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CENTRAL ASIA REGIONAL WATER INFORMATION BASE
PROJECT

‘CAREWIB’

PROGRESS REPORT OF OPERATION 2005

January 2006

Almaty - Tashkent - Arendal - Geneva

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Abbreviations

ICWC	Interstate Commission for Water Coordination of Central Asia
SDC	Swiss Agency for the Development and Cooperation
ISDC	Interstate Commission for Sustainable Development
SIC	Scientific-Information Center
KB SIC	Kazakh Branch of SIC
GRID-Arendal	Global Resource Information Database center, Arendal, Norway
UNECE	United Nations Economic Commission for Europe
BWO	Basin Water Organization
IFAS	International Fund for Saving the Aral Sea
EC	Executive Committee
ASBP	Aral Sea Basin Program
MAWR	Ministry of Agriculture and Water Resources
USAID	United States Agency for International Development
NRMP	Natural Resources Management Project
CAR	Central Asian Republics
IS	Information System

I. INTRODUCTION

1.1 Project personnel and management

At present, the staff working within the project in SIC consists of:

“Portal” Block:

Iskander Beglov, project manager/block coordinator/web designer; Bakhodiy Turdybayev, webmaster; Abbas Pulatov, coordinator for activity with CARs; Munojat Ishankulova, translator; Grigoriy Poltarev, expert in equipment (part time 50%); Oybek Akbarov, technician.

“Information System” Block:

Denis Sorokin, block coordinator/programmer; programmer and equipment expert (part time, 25%) Victor Shakhov, data auditor and in charge of entering of data in DB CAREWIB (components «Economy» and «Climate») Anastasiya Degtyareva, technician and in charge of entering of data in DB CAREWIB (components «Land» and «Ecology») Tatyana Poltareva, technician and in charge of entering data in DB CAREWIB (components «Water» and «Hydro-power engineering») Anatoliy Kats. Rimma Gaynullina supervises the section with daily updated information from the Uzbek Hydromet Service. Financial manager Svetlana Obidina manages the SIC project finances.

On behalf of GRID-Arendal, Nikolai Denisov, GRID-Arendal coordinator for Central and Eastern Europe, the Caucasus and Central Asia, manages the GRID-Arendal project component. Other staff of GRID-Arendal is involved in the project depending on specific tasks.

On behalf of UNECE, Regional Adviser on Environment Bo Libert participates in the project activities.

1.2 Project partners

Partners collaborating within the project activities

The project activities are implemented in the five Central Asian states, located in the Aral Sea basin. For the implementation of the project, national coordinators for each country and two basin coordinators (for the Amudarya and Syrdarya river basins) have been appointed.

The national project coordinators were appointed by the Ministries of Agriculture and Water Resources of the five countries. In Kazakhstan, the Director of KB SIC Prof. Nariman Kipshakbayev is the national coordinator for activities in both blocks. In Kyrgyzstan, Director of SIC Kyrgyz Branch Abdybay Djayloobayev fulfills the function of general work coordination. Mira Torokulova and Latifa Bulekbayeva are the national coordinators, respectively, for “Portal” Block and “Information System” Block. Prof. Nabi Nosirov is the national coordinator in Tajikistan. Kurbangeldy Balliyev (SIC CSD) was appointed national coordinator in Turkmenistan. In Uzbekistan, Sharif Kuchkarov and Khamdam Umarov are national coordinators for “Portal” Block and for “Information System” Block (both – MAWR of Uzbekistan). An employee of Hydromet in Uzbekistan, Habiba Alimova, is also contracted by the project.

Yuldash Khudayberganov is Project Coordinator for the Amudarya river basin and Makhmud Khamidov for the Syrdarya river basin.

The key consortium partners in CAR are:

- In Kazakhstan – the SIC ICWC Kazakhstan office
- In Kyrgyzstan – the SIC ICWC Kyrgyzstan office
- In Tajikistan – the SIC ICWC Tajikistan office
- In Turkmenistan – the SIC CSD
- In Uzbekistan - the project activities are implemented by the Central Board of Water Resources at the MAWR of Uzbekistan
- At the basin level – BWO “Amudarya” and BWO “Syrdarya”

Collaborating partners outside the project

The CAREWIB Project is trying to make maximum use of the results of other similar initiatives implemented in the region. A sustainable information exchange has been achieved with the CARNet supported by the UNDP (regional ecological portal Caresd.Net). Cooperation with the GWP CACENA has been established. A bilateral exchange of information with the Coordination-Information Water Center for International Cooperation (CIWC), Russia is being negotiated.

Relationship with donors

The project supervisor (Prof. V.A. Dukhovny) took part in seven Aral Sea basin donor meetings held in Tashkent.

Furthermore, the leaders of SIC (Prof. V.A. Dukhovny, V.I. Sokolov, P.D. Umarov) time and again met with donor organizations. During these meetings, the CAWater-Info portal was advertised, and interaction with different information bases of international financial organizations was discussed.

On the initiative of Sandjar Djalalov (SDC), a Website of the Water Donors Community in the Aral Sea Basin that contains information on projects, meetings of donors and so on was launched.

II. KEY PROJECT ACTIVITIES BEFORE 2005

2.1. SIC ICWC activities in 2004

2.1.1. SIC ICWC activities

- All contracts and agreements of the project have been translated to Russian and sent to members of ICWC
- Detailed Terms of Reference have been elaborated for all executors of the project from the CA region, including national coordinators of five states.
- With the purpose to unify processing of received data, a form for the input of information has been worked out for the participants of the project.
- A kick-off seminar and the first meeting of the Steering committee of the project were held on 28 February in Bishkek.
- For the equipment of regional offices of project correspondents and the SIC ICWC project office by computers, the necessary specifications were made and a tender announced.
- Contracts on the exchange of information in return for equipment to the executors of five CA states were worked out.

2.1.2. Regional water information portal and Information system

The main task of the project is to create a regional water information portal. It was initially proposed that the current ICWC website would be transformed into a portal, but after discussions it was decided to register domain name that is easy to remember and reflects the content of the portal: **www.cawater-info.net**.

- The main site of the portal was projected and started (**www.cawater-info.net**).
- The site of the Interstate Commission for Water Coordination of Central Asia was modernized, which included the addition of new sections (**www.icwc-aral.uz**).
- A client database was set up with addresses of water management and environmental organizations in the region, including NGOs (included more than 400 addresses in December 2004).
- The site of SIC ICWC was launched (**www.sic.icwc-aral.uz**).
- The bibliographic database of SIC ICWC “The use of land and water resources in the Aral Sea basin“, which includes about 2000 records, was made available on the web-site **www.cawater-info.net/biblio/**.
- A daily review of events concerning the subjects of the project (conferences, forum, news) was organized.
- A site of the initiative «Gender and water in Central Asia» was launched (**www.gender.cawater-info.net**).
- A forum was launched (**www.forum.cawater-info.net**).
- An agreement was made on the cooperation and mutual exchange of information with CARNet, supported by UNDP (the environmental portal www.caesd.net).
- A new routine for acceptance and entering of received data in the database was elaborated and put into operation. Each person is in charge of a specific information component in the database (land, water, etc) prepares a report on incoming data with regard to its source and also a report on the following processing and entering of the new data directly in the database. All reports are checked by the Information System (IS) administrator with re-

gard to the conformity of the data in the report with the electronic version, then with regard to the conformity of the data in the report with the entered data in the different components of the database. After each operation the administrator updates the database.

- A special program- translator was created for the conversion to a simple text file convenient for the following transformation to correct format of the database.
- A Concept for the structure of the regional information base for water resources in Central Asia, "CAREWIB", was elaborated.
- An analysis of the main objects, information structures, information streams, functional links of the databases WARMIS, WUFMIS, IWMS was carried out with the purpose of further coordination with Information System (IS) "CAREWIB". The main information streams and their functional links were determined and the information structure of the main objects was worked out.
- The principal requirements were defined for the database with regard to data verification, consistency of data, for the main principles and methods of coding of objects, as well as for the user interface.
- A full analysis was made of the off-the-shelf cartographical layers: water gauging station, lakes, reservoirs, rivers, canals, weather stations, thermoelectric power stations and hydroelectric power stations in GIS and in the database of CAREWIB for all regions of CA. Layers with checked data were produced for each CA state.
- GIS maps of Uzbekistan, Kazakhstan, Tajikistan, Turkmenistan, Kyrgyzstan (with division into different planning zones) and the whole Aral sea basin were produced including the following layers:
 - Rivers;
 - Administrative centres (cities, villages);
 - Channels;
 - Gauging stations;
 - Irrigation zones;
 - Reservoirs, lakes;
 - Meteorological stations;
 - Hydroelectric and thermoelectric power stations.
- A form for GIS was elaborated in Visual Basic 6.0. It allows the user to create maps on the monitor with different selections of layers. The technology to save a selected map in different formats (BMP, JPG, WMF) on a hard disk and to print the file with a created map in black and white and color was worked out. GIS maps of Uzbekistan, Kazakhstan, Tajikistan, Turkmenistan, Kyrgyzstan (with division into different planning zones) and the whole Aral Sea basin were networked.
- The forms for the components Water, Power engineering, Ecology. Climate, Land and Economy were created and linked up in the CAREWIB Information System interface. Forms for entering of data were developed and distributed to all correspondents.
- The access to the final CAREWIB database, established at SIC, with the possibility to enter and edit data was established for:
 - Uzbekistan,
 - Kazakhstan,
 - Tajikistan,
 - Turkmenistan,
 - Kyrgyzstan
 - Demo-version
 - Full access (for administrator)
- An agreement was made with UzHydromet that from July 2004 SIC ICWC would receive UzHydromet data (hydrological bulletin) to be entered and made available in the

section with operational data of the site CAWater-Info. These data are further introduced in the database.

- For the presentation of operational data of UzHydromet (hydrological data and bulletin), html-sites were created for:
 - Water flows
 - Water levels
 - Regime of reservoirs
 - Ten-day water flow
 - Water balances of reservoirs
 - River flow balances
- A continuous data control by SIC ICWC CA correspondents has been organized. This includes the possibility of adding and correcting data (by planning zones, by administrative regions, territories and codes)
- E-mail connections were established for MAWR of Uzbekistan
- Tables for ten-day data (gauging stations, headworks) and for information of section balances and hydroenergy regimes of water reservoirs on the basis of existing SIC ICWC data basis with data from BWOs were established.
- Html-sites were established for presentation of data from the two BWOs (limits, actual water use in the Amudarya and Syrdarya water basins) for the period 2000-2004.
- Work for creating the database “Aral” was initiated.

2.1.3. Outreach

- The publication of ICWC Bulletins, Information, Abstract and Legal Collections regularly issued by SIC was continued, and the publication (since January 2004) of a new series - ICWC Training Center Publications - was started. All SIC publications are available for free downloading in PDF format from the Electronic Library (www.cawater-info.net/library/).
- The publication of ICWC Press Releases has been continued. The Press-releases are found on the web-site of SIC ICWC and circulated by e-mail among subscribers.
- Four advertising booklets about the project were prepared and sent to potential information users and partners in Central Asia. These booklets were also circulated among participants of international conferences and seminars.
- A new periodic issue – “CAWater-Info, News of the water sector in Central Asia” was started. It includes news both in Russian and English, and also information on new information available on the sites of the portal. A paper version of the bulletin is distributed to water management organizations and departments in CA, and also to embassies of foreign states accredited in Uzbekistan. An electronic version of a bulletin can be downloaded from the site and is circulated by e-mail among subscribers.

2.1.4. Capacity building

- Project staff took part in a training seminar on the development of the water information portal for CA states. The seminar was organized by GRID-Arendal 22-24 June 2004 in Arendal, Norway.
- According to a list approved by ICWC members, computer equipment was delivered to a number of oblast-level water organizations in CARs. Information (ICWC Press-Releases,

CAWater-Info Newsletters) is regularly sent to these organizations for further dissemination at oblast and rayon levels.

2.1.5. User needs and feedback assessment

- A session “Information service for development and consolidation of water partnership” was held within the framework of the third Central Asia scientific-practical conference “Water partnership of CA” on 28 May 2004 in Almaty, Kazakhstan.

2.2. GRID-Arendal and UNECE Activities

- Evaluation of SIC ICWC web-site and the proposed framework for CAREWIB portal.
- Supply of links and material for the portal.
- Evaluation on ToRs for 'national correspondents'.
- Production of a brainstorming paper for the kick-off meeting in Bishkek.
- Participation in CAREWIB kick-off meeting in Bishkek 28 February 2004.
- Participation in the Conference «Water partnership of CA», 28 May 2004 in Almaty, Kazakhstan.
- Discussions / presentation of CAREWIB in the context of REAP (Dushanbe, 24-25 February), Environment and Security (numerous occasions), with UNEP, UNDP, OSCE, NATO, SPECA, EC IFAS (meetings with the Chairman, Dushanbe 25 February and 2 April), Regional Hydrometeorological Centre in Dushanbe, Hydromets in Tajikistan and Kazakhstan. CAREWIB has also been discussed and presented to a number of other experts and organizations within and outside the region, including UNDP's regional electronic network CARNet with whom, as a result, CAREWIB signed a memorandum of cooperation at a CARNet meeting in Bishkek in November 2004.
- An intensive training workshop organized for SIC project staff in Arendal, Norway on 24-26 June 2004 (the workshop covered a range of issues, from technical design and management of a web-site to brainstorming on topics, format and appearance of popular issue-oriented publications in hard copy)
- Language editing of project booklets.
- Planning of a user consultation meeting in Tashkent in November 2004 (the consultation was planned on the occasion of the 4th Central Asian festival of environmental journalism, where representatives of governmental organizations, mass media and civil society were available to discuss and comment upon the usability of CAREWIB; the meeting was postponed until 2005 due to uncertainty of project status vs. Uzbekistan's authorities) .

III. KEY PROJECT ACTIVITIES IN 2005

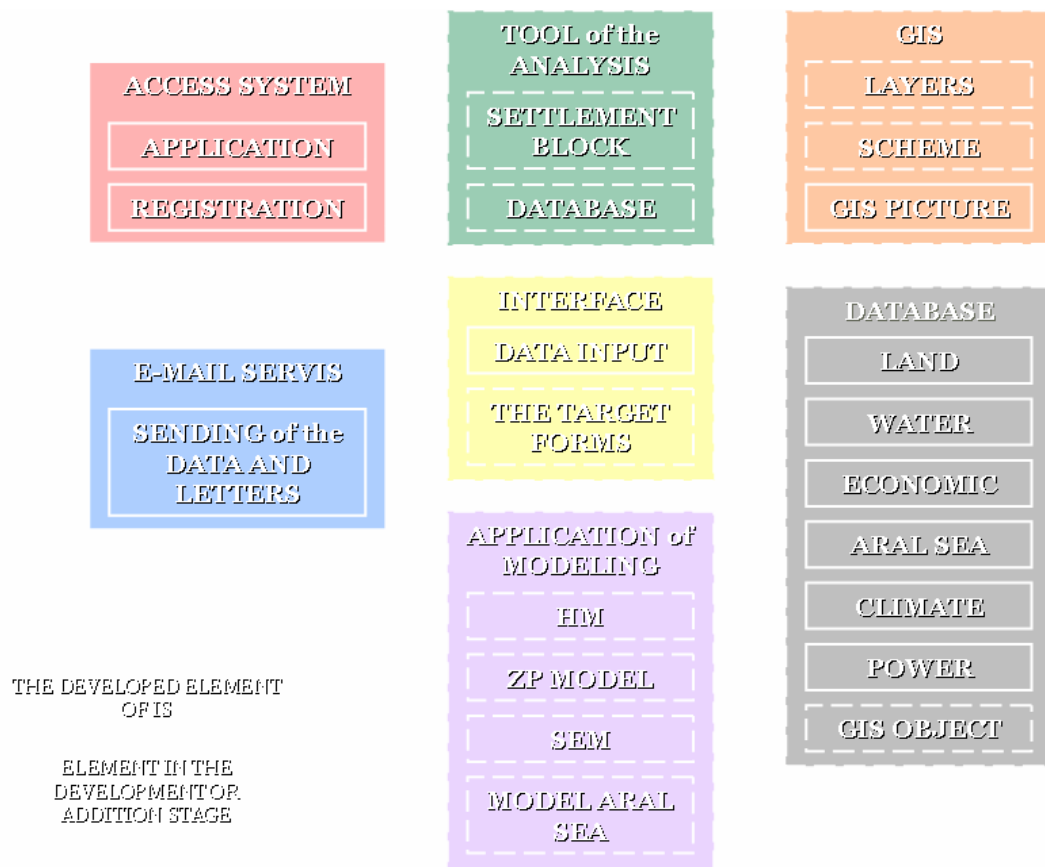
3.1. SIC ICWC activities

3.1.1. Regional water information portal and Information system

The two primary tasks of the project are to create a Regional Water and Environmental Web Portal and develop the Information System on Water and Land Resources in the Aral Sea Basin.

- A website of donors in the Aral Sea basin has been designed and launched (www.cawater-info.net/donors/).
- A website of the Project ‘A Regional Model for Integrated Water Management in Twinned River Basins (Rivertwin)’ has been designed and launched (www.cawater-info.net/rivertwin/).
- A website of the Project ‘Promoting Twinning of River Basins for Developing Integrated Water Resources Management Practices (TwinBasin^{XN})’ has been designed and launched (www.cawater-info.net/twinbasinxn/).
- A section dedicated to the preparation of Central Asian region to the 4th World Water Forum has been launched (www.cawater-info.net/4wwf/).
- A section “Photolibrary” has been launched (www.cawater-info.net/photolibrary/).
- A section “ASB-mm” has been launched (www.cawater-info.net/asbmm/).
- On the instruction given at the 42nd ICWC meeting, a section “New technologies” (www.cawater-info.net/news/technology/) has been launched with a view to regularly inform ICWC members and water organizations in the Aral Sea basin about important achievements and innovations in the world.
- A section “Aral Sea Basin” (www.cawater-info.net/aral/), including a database on the Aral Sea (www.cawater-info.net/aral/data/) has been launched.
- A section “Amudarya River Basin” (www.cawater-info.net/amudarya/) has been launched.
- A section “Syrdarya River Basin” (www.cawater-info.net/syrdarya/) has been launched.
- A section “Regional Information System” (www.cawater-info.net/careweis/) has been launched.
- A section “Glossary” (www.cawater-info.net/glossary/) has been launched.
- A section “Reviews and Analytical Papers” (www.cawater-info.net/news/review/) has been launched.
- Presentation compact disks for the portal websites (for domains www.icwc-aral.uz and www.cawater-info.net) have been developed.
- The website of SIC (www.sic.icwc-aral.uz) has been redesigned.
- The client database on addresses of water and environmental organizations in the region, including NGOs, has been updated (more than 470 addresses, December 2005).
- The Bibliographic Database of SIC ICWC “Use of Land and Water Resources in the Aral Sea Basin” (www.cawater-info.net/biblio/) has been updated, and contains presently 2375 records.
- A ‘Concept for Developing a Sustainable Information Service on Water Resources in the Aral Sea Basin’ to develop the basis for functioning of the portal and information system after the discontinuation of funding by the SDC has been developed.

- Daily tracking of events relating to the portal subjects (conferences, forums, news and so on) in the Internet has been organized.
- To identify preferences of portal users, a special questionnaire has been developed.
- Mutually beneficial cooperation and sustainable information exchange with the CARNet, supported by the UNDP (environmental portal Caresd.Net) has been established. Within the framework of this cooperation, an electronic discussion “Integrated Water Resources Management as a basis for preventing conflicts in the region” has been organized.
- On the request of the ICWC, ‘Temporary Rules for Use of the Regional Information System on Water and Land Resources in the Aral Sea Basin’ have been developed.
- For the information system on water and land resources a set of software and hardware, databases have been developed that make it possible to effectively and automatically search, receive, store, protect, process and transmit information.



- The existing CAREWIB Project Database (DB) has been developed into an effective system for providing governmental authorities, ICWC bodies, ministries and agencies in the whole Aral Sea basin. The DB contains reliable water-related information (*land resources, water-power information, economy*).
- A new procedure for receiving and introducing new information to DB has been developed and introduced.
- Installation package of the working CAREWIB IS to install it on user computer, and a demo IS package to demonstrate it at workshops have been developed. A document for IS installation has been developed and mailed to all the correspondents.
- DB page “Aral”, dynamic form of which is located on the portal, has been tested. Some errors have been identified and removed.

- A Block “Objects” related to GIS, and on requests to DB for GIS layers such as Reservoirs and Rivers, has been added to the IS interface.
- A DB on all reservoirs in the Aral Sea basin has been connected, and information on water amounts has been made available via the interface.
- A form has been established in the main user interface: first part of Block “Analysis” – statistic data on actual water consumption in the Aral Sea basin states for several years on the following items:
 - Water withdrawal:
 1. *Total water withdrawal*
 2. *Amudarya river basin*
 - *out of that by limits – BWO*
 3. *Syrdarya river basin*
 - *out of that by limits – BWO*
 - Water withdrawal per source:
 4. *Rivers and reservoirs*
 5. *Return flow reuse*
 6. *Groundwater*
 7. *Other sources*
 - Water consumption:
 8. *Total water consumption.*
 9. *Irrigated farming*
 10. *Drinking and municipal consumption*
 11. *Industry*
 12. *Environmental requirements*
 13. *Other users*
 - Water disposal:
 14. *Total water disposal*
 15. *Releases to rivers and reservoirs – return flow*
 16. *Water disposal to lakes and depressions*
 17. *Return flow reuse*
 - Coefficients:
 18. *Consumption coefficients: irrevocable water consumption characteristics (relationship of difference between flow use and disposal to water withdrawal).*
- A DB structure for introducing on-line planned and actual data on water discharges at water intakes of the two BWOs has been developed.
- A structure for the Block “Water intakes” in the IS on water intakes controlled by BWOs has been developed.
- Layers pointing water intakes controlled by BWOs have been formed.
- The foundation has been laid for future works on GIS: a digital elevation model for Uzbekistan, South Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan capable to identify elevations and slopes of area landscape (*digital model is used to model environmental, water and geophysical factors managing natural vegetation spread, and identify types of coverage*) has been developed and connected to the CAREWIB interface.
- A DB structure for introducing on-line data from the Uzbek Hydromet Service has been developed.
- Creation of a DB on the Block “Climate” has been started. Information was taken from available and supplied bulletins of the Uzbek Hydromet Service from 118 weather stations.

In addition, during the whole reporting period the following activities were carried out:

- Input of on-line data from the Uzbek Hydromet Service in the DB and representation of them on the website:
 - *Daily water discharges at gauging stations on rivers in the Syrdarya and Amudarya basins (Uzbekistan);*
 - *Water levels at gauging stations on Amudarya river;*
 - *Volumes of reservoirs (Charvak, Toktogul, Andijan, Kayrakum, Chardara, Nurek and Tuyamuyun);*
 - *Ten-day water discharges at gauging stations on rivers in the Syrdarya and Amudarya basins (Uzbekistan);*
 - *Water balances in reservoirs (Charvak, Toktogul, Andijan, Kayrakum, Chardara, Nurek and Tuyamuyun);*
 - *Channel water balances in river sections.*
- Checkout of SIC ICWC's database on the republics by Central Asian correspondents, and input of incoming information in the CAREWIB DB from other sources.
- Placing of on-line data on water discharges per water intake in the Amudarya (data of BWO "Amudarya") and Syrdarya river basins (data of BWO "Syrdarya") on the website.

3.1.2. Outreach

- The production of ICWC Bulletins, Newsletters, Collections of Abstracts and Legal Documents regularly published by SIC, Publications of the ICWC Training Center was continued. All publications of SIC are available for free downloading in PDF from the Electronic Library (www.cawater-info.net/library/).
- Development and production of new series, "CAREWIB Project Publications" and "News in Water Sector" was started. The latter is published according to the instruction given at the 42nd ICWC meeting with a view to regularly inform ICWC members and water organizations in the Aral Sea basin about important achievements and innovations in the world.
- The production and web publication of "ICWC Press-Releases" on the SIC ICWC website, and distribution via e-mail among subscribers was continued.
- The production of **CAWater-Info Newsletters** in Russian and English, their publication on the SIC ICWC website and distribution via e-mail among subscribers was continued.
- Advertisement booklets on the Project were distributed at international conferences and workshops, including seminars of the ICWC Training Center.
- With a view to enlarge the portal audience, image CDs introducing the portal websites were made. These discs were distributed at conferences and workshops, as well as among organizations having difficulties with access to the Internet (especially in Tajikistan and Turkmenistan).
- Participation of project staff in EECCA-wide capacity building events with presentations and interventions on the experiences of the project: In St Petersburg June 2005 and Tbilisi October 2005.

3.1.3. Capacity building

- In accordance with the request of ICWC members at the 42nd CWC meeting while discussing the CAREWIB Project, SIC ICWC appealed to the SDC for support to hold two training seminars in order to involve representatives from all the provincial water man-

agement organizations. The aim of the seminars is to train to use the information system and portal. The seminars will be held at the ICWC Training Center in January and February 2006.

3.1.4. User needs and feedback assessment

- A session “Development of the Information System in the Aral Sea basin” was held in Almaty, Kazakhstan, 27-29 April within the framework of the 4th Annual Central Asian Scientific-Practical Conference “ICWC towards the 4th World Water Forum: Local Actions for the Global Challenge”.
- Within the framework of the International Conference on Regional Cooperation in Transboundary River Basins in Dushanbe, Tajikistan, 30 May - 1 June, a survey among conference participants (all Central Asian and some other EECCA countries) as well as a selection of environmental professionals in Tajikistan concerning the portal was conducted using a specially developed questionnaire.
- A technical meeting was held in Geneva, Switzerland, 16-18 August to discuss practical aspects of developing the project, and basic strategic directions of its development and sustainable functioning after the completion of the current project phase.

3.2. GRID-Arendal and UNECE Activities

- Supply of links and material for the portal.
- Participation in at presentation of CAREWIB at the International Conference on Regional Cooperation in Transboundary River Basins, 30 May - 1 June, Dushanbe, Tajikistan.
- Participation in the conference “ICWC towards the 4th World Water Forum: Local Actions for Global Challenge”, Almaty, Kazakhstan, 27-29 April 2005.
- English editing of selected material.
- Participation in development of a questionnaire and user poll.
- Preparation and holding of a technical meeting for discussing practical aspects of developing the project, and basic strategic directions of its development and sustainable functioning after the completion of the current project phase (Geneva, 16-18 August).
- Contributions to the ‘Concept for Developing a Sustainable Information Service on Water Resources in the Aral Sea Basin’.
- Presentation of the CAREWIB experience in international meetings, for example SPECA Working Group for Energy and Water Resources, Almaty November 2005 and various meetings under the Environment and Security initiative
- Consultations on progress and further development of CAREWIB with stakeholders and potential partners (EC IFAS in Dushanbe June 2005, National Environment Protection Agency and other relevant authorities of Afghanistan in Kabul November 2005, meetings with the donors)
- Facilitation of inter-programme linkages and improved coordination through furthering better integration of CAREWIB activities with information-related components of SPECA, work of the Regional Hydrological Centre and national Hydro-meteorological Services, Environment and Security work programme and UNDP’s information services (CARESD / CARNet).

III. LIMITATIONS AND LESSONS LEARNT

The first and main lesson learnt in the course of the project is that there is an insufficient mutual understanding and interaction between regional organizations in information exchange.

The second lesson is that the understanding of personnel from province water management organizations about the portal and its opportunities and benefits is poor.

Thus, we have following tasks:

- (1) to involve personnel from national, provincial and local authorities for agriculture and water resources as well as other stakeholders better, and
- (2) to use experience accumulated while creating the regional IS to design similar national information systems to be integrated into the IS in future.

Declaring the portal an official de facto instrument for supporting decision-making processes on water resources in the region requires political support, first of all, from the national governments in the region, which is possible through the IFAS Board. That is why further work on upgrading the IS and promoting the portal should be carried out in coordination with activities of ICWC and IFAS, mainly through the ministries of (agriculture and) water resources in the countries, developing the 'pyramid' of the information system towards basin, provincial and district departments for agriculture and water resources.

As a first step to solve the problem to attract personnel of the provincial water management organizations to regular use of the portal, it is planned to organize training of personnel to work in the Internet and use e-mail, and visually demonstrate benefits from using the available information resources (bottom-up process).

The second step in raising the sustainability of the portal is to cooperate more closely with ICWC, and through ICWC with IFAS, which will ensure political support to the portal (top-down process).

Problems arising in the process of the project

The lack of an agreement on mutually beneficial measures for exchange of both experience and data between the CAREWIB and RHC Projects.

Unsatisfactory collection, analysis and transmission of data by project correspondents in some of the countries to the SIC office. In our opinion, this is been caused by the following reasons:

- policies of some water and environmental organizations to be information owner, not understanding impossibility of regional water management without a wider information exchange;
- misunderstanding by some national governmental echelons of the necessity to cooperate in the field of information, raise the transparency and confidence;
- low pays for correspondents.

VI. OUTLOOK FOR 2006

The main objective of the project in 2006 is to do preparatory work for transition of the portal and information system to self-repayment (at least partially).

The CAREWIB Project expects to establish active mutually beneficial cooperation with the Executive Committee of the IFAS and Regional Hydrometeorological Center, also funded by the SDC.

The scope of materials available on the portal in English will be expanded.

In 2006, the CAREWIB Project will continue information exchange with international organizations and associations involved in water sector such as the World Water Council, ICID, International Water Resources Association (IWRA) and others.

Receiving certain generalizing intelligence that would help to make managerial decisions should cover information deficit and rely on data on the whole region, from both flow formation and dispersal zones.

The development of the IS should include improving the structure of DB, developing new applications based on modern and effective technologies for information collection, processing and exchange, namely:

- methodical and technical upgrading of the IS by introducing new elements of modeling, analysis, decision support and GIS;
- developing more effective communication channels for information exchange within Central Asia, with establishing client groups, levels of access to information, creating a targeted data supply system, and concluding agreements on themes, based on studying demand and solvency of clients to cover information service costs;
- developing a system for free distribution and sale of information in English beyond Central Asia on request, with advertisement according to data list;
- promoting the CAREWIB information resources available in English to the international audience;
- developing a scheme of information service for IS users, with determining client groups, themes, access levels;
- determining forms and content of information provided to clients: on-line, analytical, modeling, predicted, planned, retrospective;
- perfecting design analysis blocks for immediate assessment and adjustment of water situation;
- creating GIS layers, - water-management network, assessing land reclamation condition and productivity, water availability in districts, situation in Priaralie and the Aral Sea and so on;
- linking DB, models and analysis blocks through the IS interface; upgrading the interface in part of elements of decision support, GIS and result interpretation;
- extending DB with new information on requirements of models and GIS;
- developing tools for searching and providing information to clients, - advertising, making requests, reporting, outputting tabular, graphic and GIS information.

Appendix 1

Visit statistics of portal sites

Domain www.cawater-info.net

Month	Hits	Files	Cached	Pageviews	Sessions	KB sent
October 2005	12935	8772	1657	436	1069	1202178
September 2005	20821	14815	2798	540	1860	1093174
August 2005	12580	9538	1651	337	759	512586
July 2005	2216	1420	334	54	270	32662
June 2005	12878	9254	1949	275	1292	996879
May 2005	25837	19658	3288	506	2420	1678120
April 2005	26871	18570	4429	762	2848	1966575
March 2005	13416	9130	2395	396	1350	797077
February 2005	1796	1521	85	44	308	407764
January 2005	5872	4046	1094	170	366	198478
December 2004	8682	5724	2396	439	843	216196
November 2004	8653	4280	915	188	249	49990
October 2004	1102	865	185	35	93	14933
September 2004	6284	5495	391	281	269	96217
August 2004	1348	1110	136	89	141	36380
July 2004	4710	3541	759	296	269	42976
June 2004	0	0	0	0	0	0
Total	158846	119758	202688	221432	224769	9342185

Domain www.icwc-aral.uz¹

Jan 2005 Feb 2005 Mar 2005 Apr 2005 May 2005 Jun 2005 Jul 2005 Aug 2005 Sep 2005 Oct 2005 Nov 2005 Dec 2005

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Sep 2005	0	0	0	0	0
Oct 2005	602	1037	2629	7747	60.83 MB
Nov 2005	1507	3667	12233	28216	230.24 MB
Dec 2005	1700	3608	12824	33003	249.01 MB
Total	3809	8312	27686	68966	540.09 MB

¹ Recorder was installed again in October 2005

Appendix 2

Extract from the Minutes of the 42nd Meeting of the ICWC

**EXTRACT FROM THE
MINUTES
of the 42nd Meeting of the Interstate Commission for Water Coordination (ICWC)
of the Republic of Kazakhstan, Kyrgyz Republic, Republic of Tajikistan,
Turkmenistan and Republic of Uzbekistan**

28-29 April 2005

Almaty city

Chairman of the meeting

Anatoliy Dmitriyevich Ryabtsev
Chairman of the Committee for Water Resources
Ministry of Agriculture
Republic of Kazakhstan

**AGENDA
of the 42nd ordinary ICWC meeting
28-29 April 2005, Almaty city**

1. About the implementation of the limit on water intakes in the non-vegetation period 2004-2005, confirming limits on water intakes from the Amudarya and Syrdarya river channels for the next vegetation period 2005, and agreeing the predicted operation mode of reservoir cascades (BVO “Amudarya” and BVO “Syrdarya” responsible)
2. About the allocation of costs to finance the activities of SIC ICWC and BVO “Syrdarya”
3. About the development of the production of gauging devices in the interests of ICWC (SIC ICWC and CMC ICWC responsible)
4. About the preparation for the 4th World Water Forum
5. About the CAREWIB Project
6. About the agenda and venue of the 43rd ordinary ICWC meeting

Having approved the agenda, listened to the speeches of the participants, and exchanged views, the members of the Interstate Commission for Water Coordination in Central Asia (ICWC) decided:

On the 5th matter:

- 1) to approve the CAREWIB project activity and consider it expedient to continue in future the actions in the project directions taking remarks into account.
- 2) note the significance of the project in part of raising the confidence, transparency of the activities of water organizations and water users in the basin, possibility of continually updating information on all the aspects of ICWC's operation, as well as popularizing the activities of ICWC.
- 3) note the high level of participation of BVO Amudarya, BVO Syrdarya, national coordinator of Tajikistan and UzHydromet in establishing an information system.
- 4) ask the members of ICWC and EC IFAS to remove obstacles to involving the Hydromets of other Aral Sea basin states and Regional Hydrological Center in the CAREWIB activities.
- 5) submit an Agreement on water information exchange among the Aral Sea basin states for consideration and approval at the next ordinary meeting of the IFAS Board.

For the Republic of Kazakhstan

A.D. Ryabtsev

For the Kyrgyz Republic

J.B. Bekbolotov

For the Republic of Tajikistan

A.A. Nazirov

For Turkmenistan

T.A. Altiyev

For the Republic of Uzbekistan

S.R. Khamrayev

Appendix 3

Extract from the Minutes of the 43rd Meeting of the ICWC

EXTRACT

MINUTES
of the 43rd Meeting of the Interstate Commission for Water Coordination (ICWC)
of the Republic of Kazakhstan, Kyrgyz Republic, Republic of Tajikistan,
Turkmenistan and Republic of Uzbekistan

2 November 2005

Almaty city

Chairman of the meeting Anatoliy Dmitriyevich Ryabtsev
Chairman of the Committee for Water Resources
Ministry of Agriculture
Republic of Kazakhstan

ICWC members:

Anatoliy Dmitriyevich Ryabtsev	Chairman of the Committee for Water Resources, Ministry of Agriculture, Republic of Kazakhstan
Kydykbek Kanimetovich Bey- shekeyev	Deputy Director General of the Water Department, Ministry of Agriculture, Water Resources and Processing Industry, Kyrgyz Republic
Masaïd Yakubovich Khomidov	Deputy Minister of Land Reclamation and Water Re- sources, Republic of Tajikistan
Begench Amanovich Mommadov	Deputy Minister of Water Resources, Turkmenistan
Shavkat Rakhimovich Khamrayev	Deputy Minister, Head of the Water Department, Ministry of Agriculture and Water Resources, Republic of Uzbekistan

AGENDA:

1. About the implementation of the limits on water withdrawal and operation modes of reservoir cascades in the Amudarya and Syrdarya river basins for the vegetation period 2005, and confirming limits on water withdrawal for the non-vegetation period 2005 (BWO “Amudarya” and BWO “Syrdarya” responsible)
2. About the execution of the Decision of the Heads of Central Asian states dated 6 October 2002 in part of priorities 1 and 6.
3. About the venue and agenda of the 44th ICWC meeting.

Additional matter:

1. Confirmation of Temporary Rules for Use of the Regional Information System on Water and Land Resources in the Aral Sea Basin (SIC ICWC responsible).

Having confirmed the agenda and heard the speeches of participants in the meeting, and exchanged opinions, the members of the Intestate Commission for Water Coordination in Central Asia (ICWC) decided:

On the 1st additional matter:

1. To confirm the proposed draft Temporary Rules for Use of the Regional Information System on Water and Land Resources in the Aral Sea Basin, developed by SIC ICWC according to the instruction given at the 42nd ICWC meeting (Almaty, April 2005).

2. To give SIC ICWC the task to make copies of the Temporary Rules and distribute to all the concerned water agencies and organizations for practical application.

For the Republic of Kazakhstan

A.D. Ryabtsev

For the Kyrgyz Republic

K.K. Beyshekeyev

For the Republic of Tajikistan

M.Y. Khomidov

For Turkmenistan

B.A. Mommadov

For the Republic of Uzbekistan

S.R. Khamrayev

Appendix 4

Temporary Rules for Use of the Regional Information System on Water and Land Resources in the Aral Sea Basin

2 November 2005

The Central Asia Regional Water Information Base (CAREWIB) Project aims to improve information supply to water and environmental sectors in Central Asian countries, thus keeping information openness and forming public opinion in the region. This raises the sustainability of development and facilitates strengthening of the partnership in the field of rational use of national natural resources in the Aral Sea basin.

The priority interrelated objectives of the project are to create a web portal containing information on water situation and environmental problems in Central Asia, and create a regional information system on water and land resources in the Aral Sea basin (hereinafter IS).

The present rules establish a temporary order for use of the regional information system on water and land resources in the Aral Sea basin.

The responsible project executor, Scientific-Information Center ICWC, is an analyzing and informing body, the main task of which is to process information to support decision-making within the framework of ICWC. Recognizing the public significance of information on the condition of water resources in the Aral Sea basin, the project focuses efforts on its dissemination among interested users.

In view of scarce resources and different regulations on conditions for use of information from different sources, it is supposed to provide full open access to many types of data in a priority basis.

In future, it is expected that the list of information provided for free access will be extended. At present, access to information available in the regional information system can be received in agreement with ICWC members or on the basis of concluded contracts on paid information provision for compensation of related additional labor resources.

1. Data published on the CAWater-Info websites are designed for free open use. They include:

- a) On-line predicted information, published in official bulletins of the Hydromet Services in Central Asian countries and provided to the Scientific-Information Center ICWC in order of information exchange;
- b) Data on water discharges at water intakes in the Amudarya and Syrdarya river basins, provided by BWO "Amudarya" and BWO "Syrdarya";
- c) Official data on the state of the Aral Sea;
- d) Part of information from national databases on water and land resources, published as a tool for intensifying regional cooperation through openly providing data by all the countries: by the list agreed by ICWC members;

- e) Information, published in open sources of information direction, published with reference to source on rights of information review;
- f) Brochures, monographs, reports, press-releases and other materials, containing information on activities of international projects implemented in the region by ICWC executive bodies – as a means for informing the public of these projects, if these projects do not provide other;
- g) Data, received from official sources, directly or indirectly serving to assess water use in the region.

2. Primary data on water and land resources, contained in the IS database, used only by ICWC members and their plenipotentiaries, by special password, given by ICWC. Sharing of password to other persons is prohibited.

3. ICWC members can give temporary or permanent permissions to other persons for receiving certain data relating only to their country through SIC ICWC.

4. By the determination of ICWC for servicing its members and implementing requests of the Governments of the countries in the region, the CAREWIB Project staff will prepare analytical reports on water and land resources use, introducing advanced experience and other data available in the IS, and with a view to use them by personnel of water and design organizations. Texts of reports are subject to agreeing with ICWC members or their plenipotentiaries, which at the same time will determine the degree and audience of their accessibility.

LIST OF INFORMATION PROVIDED

Information	Source	Location in the IS	Access
On-line daily data on flows, water levels, operation modes of reservoirs, decade flows, reservoir water balances, channel water balances	Official data from the Hydromet Service transmitted to the IS	CAWater-Info website	For general use
On-line ten-day data on flows at water intakes in the Amudarya river basin in non-vegetation and vegetation periods	Official data from BWO "Amudarya"	CAWater-Info website	For general use
On-line ten-day data on flows at water intakes in the Syrdarya river basin in non-vegetation and vegetation periods	Official data from BWO "Syrdarya"	CAWater-Info website	For general use
Main parameters of the Aral Sea	Data from the INTAS-ARAL Project and other available sources of scientific observations	CAWater-Info website	For general use
Main parameters of rivers, canals, reservoirs, gauging stations, water intakes, hydro power plants, heat power plants, weather stations, escapes	Data of the WARMIS and CAREWIB Projects	"Objects" DB in the CAREWIB IS	On the requests of ICWC, Governments
Total water withdrawal in the Aral Sea basin countries from surface and groundwater sources including trans-boundary and local ones – information from ministries	Data of the WARMIS and CAREWIB Projects	"Analysis" DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations, serviced under ICWC (by written instruction of any ICWC member)
Water withdrawal per water source	Data of the WARMIS and CAREWIB Projects	"Analysis" DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations – in the same way
Total water consumption: water supply at district borders, in the basin states, for all sectors of economy, except environmental requirements (delta, Aral Sea)	Data of the WARMIS and CAREWIB Projects	"Analysis" DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations – in the same way
Environmental flows	Data of the WARMIS and CAREWIB Projects	"Analysis" DB in the CAREWIB IS	On the requests of ministries, departments and regional

Information	Source	Location in the IS	Access
			water organizations – in the same way
Total water disposal: return and wastewater formed and accounted at district borders, total, per country	Data of the WARMIS and CAREWIB Projects	“Analysis” DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations
Flow use coefficient: relationship of flow use volume to water withdrawal volume per country characterizes flow losses in areas from head water intakes to borders of accounted water consumers (districts, WUAs and others)	Coefficients (calculated by program method)	“Analysis” DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations, on agreement or permission of any ICWC member
Irrevocable water consumption coefficient: relationship of the difference between flow use and disposal minus reuse to water withdrawal	Coefficients (calculated by program method)	“Analysis” DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations – in the same way
Irrigated area	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	For general use
Cropped area	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	For general use
Drained area	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	For general use
Areas under perennial plants	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	For general use
Areas of zones (forests, steppes and so on)	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	For general use
Areas of saline lands	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations
Crop capacity	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ICWC, Governments
Gross crop yields	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ICWC, Governments
Distribution of areas under crops	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ICWC, Governments
Total length of collector-drainage network	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	For general use.
Amount of drainage wells	Data of the WARMIS and CAREWIB Pro-	National DB in the CAREWIB IS	For general use

Information	Source	Location in the IS	Access
	jects		
Length of surface horizontal drainage system	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	For general use
Length of subsurface horizontal drainage system	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	For general use
Actual water withdrawal for irrigation	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations
Water consumption in industry	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations
Water withdrawal for non-irrigation needs	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations
Monthly collector-drainage flow to rivers and depressions	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations
Return flow to rivers	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations
Irrigation water inflow from canals to rivers	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations
Water withdrawal for non-agricultural needs from groundwater deposits	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations
Water withdrawal for irrigation from groundwater deposits	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations
Total area of groundwater deposits	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations
Water consumption in municipal economy	Data of the WARMIS and CAREWIB Projects	National DB in the CAREWIB IS	On the requests of ministries, departments and regional water organizations
Population	Data of the WARMIS Project and official statistical data	National DB in the CAREWIB IS	For general use
Urban population	Data of the WARMIS Project and official statistical data	National DB in the CAREWIB IS	For general use

Information	Source	Location in the IS	Access
Other socio-economic data available in the IS	Data of the WARMIS Project and official statistical data	National DB in the CAREWIB IS	On the requests of ICWC, Governments

Appendix 5

Information System parameters

“LAND” BLOCK

Crop yield capacity	Irrigated areas
Gross crop yields	Areas of irrigated arable lands
Distribution of areas under crops	Drained area
Total length of collector and drainage network	Areas under perennial plants
Amount of drainage wells	Areas of forests, steppes, deserts, wetlands
Length of surface horizontal drainage	Areas of saline lands
Length of subsurface horizontal drainage	Distribution of irrigated areas by soil salinity degree

“ECONOMY” BLOCK

Population	Industrial output
Urban population	Consumer goods: Foodstuffs
Birth rate	Consumer goods: Nonfoods
Death rate	Gross agricultural production including crop production
Population migration	including cattle breeding
Number of labor resources including the employed in economy	Livestock population
Number of the unemployed	Livestock population, out of which cows
Population income	Sheep and goats
Per capita income	Meat production, in slaughter weight
Population outlay	Dairy production
Per capita outlay	Eggs
Average monthly wage	Investment in capital asset
Average monthly pension	including foreign investment
Housing stock	including private investment
Population housing	Investment in agriculture
Number of pupils at general education schools	Investment in water sector
Number of general education schools	GDP
Number of students at specialized secondary schools	GDP per capita
Number of specialized secondary schools	Industry
Number of students at higher education institutions	Agriculture and forestry
Number of higher education institutions	Construction

Number of museums	Transport and communications
Number of libraries	Others
Number of physicians	Cost of basic assets in water sector for every five years (without BWOs)
Number of hospital beds	Investment in maintenance of basic assets in water sector
Sickness	Investment in development of basic assets in water sector
Number of nursing staff	Number of operating personnel with higher education employed in water sector
Number of medical services providing ambulatory care to population	Number of operating personnel with secondary education employed in water sector

“WATER” BLOCK

Actual water intake for irrigation including Amudarya basin	Volume of return flow to rivers
including Syrdarya basin	Volumes of irrigation water inflow from canals to rivers
Water consumption in industry	Volumes of water intakes for non-agricultural needs from groundwater deposits
Water intakes for non-irrigation needs	Volumes of water intakes for irrigation from groundwater deposits
Collector-drainage flow to rivers and depressions	Total area of groundwater deposits
Return flow to Amudarya	Consumption in municipal economy
Return flow to Syrdarya	Groundwater resources and approved operational supplies