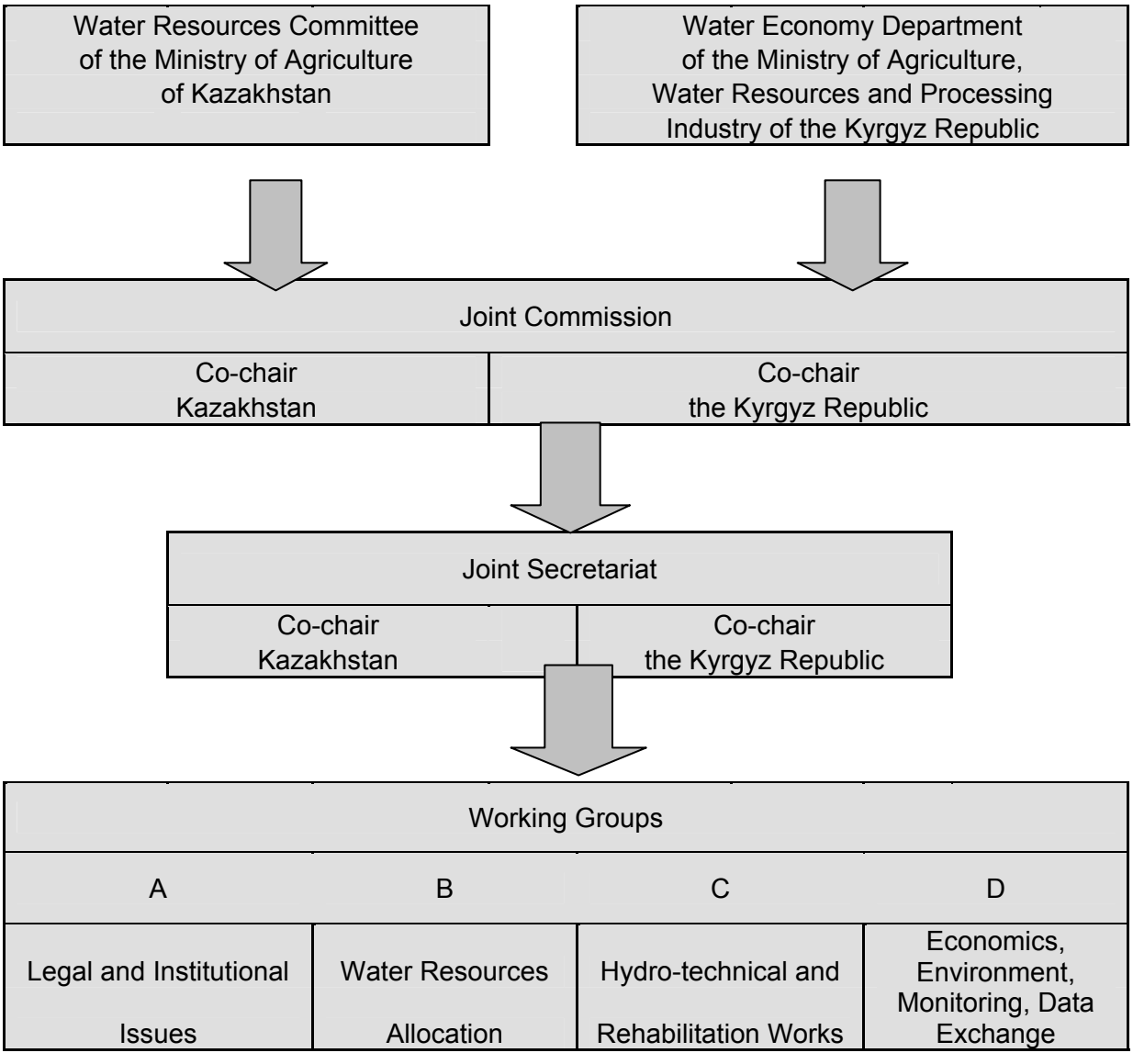
This Statute becomes effective from the date of its approval by the Commission. As required, the Commission incorporates changes into the Statute of the Secretariat.

This Statute of the Secretariat of the Commission of Kazakhstan and the Kyrgyz Republic on the use of interstate water facilities on the Chu and Talas Rivers is signed in two original copies each in Kyrgyz, Kazakh and Russian languages with all texts having the same legal force. In case of arising disagreements related to interpretation of this Statute, the Parties shall be guided by the Russian language text.

Signature of Executive Secretary Of Kazakh part of the Secretariat	Signature of Executive Secretary Of Kyrgyz part of the Secretariat

Annex 4

Organizational Structure
of the Commission of Kazakhstan and the Kyrgyz Republic
on the use of interstate water facilities on the Chu and Talas Rivers



Annex 5

A draft of 21 September 2007 endorsed at the Fourth meeting of the Commission of Kazakhstan and the Kyrgyz Republic on the use of interstate water facilities in the Chu and Talas Basin

PROTOCOL
on revisions and amendments to the Agreement between the Government of the Kyrgyz Republic and the Government of Kazakhstan dated 21 January 2000 on the use of interstate water facilities in the Chu and Talas River Basins

The Government of Kazakhstan and the Government of the Kyrgyz Republic, hereandafter referred to as the Parties,

With the view to further develop cooperation between the Republic of Kazakhstan and the Kyrgyz Republic on the use of interstate water facilities in the Chu and Talas River Basins,

In accordance with Article 13 of the Agreement,

have agreed to enter the following revisions and amendments into the Agreement:

Article 5 shall be edited as follows:

In order to ensure safe and reliable use of interstate water facilities the Parties will establish a permanent commission and its executing body, a Secretariat that will define the operational regimes of the interstate water facilities and determine the needs for financing their operation and maintenance costs. The operational cost of the secretariat shall be born by the republican budgets of the Parties.

Article 11 shall be edited as follows:

At the designated state border checkpoints, border control and customs authorities of the Parties allow border crossing of personnel, control movement of goods and vehicles and carry out customs registration in a simplified manner without charging customs duties and taxes in accordance with the list of items and quantities approved by the Commission referred to in Article 5 of the Agreement. Their use for other purposes not included into this Agreement and their selling is prohibited.

[Payment of land tax is carried out in accordance with national legislation of the Republic of Kazakhstan and the Kyrgyz Republic depending on the location of structural parts of interstate water facilities.]

This Protocol is an integral part of the Agreement and becomes effective according to procedure foreseen by Article 14 of the Agreement.

Signed in _____ city on "__" _____ 200_ in two original copies each in Kyrgyz, Kazakh and Russian languages with all texts having the same legal force.

In case of arising disagreements related to interpretation of this Protocol, the Parties shall be guided by the Russian language text.

On behalf of	**On behalf of**
the Government of Kazakhstan	**the Government of the Kyrgyz Republic**

TA 6163-REG: Improved Management of Shared Water Resources in Central Asia

FINAL REPORT
Volume II

Facilitating Regional Water Policy Discussion and Building Regional Water Management Capacity

Prepared by
Scientific Information Center of Interstate Commission
for Water Coordination in Central Asia
for
Water Resources Committee of Kazakhstan,
Water Economy Department of the Kyrgyz Republic, Ministry of Amelioration and Water Resources of Tajikistan, Ministry of Water Resources of Turkmenistan, Ministry of Agriculture and Water Resources of Uzbekistan and Asian Development Bank

Tashkent 2007

ABBREVIATIONS

ADB	Asian Development Bank
ASBP	Program of concrete actions for environmental and socio-economic improvement in the Aral Sea basin
BWO	Basin Water Organization
CAR	Central Asian Republics
CMC	Coordination Metrological Center
EC	Executive Council
HPS	Hydropower station
ICWC	Interstate Commission for Water Coordination of Central Asia
IFAS	International Fund for Aral Sea Saving
NSCR	Naryn-Syrdarya Cascade of Reservoirs
NWG	National work groups
RETA	Regional technical assistance
RWG	Regional work group
SCADA	Supervisory Control and Data Acquisition
SIC	Scientific Information Center
UDC	Unified Dispatch Center (Energy)

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EXECUTIVE SUMMARY

Since independence of the Central Asian states, the region's major river basins have got transboundary status and their interstate use required new legal framework and management approach. Despite political commitments expressed in various declarations and the actual need for adequate legal regulation, the international lawmaking in the use and protection of transboundary water resources is proceeding with relatively slow pace. This work requires comprehensive discussions and consensus of national interests of the riparian states linked with regional priorities. In this context, ADB's technical assistance that provided a platform for carrying out regular dialogue is very important and timely, and it contributes to the strengthening of collaboration among the countries in the region.

This report presents results of activities accomplished under ADB RETA 6163: Improved Management of Shared Water Resources in Central Asia by the following five working sub-groups:

Sub-group 1: Development of rules for implementation of procedural obligations and preparation of recommendations on improving rules for regulation and management of water and energy resources of Syrdarya river basin;

Sub-group 2: Clarification of river losses in the midstream and downstream part of Amudarya river basin;

Sub-group 3: Development of detailed methodological recommendations on assessment of basin-wide expenditures, data collection and assessment of actual damages from different regimes of water use;

Sub-group 4: Finalization of a draft Agreement on strengthening of organizational structure for management, protection and development of transboundary water resources;

Sub-group 5: Preparation of inventory of interstate water facilities and improvement of draft Agreement on the use of water and energy resources of Syrdarya river basin.

The preliminary results of works undertaken under the aegis of ICWC suggest that a strong platform was created for carrying out negotiations and reaching consensus on different disputes. In particular, representatives of water, energy, environment, economy and law sectors were involved and actively participated in the work. The analysis of current situation in regional water management was made, the inventory of interstate water facilities was prepared, the report on actual damages caused by different regimes of water use was issued, the report on river losses in Amudarya river basin was prepared and a revised draft Agreement on the use of water and energy resources of Syrdarya river basin was practically endorsed (except for three articles).

The work that started should be continued, especially in view of implementing the mechanisms stipulated in the new draft Agreement on Syrdarya and initiating activities related to Amudarya river basin.

I. INTRODUCTION

A. General characteristics of water and energy resources in the basin

1. The Aral Sea basin, which nearly matches the administrative boundaries of Central Asia, covers the whole area of Tajikistan, Uzbekistan, most of Turkmenistan, part of the Kyrgyz Republic (Osh, Djalalabad, Naryn, Batkent), south of Kazakhstan (two provinces of Kzyl-Orda and Southern Kazakhstan), and north of Afghanistan.

The map of the Aral Sea Basin

2. Water resources in the Aral Sea region comprise of renewable surface and ground water and return water (waste and drainage). There are two major river basins in the Aral Sea basin: Syrdarya in the north and Amudarya in the south. The Zerafshan River, former tributary of Amudarya, flows between those main rivers.

3. Syrdarya is the second in terms of water volume and the longest river in Central Asia. It is 3,019 km long from the sources of Naryn, while the basin area is 219,000 km^2. Syrdarya river originates from Central (Inner) Tien-San. The river is called Syrdarya upon the conflux of the Naryn and Karadarya rivers. About 75.2% of Syrdarya flow is formed on the territory of the Kyrgyz Republic. Then, the river crosses Uzbekistan and Tajikistan and flows into the Aral Sea on the territory of Kazakhstan. The rest of river flow is formed in Uzbekistan (about 15.2%), Kazakhstan (6.9%), and Tajikistan (2.7%).

4. Amudarya is the largest river in Central Asia. Its length is 2,540 km from the sources of Pyandj, and the basin area is 309,000 km^2. The river is called Amudarya upon the conflux of the Pyandj and Vaksh rivers. The river has three large right tributaries (Kafirnigan, Surkhandarya, and Sherabad) and one left tributary (Kunduz) in its midstream. Further up to the Aral Sea, the Amudarya River does not receive any inflow. Major river flow is generated in Tajikistan (about 74%). Then, the river flows along the border of Afghanistan and Uzbekistan, crosses Turkmenistan, flows back into Uzbekistan and then goes into the Aral Sea. About 13.9% of river flow is formed in Afghanistan and 8.5% in Uzbekistan.

5. The total mean annual flow of all the rivers into the Aral Sea basin is 116 км^3. This is comprised of 79.4 km^3 of Amudarya's flow and 36.6 km^3 of Syrdarya's flow. According to water allocation probability, 5% (humid year) and 95% (dry year), the annual flow varies from 109.9 to 58.6 km^3 for Amudarya and from 51.1 to 23.6 km^3 for Syrdarya.

6. The water resources management system includes the following facilities: a unique Toktogul Reservoir with capacity of 19 km^3; Charvak, Andizhan, and Nurek control structures with dams of varying height from 100-350 m; the largest gravity canal of Karakum (1,400 km) with discharge of 600 m^3/sec; and, unique cascades of pumped irrigation canals, including Karshi Cascade with discharge capacity of 350 m^3/sec and water lift of 180 m, etc.

7. More than 80 reservoirs were constructed in the Aral Sea basin. The capacity of each reservoir is more than 10 million m^3. In order to change the natural river flow regime and adjust it to irrigation demand, off-stream and in-stream reservoirs and storage reservoirs at main canals were built. Thee total capacity of those reservoirs is more than 60 km^3, of which 44 km^3 are active ones, including 17 km^3 in the Amudarya basin and 27 km^3 in the Syrdarya basin.

8. Forty five hydropower stations with total capacity of 34.5 GW were built in the Aral Sea basin, with capacity of individual stations ranging from 50 to 2,700 MW. The largest hydropower stations are Nurek (Vaksh River, Tajikistan) with capacity of 2,700 MW, and Toktogul (Naryn River, the Kyrgyz Republic) with capacity of 1,200 MW. Hydro-energy accounts for 27.3% of the mean annual energy consumption in the basin. As to the weight in the general energy production balance, the highest hydro-energy generation is in Tajikistan (about 98%) and in the Kyrgyz Republic (about 75%). The lowest generation is in Turkmenistan (1%). The region may satisfy more than 71% of energy demand through hydropower that is 150 GW.

More detailed information about the Aral Sea Basin, including the location, geomorphology, landscape, climate, water and land resources, etc. is presented on the following web-site: http://www.cawater-info.net/aral/index.htm.

B. Issues

9. An Agreement was signed in 1992 between Kazakhstan, the Kyrgyz Republic, Uzbekistan, Tajikistan, and Turkmenistan "On cooperation in the area of joint management of the use and protection of water resources from interstate sources". Under this Agreement, the countries agreed to respect "the existing framework and principles of water distribution" and to be guided by "effective regulations on allocation of water from the interstate sources". On 20 September 1995, a Nukus Declaration was signed by the Heads of the Central Asian States and the international organizations on sustainable development in the Aral Sea basin, where "the Central Asian States recognize the earlier signed and effective Agreements, Treaties and other regulations of the relationships between the states in the area of water resources in the Aral Sea Basin and accept them for strict implementation". In 1998, an Agreement was signed between the Governments of Kazakhstan, the Kyrgyz Republic and

Uzbekistan (Tajikistan joined the Agreement in 1999) on the use of water and energy resources in the Syrdarya River Basin, which called for elaboration of mechanisms for mutually beneficial use of water and energy in the Syrdarya Basin. The 1998 Agreement establishes the procedures for interaction between the riparian states of the Syrdarya Basin in the area of fuel and energy exchange for water releases during the vegetation season. The positive role of the Agreement is that it tries to ensure sustainable management and efficient joint use of transboundary water resources in the Syrdarya Basin through coordination of irrigation and energy interests. At the same time, the Agreement has a number of shortcomings that motivate the Parties to revise and improve it.

10. In "The Program of Concrete Actions for Improvement of Environmental and Socio-Economic Conditions in the Aral Sea Basin for 2003-2010" (ASBP-2), which was approved by the Heads of States on 6 October 2002, among other draft agreements on the use of regional water resources a special emphasis was given to the need to improve 1998 Agreement.

11. During the work on improving the 1998 Agreement on Syrdarya it became apparent that one of the priority tasks is the development of rules for implementation of procedural obligations and preparation of recommendations on improving rules for regulation and management of water and energy resources where many technical aspects could be well covered. The same approach could be applicable to the work on a draft Agreement for Amudarya basin.

II. THE TECHNICAL ASSISTANCE

A. The goals and main directions

12. The main goal of ADB RETA 6163 is to achieve sustainable and effective water resources management in the region. The objective is to help the CAR strengthen their cooperation in the management of shared water resources in the Aral Sea Basin and other transboundary basins.

13. ADB RETA 6163 is being implemented in three directions. First, these are the activities for improving transboundary water resources management on a pilot basis – Support to Establishment of a Joint Commission for the Chu and Talas rivers between Kazakhstan and Kyrgyzstan. This activity which is covering only two transboundary rivers is considered as pilot one and, in case of successful implementation, may be recommended for replication in other transboundary river basins in CAR[1].

14. The other two directions of ADB RETA 6163 aimed at facilitating regional water policy discussion and building regional water management capacity, are being implemented by the Interstate Commission for Water Coordination (ICWC) of Central Asia. By protocol decision of the 42nd ICWC meeting of 28-29 April 2005 the ICWC's members approved ADB's initiative to support and further develop water-management cooperation in the Aral Sea basin through joint activities of national and regional institutions.

B. Work program and methodology

15. Dialogue on water policy is aimed, first of all, at the revision of 1998 Framework Agreement On the use of water and energy resources in the Syrdarya river basin. For implementation of the tasks, national inter-ministerial working groups (NWG) represented by water, energy, environment agencies and foreign offices of the CAR and one regional

[1] The official web-site of the project Support to Establishment of a Joint Commission for the Chu and Talas rivers between Kazakhstan and Kyrgyzstan is http://www.talaschu.org.

working group (RWG) were formed. The composition of the RWG was approved by the decision of ICWC in its 44-th meeting. Subsequently, the composition of NWGs varied.

16. To carry out effective discussions it was decided to use materials generated by previous projects in the use of transboundary water resources. This allowed to ensure consistency, avoid duplication of work and previous mistakes.

17. The project results are joint discussions among the members of working groups and consensus building through workshops and round-table meetings. Activities of NWG and RWG included negotiations aimed at synthesizing various, often opposing national and regional interests in the area of water and energy. Therefore, it seems that the selected approach, which is based on the interests of members of NWG, representatives of various ministries and agencies, is the most effective for all parties, since it is always easier to find compromises on specific needs rather than on general country position. A dialogue which is based on the interests of the parties is an open forum for reaching a consensus, which will be acceptable to all.

III. MAIN ACHIEVEMENTS DURING 2005-2007

18. The following activities were accomplished during 2005-2007:

(i) Under the project, nine working meetings were held to discuss regional water policy in Central Asia. More detailed information, including the minutes of the meetings, is presented on the following web-site: http://www.cawater-info.net/aral/index.htm. Seven working meetings to discuss revisions of the draft Agreement on the use of water and energy resources of Syrdarya basin were held.

(ii) Members of NWRs and RWG prepared a Report on rules for implementation of procedural obligations and preparation of recommendations on improving rules for regulation and management of water and energy resources of Syrdarya river basin.

(iii) Sub-group 2 prepared report on clarification of river losses in the midstream and downstream part of Amudarya river basin. This report was endorsed by all countries and disseminated to all stakeholders.

(iv) Sub-group 3 on development of detailed methodological recommendations on assessment of basin-wide expenditures, data collection and assessment of actual damages from different regimes of water use has conducted two working meetings. A report was prepared and endorsed by members of NWRs and RWG. The minutes of the meeting stated that this methodology shall be submitted for approval by the CAR.

(v) Members of NWRs and RWG prepared and endorsed a new version of Regulation on the Interstate Commission for Water Coordination.

(vi) A draft Agreement on strengthening of organizational structure for management, protection and rational use of transboundary water resources from interstate sources in the Aral Sea Basin was prepared, endorsed by working groups and recommended for approval by ICWC members.

(vii) A report on inventory of interstate water facilities in Syrdarya and Amudarya basins was prepared by NWRs and RWG and recommended for approval by ICWC members.

(viii) Glossary of Terminology for Draft Agreements drawn up and agreed.

(ix) Draft Agreement on Forming and Functioning National, Basin and Regional Database for Integrated Use and Protection of the Water Resources of the Aral Sea Basin revised and submitted to EC IFAS for approval by the Governments.

(x) Preliminary draft of Agreement on Amudarya River Basin Water and Energy Resources Use drawn up.

(xi) Three Training Seminars conducted under the component "Capacity building of regional water institutions":

- «Integrated Water Resources Management»
- «International and National Water Law»
- «Consensus Building and Conflict Resolution»

(xii) Web-site http://www.cawater-info.net/reta created and maintained.

A. Preparation of the Glossary of Terms

19. One of the supreme issues during consideration of legal regulation of watercourses, shared by two or more states, is the problem with terminology. The compulsory element of any agreement is strict fixation of the object to be regulated and the scope of the agreement, which causes the need for careful study and justification of conceptual structure of draft agreements. As a result of this, it was decided to review the conceptual structure used in the documents at the international, regional and national levels and to come up to the agreed opinion about further uniform terms usage, which can later become the basis of developed draft agreements.

20. At the meeting held on the 5-7th of December 2005 in Tashkent, taking into account the lack of precise terminology in all draft agreements, the participants came to agreement about the creation of work sub-group on terminology. The work sub-group consisted of: Bekniyazov M. (NWG RK), Sahvaeva E.P (NWG KR), Amindjanov M.O (NWG RT), Hanmedov G.O. (NWG Turkmenistan), Sheraliev N. (NWG RUz), Loktionov A.G. (BWO "Syrdarya), Lisenko O.G. (BWO "Amudarya"), Risbekov Yu. H. (SIC ICWC), Bichikhina S.P. (UDC "Energiya").

21. The first version of Glossary for the regional draft agreements was prepared by SIC ICWC of Central Asia and was distributed to interested parties at the end of December 2005. According to reached agreement, the terms and their definitions were discussed for the following darft agreements "Syrdarya river basin water and energy use", "Strengthening the institutional structure for the Aral Sea Basin transboundary water resources management, protection and development", "Formation and functioning of national, basin and regional databases for integrated use and protection of the water resources of the Aral Sea Basin" and "The protection of transboundary waters, their quality control regulations and provision of ecological stability in the region".

22. After several discussions and reviews, the Glossary was finalized and it includes the terms and their definitions, from the various sources such as water legislation of Central Asian countries, well-known legal documents, current Agreements in Aral Sea basin and the drafts of regional Agreements as well as the specific literature (dictionaries, etc.). It is believed that the final version of the Glossary can be considered as useful output of the project and an instrument for all stakeholders that participate in regional water policy discussions in Central Asia.

B. Analysis of Efficiency of Existing Agreements

23. In order to identify initial conditions and necessary reforms, NWG prepared reports on analysis of current water management mechanisms. The protocols were agreed by NWG members and summary report for the region as a whole was drawn up. The national reports of countries on analysis of efficiency of current agreements on water management in CAR are placed on project web-site www.cawater-info.net/reta/documents/.

24. The national reports include analysis from the point of national interests, describe advantages and disadvantages of current agreements on water management in CA, as well as probable ways to improve legal and regulation framework of relationships. List of comments by NWG on efficiency of agreements on water management in the region is given below.

C. Draft Agreement on the Use of Water and Energy Resources in the Syrdarya basin

1. Achieved Results

25. During the final discussions on 4-7 December 2007 in Tashkent the following three items of the draft Agreement required further elaboration and consensus:

- Item 7.2: The parties acknowledge that water discharges from Toktogul Reservoir have to be carried out depending on hydrological conditions of the year based on long-term planning of flow regulating regimes.

- Item 8.9: … during the years of average and higher than average water availability and with potential risk of emergency situations at Chardara Reservoir and downstream of Syrdarya as a result of high water inflow from tributaries, water discharge from Chardara Reservoir to Aydar-Arnasay depression will be effected. The volumes and water discharge speed have to be agreed with the concerned parties.

- Item 9.1: Construction of new hydropower facilities and reservoirs for perennial and seasonal regulation in the region, and development of new areas of irrigated land…

26. In the Protocol of the meeting participants agreed to request members of ICWC to review and make a decision on these uncoordinated items of the draft Agreement at the next meeting of ICWC.

2. Positive Experience and Weaknesses of the 1998 Agreement

27. By setting up general principles of shared use of water and energy resources in the basin under new historical conditions, the Agreement promoted partial mitigation of effects of

the shift in operation regime of Naryn-Syrdarya Cascade of Reservoirs (NSCR) from irrigation to energy generation regime.

28. The Agreement created conditions for overcoming objective contradictions related to different intersectoral and interstate interests in basin water and energy use.

29. The Agreement fixed and put in good order the practices established since 1995 of concluding bilateral agreements on water releases, energy generation and transfers, and compensation for the energy losses.

30. The compensation mechanism provided for in the Agreement allowed basically the meeting of irrigation demand during the vegetation season.

31. The Agreement limited probability of adopting uncoordinated unilateral actions, thus reducing a risk of losing control over the river.

32. The Agreement regulated and coordinated interactions of the countries by putting the conclusion of annual bilateral agreements on planned and regular basis.

33. The Agreement foresees preparation of annual short-term bilateral agreements. This restricts the use of available potential for long-term water regulation for more efficient management of water and energy resources of the basin, and also diminishes the sustainability of water economy to emerging changes of natural condition and hydrological regimes.

34. A barter-based compensation mechanism is inefficient and ineffective, it does not allow to properly maintain water supply schedule, does not provide conditions for creation of annual and perennial water reserves in reservoirs for irrigation needs.

35. The Agreement lacks basic principles on regimes for regulation of water resources and volumes of discharge from reservoirs depending on hydrological regimes and sanitary requirements, and the needs of different sectors. Lack of clarity about the availability of water resources for each component of water infrastructure may lead inaccurate computation of payments and compensations for energy losses.

36. The Agreement does not contain a provision for ensuring appropriate conditions for functioning of executing bodies, which constrains the performance of their functions, creates problems with border crossing and does not prohibit interference of local authorities in their operation.

37. The Agreement lacks provision about the responsibilities of the parties and this deficiency does not allow to employ any measures in the case when the parties violate their responsibilities. Also, there is no mechanism for compensation of damage caused by the negative transboundary impacts and breach of conditions of the Agreement.

38. In general, as the practice suggests, the existing shortcomings hamper full-fledged implementation of the Agreement as a whole and its bilateral agreements.

D. Development of rules for implementation of procedural obligations and preparation of recommendations on improving rules for regulation and management of water and energy resources of Syrdarya river basin

39. The aim of this work was to define the procedure for management and regulation of water flow in the Syrdarya basin, which would respond to existing practice of interstate allocation and use of water resources.

40. The recommendations of the report are based on the provision of the draft Agreement on the use of water and energy resource sof the Syrdarya basin, they include lessons learned from regional and national water management and energy organizations, and also takes into account some data on management and operation of Naryn-Syrdarya Cascade of Reservoirs.

41. At the working meeting on 4-7 December 2007 members of the NWGs and RWG reached an agreement and signed the report and the protocol.

E. Clarification of river losses in the midstream and downstream part of Amudarya river basin

42. The aim of this work was to estimate river losses in Amudarya at selected sections Kelif-Darganata, Darganata-Tuyamuyun, Tuyamuyun-Kipchak, Kipchan-Samanbay during vegetation and non-vegetation periods for years with different water availability. The following tasks were accomplished:

- For relevant river sections, water balances for every ten days were calculated for the period 1989-2006;
- Assessment was made to compare mismatches between the water balances for different periods of time;
- Computer modeling assessments were made for sections Atamyrat (Kirki)-Ilchik-Darganata-Tuyamuyun-Samanbay;
- Proposals were prepared on minimizing water losses at different sections of the river;
- Recommendations were developed on controlling water losses in Amudarya for years with different level of water availability during vegetation and non-vegetation periods;
- A thematic report was prepared, including technical estimations and appendices.

43. At the working meeting on 4-7 December 2007 members of the NWGs and RWG reached an agreement and signed the report and the protocol and concluded that this work could be considered accomplished and that it could be submitted to members of ICWC for approval and also request ADB Management to continue these studies on river losses in the midstream and downstream part of Amudarya river basin and its tributaries and to carry out field surveys to this effect.

F. Development of detailed methodological recommendations on assessment of basin-wide expenditures, data collection and assessment of actual damages from different regimes of water use

44. This sub-group was formed for initial definition of the structure and composition of costs and damages in methodological recommendations as well as for review, analysis and selection of different methodologies.

45. During the work a report was prepared that included methodological recommendations, the list of expenditures and actual costs incurred by Central Asian Republics until 2006. The list of basin-wide cost incurred by riparian states and assessment of actual damages caused by different regimes of water use in Amudarya and Syrdarya basins is presented below:

Costs

Financing of interstate organizations (Secretariat of ICWC, BWO, SIC and CMC)

(i) Bank enforcement and river bed regulation activities for Amudarya, Syrdarya and their main tributaries

(ii) Financing of hydro-meteorological services in Amudarya and Syrdarya basins and regional information exchange systems

(iii) Maintenance of interstate reservoirs, canals, collectors and water control structures in Amudarya and Syrdarya basins

(iv) Introduction of automated water management system at interstate facilities

(v) Protection of population and economic facilities from floods, landslides, mudflows

(vi) Protection of economic facilities from flooding resulted from increased groundwater tables caused by operation of interstate water facilities

(vii) Mitigation of consequences of droughts at interstate water facilities

(viii) Maintenance and rehabilitation of water formation zones in Amudarya and Syrdarya basins

(ix) Scientific research and forecasting of formation of water resources, their protection and rational use

(x) Introduction of advanced water-saving technologies

(xi) Protection of water resources from pollution and improvement of water quality

(xii) Improvement of environmental situation in the deltas of Amudarya and Syrdarya and the Aral Sea area

(xiii) Damages of countries as a result of uncoordinated use of interstate watercourses or uncoordinated operation of facilities

46. At the working meeting on 4-7 December 2007 members of the NWGs and RWG reached an agreement and signed the report and the protocol, and agreed to submit it for approval by ICWC members.

G. Finalization of a draft Agreement on strengthening organizational structure for management, protection and development of transboundary water resources

47. Based on the results of a working meeting held on 4-7 December 2007 the members of this sub-group reviewed, agreed and signed a Regulation on the Interstate Commission for Water Coordination and a draft Agreement on Strengthening organizational structure for management, protection and development of transboundary water resources (except for the Kyrgyz representatives).

48. The Protocol of the working meeting concluded that this work should be considered accomplished and requested the ICWC members to review and make a decision for its finalization in the established order. In reviewing the documents the following proposals shall be taken into account: to change the title of the agreement to “On strengthening the status of ICWC and its executing bodies” and to include in the draft Regulation and draft Agreement additional clause “Remuneration of heads and staff of executing bodies of ICWC equals to remuneration of staff of international organizations (such as IFAS). Staffing plans of executing bodies are approved by the decision of ICWC”.

H. Preparation of inventory of interstate water facilities and improvement of draft Agreement on the use of water and energy resources of Syrdarya river basin

49. The initial work in this area was assigned to BWO Syrdarya and BWO Amudarya who prepared the preliminary list of interstate water facilities that need to be included in the register (name, purpose, area, water discharge, year of construction and balance value).

50. At the final working meeting on 4-7 December 2007 in Tashkent this list was revised and agreed with all members of the NWGs. The Protocol of the meeting reflected that this work should be considered accomplished and submitted for approval by ICWC members.

I. Building Regional Water Management Capacity

51. The component “Building the regional water management capacity” of RETA 6163 anticipates the capacity building of the regional and national water management organizations in such priority areas as, international water law, negotiation mechanisms and conflict resolution as well as integrated water resources management.

52. During the meeting, held in April 2005 in Almaty, it was decided to conduct trainings for the representatives of water, energy and environmental agencies of CAR countries on: (a) implementation of integrated water resource management principles; (b) conflict and dispute resolution in the interstate water use area; and, (c) improvement and harmonization of water legislations of the region’s countries.

53. In accordance with the approved program, 3 seminars were conducted in the period of 2005-2006: (1) “Integrated Water Resource Management” – 8-9 December 2005 in

Tashkent; (2) “International and national water law” – 14-16 November in Tashkent; (3) “Consensus building and conflict resolution”- 5-9 December 2006 in Tashkent.

54. The “Integrated Water Resources Management” seminar program included the consideration of the world experience in IWRM and the problems and features of IWRM implementation in the region’s countries. Based on the experience of IWRM implementation in the region, the hierarchy and stages of IWRM from the field to basin were illustrated. Political, institutional, legal, financial, ecological and social aspects of IWRM were analyzed.

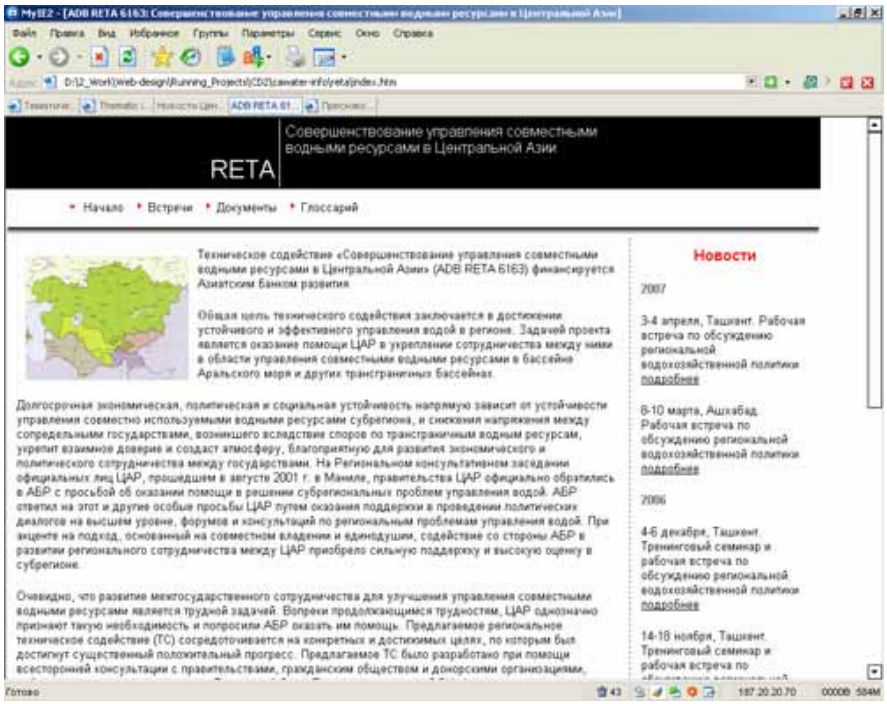
55. The “International and National Water Law” seminar was conducted in collaboration with Professor Patricia Woters, the Director of UNESCO for Water Law, Policy and Science, University of Dandee, Scotland. The general objective of the seminar was to consider the best practices in water law, including its interaction with national water law in order to facilitate the improvement of shared water management in Central Asia. The modern water law development and some crucial aspects related to Central Asia national law were considered at the seminar. During the seminar session there was a possibility to discuss the new draft agreement related to Syrdarya. The seminar program included interactive sessions, allowing most of the time for discussions.

56. The workshop on ”Consensus Building and Conflict Resolution” was organized in collaboration with the Israely Embassy in Uzbekistan. Shimon Tal, the Director of Water Commission in Israel and the Commissioner of Israeli-Jordan Joint Water Committee, and Jitzchak Alster, an expert in international water law, were invited as lecturers of the seminar.

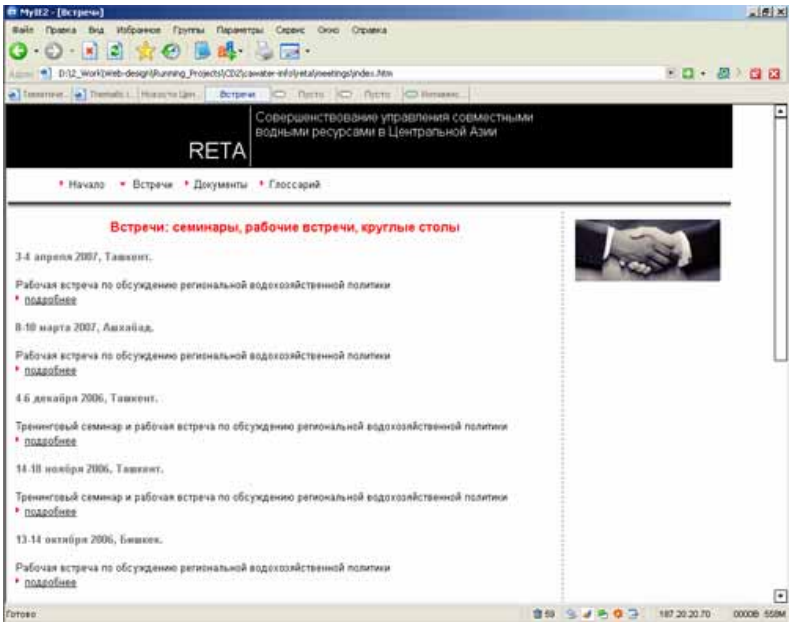
57. One of the aims of the seminar was to provide the review of different mechanisms of water-related dispute resolution and prevention in the international practice, including the role of organizational structures. Another objective was to assist the work groups in preparation of draft clauses on procedural obligations, disputable situation resolution and liability of the Parties.

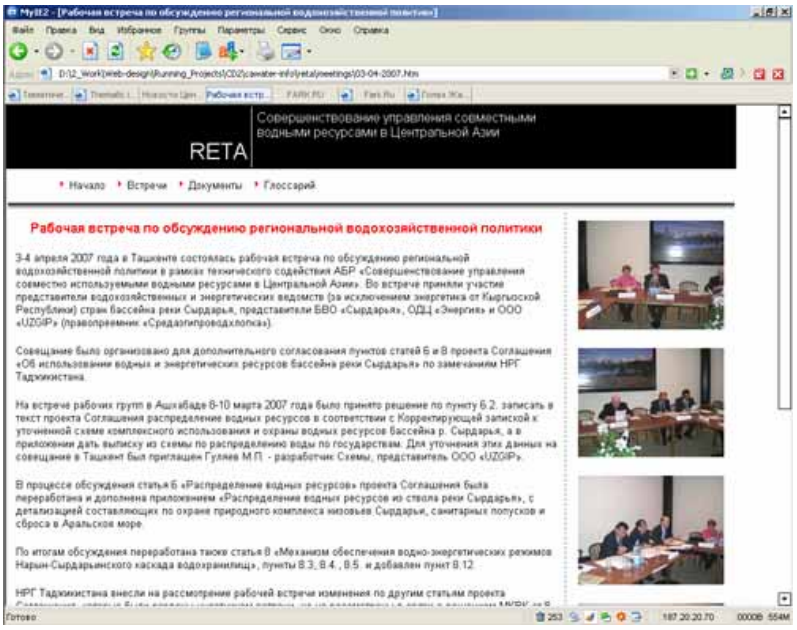
J. Web-site http://www.cawater-info.net/reta

58. A web-site was created in order to cover the project activities (www.cawater-info.net/reta/).

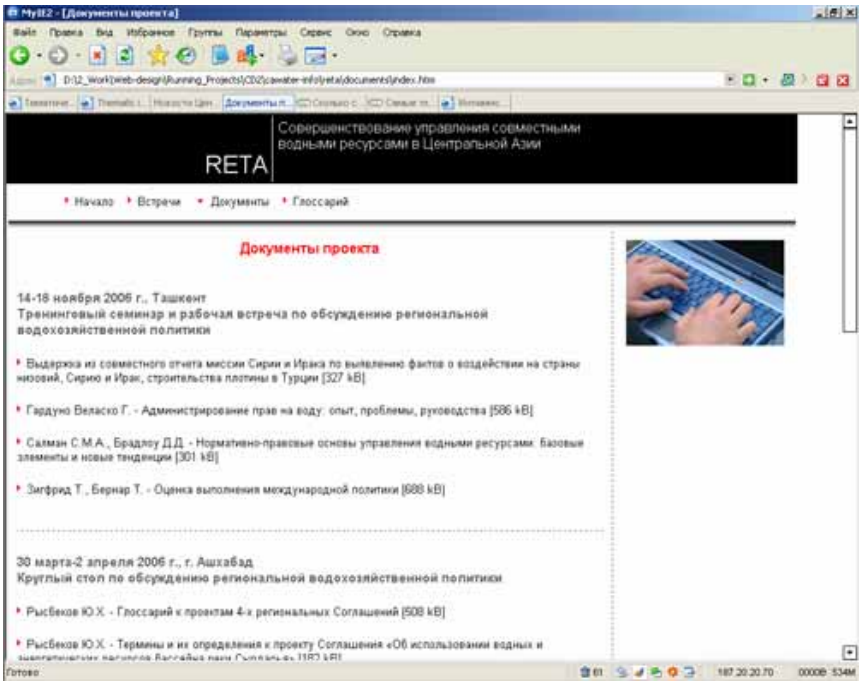


59. Section «Meetings» contains detailed illustrated reports on working meetings, round-tables, and trainings.

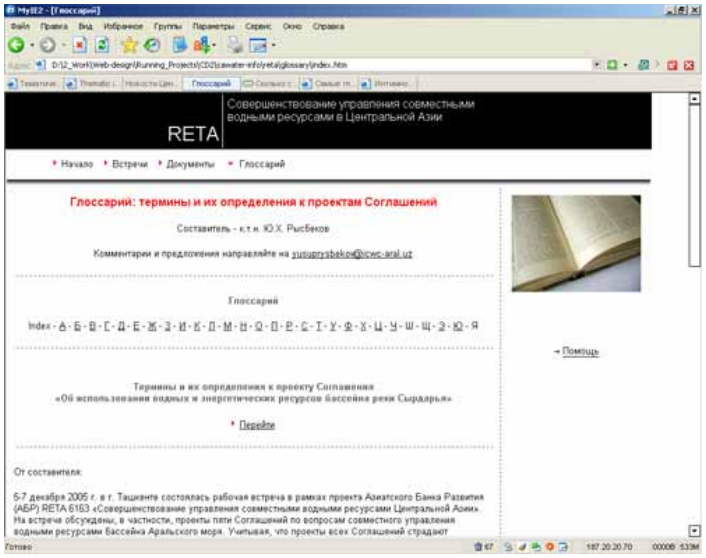


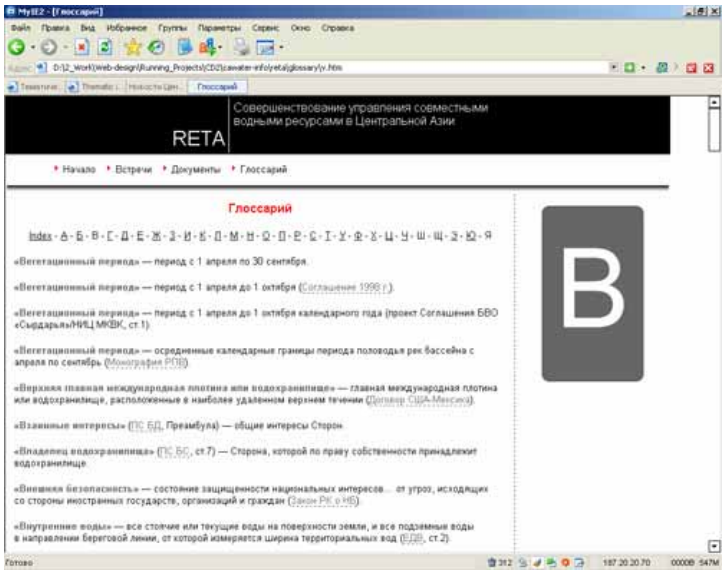


60. From the section «Project documents» one can download project's materials disseminated during the meetings. This section also contains full texts of national reports on the analysis of efficiency of current agreements on water management in CA and the summary report.



61. Section «Glossary» contains terms and their definitions for five draft Agreements on shared water use in the Aral Sea basin. The terms are arranged in alphabetical order. This, the project participants have readily available access to project materials





62. Besides, information on project activities was placed in ICWC Press-releases (http://sic.icwc-aral.uz/releases/) and ICWC Bulletins (www.cawater-info.net/library/icwc5.htm) disseminated both in paper and electronically in Russian and English among more than 500 subscribers.

APPENDIX 1

THE COMPOSITION OF NATIONAL INTERMINISTERIAL WORKING GROUPS UNDER ADB RETA 6163 AS OF 1 JANUARY 2007

The Republic of Kazakhstan

1. Kenshimov A.K. - Deputy Chair, Committee of Water Resources, Kazakhstan
2. Zaytseva S.V. – Head of Dispach Division of JSC «KEGOC»
3. Pulatov K.P. – Advisor, Committee of Water Resources, Kazakhstan

The Kyrgyz Republic

1. Zhusumatov E. Z. – First Deputy Director General, Water Economy Department, Ministry of Agriculture, Water Resources and Processing Industry
2. Djayloobaev A. Sh. – Head of normative legislative acts, water resources and international relations division of the Water Economy Department
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Republic of Tajikistan

1. Zairov A.M. – Deputy Minister of Amelioration and Water Resources
2. Kurbanov A. –Head of Department of the Ministry of Energy
3. Yusupov R.K. – Chief Specialist of the Ministry of Amelioration and Water Resources
4. Normatov I. Sh. – Director of the Institute of Water Problems, Hydro power engineering and ecology of the Academy of Sciences
5. Pulatov Ya. – Director General of Tajik Scientific Research Institute of Water Resources and Amelioration
6. Islomov Kh. I. - Specialist of the Ministry of Amelioration and Water Resources

Turkmenistan

1. Altiev K. – Deputy Minister of Water Resources of Turkmenistan
2. Saparov U. B. – Deputy Director of the “Turkmensuvlimtaslama” Institute
3. Akmuradov M. – Director of Exploitation Administration, the Ministry of Water Resources of Turkmenistan
4. Tachnazarov A. – Deputy Director of Exploitation Administration, the Ministry of Water Resources of Turkmenistan

The Republic of Uzbekistan

1. Ernazarov N. – Deputy Head of Main Water Resources Department of the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan
2. Srajiddinov R. – Advisor of the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan
3. Sagdullaev E. –Head of Dispatch Division of Uzbek Energo State Company.