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**CENTRAL ASIA REGIONAL WATER INFORMATION BASE
PROJECT**

‘CAREWIB’

PROGRESS REPORT FOR 2007

Bridging period: 1 January - 31 July 2007

Inception period: 1 August - 31 December 2007

March 2008

Tashkent – Arendal – Geneva

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Abbreviations

APWF	Asia-Pacific Water Forum
ASB	Aral Sea Basin
ASB-mm	Aral Sea Basin Management Model
ASBP	Aral Sea Basin Program
BWO	Basin Water Organization
CAR	Central Asian Republics
DB	Database
EC	Executive Committee
GRID-Arendal	Global Resource Information Database Centre, Arendal, Norway
GWP CACENA	Global Water Partnership for Caucasus and Central Asia
ICSD	Interstate Commission for Sustainable Development
ICWC	Interstate Commission for Water Coordination in Central Asia
IFAS	International Fund for Saving the Aral Sea
INBO	International Network of Basin Organizations
IS	Information System
MAWR	Ministry of Agriculture and Water Resources
NGO	Non-governmental organizations
NHMS	National hydro-meteorological services of Central Asian states
SDC	Swiss Agency for Development and Cooperation
SIC	Scientific-Information Center
UNECE	United Nations Economic Commission for Europe
WARMIS	Water Resources Management Information System
WUA	Water Users Association
WUFMAS	Water Use and Farm Management Survey
WWC	World Water Council
WWF	World Water Forum

I. EXECUTIVE SUMMARY

The “Central Asia Regional Water Information Base (CAREWIB)” Project was developed in support for the ASBP-1 approved by the decision of the Heads of State on 11 January 1994 (Project 2 – “Data base and management information system for water and environment”) and ASBP-2 approved by the IFAS Board on 28 August 2003 (Item 6 – “Reinforcement of material/technical and legal basis in interstate organizations, development of the regional information system designed to manage water resources of the Aral Sea basin”).

The CAREWIB Project is implemented within the framework of the Swiss Regional Medium-Term Program for Central Asia 2002-2006 in support for “Natural Resources and Infrastructure Management” (Swiss Water Policy for Central Asia 2002-2006); - “Management, Security and Conflict Prevention” (raising transparency and public awareness); - and cross-cutting “environmental” issues (relation between water and environment) in accordance with the Aarhus Convention.

The Project is funded by SDC and implemented by SIC ICWC in Tashkent with the assistance of the UNECE and UNEP/GRID-Arendal Office in Geneva. The CAREWIB Project Phase-1 started on 1 December 2003 and came to the end on 31 December 2006.

The CAREWIB Project is implemented under the decision made at the 37th ICWC meeting (22-24 December 2003, Karshi). The progress of project activities was considered at the 42nd (28-29 April 2005, Almaty), 43rd (2 November 2005, Almaty), 46th (8-10 March 2007, Ashgabat) and 48th (11 October 2007, Khodjent) ICWC meetings.

The guidelines for the project activities are given in the Project Document.

It was decided to continue activities between Phases 1 and 2 at the meeting of the Project Steering Committee (20 October 2006, Bishkek). The bridging period lasted from 1 January to 31 July 2007. Phase 2 of the project started 1 August 2007.

During the bridging period an assessment of the project activities was made by independent experts. The results achieved in Phase 1 and expectations from Phase 2 were further discussed with the main interested users, and the Project Document was revised on the basis of received recommendations.

The results of Project Phase 1 were discussed at the 46th ICWC meeting (Appendix 4).

The need for creation of national information systems and the further progress of project activities were considered at the Boards of the Water Department at the Ministry of Agriculture, Water Resources and Processing Industry of the Kyrgyz Republic (Appendix 6), Ministry of Land Reclamation and Water Resources of

Tajikistan (Appendix 7) as well as at the regional workshop with participation of major stakeholders (Appendix 8).

As a basis for the establishment of national IS Memoranda of Understanding were concluded between SIC ICWC and the national water management organizations including Ministry of Land Reclamation and Water Resources of Tajikistan.

During the inception period of Phase 2 (1 August - 31 December 2007), the foundation for national information systems was established, and the principles for their development proposed by SIC ICWC were considered and approved at the 48th ICWC meeting (Appendix 5).

During the reporting period, the information coverage of the portal was extended through adding new unique material and services as a response to the request of users during the Almaty Conference in 2007.

At the same time, agreements on cooperation were finalized with a number of organizations, both within and beyond the water sector, including with one of IFAS organizations – IFAS GEF Agency.

A consensus has thus been reached among all Central Asian countries on the creation and development of national information systems, which is undoubtedly the main achievement of the project for the reporting period.

II. KEY PROJECT RESULTS ACHIEVED DURING THE REPORTING PERIOD

2.1. Enhancement of information scope and coverage of CAREWIB Portal and Information System including strengthening mechanisms for data collection

2.1.1. Regional water information portal

The most important activity results with regard to the portal are an increased volume of information posted on the portal, an extended thematic coverage and easier access to the information.

Information dissemination on ICWC activities was developed resulting in an improved awareness in the world community. This was promoted by re-design of the web-site in connection with the 15th Anniversary of ICWC (Fig.1), with added new materials, including special web-site for the Central Asian scientific-practical conference dedicated to the 15th Anniversary of ICWC (Fig. 2).

The usefulness of the portal and its value for visitors were enhanced through a more rapid access to information required by the users as a result of connection to a search service. Full search throughout the portal is now made by the Google search engine (Fig. 3). Google presently has the most powerful and modern search engine providing many useful options for setup and monitoring of search requests.



Fig. 1. ICWC website (renewed version)



Fig. 2. Website dedicated to 15th Anniversary of ICWC



Fig. 3. Display of search results on the CAWater-Info portal

A section dedicated to 5th World Water Forum (www.cawater-info.net/5wwf/) was created on the portal to disseminate information about the preparation for this event (Turkey, 2009). This is the only Russian-language Internet source of information about the preparation for the Forum in the post-Soviet area. At the start of the preparatory process towards WWF5 organized by the World Water Council, SIC ICWC and particularly CAWater-Info Portal was given the responsibility for informing about the course of events for the Russian-speaking audience.

The scope and coverage of the portal has been extended by launching an English version of the ADB RETA 6163 “Improved Management of Shared Water Resources in Central Asia” (www.cawater-info.net/reta/) website. Enhanced usefulness of the website to the English-speaking audience attracted more visitors from the international community as indicated by the website statistics. Similarly, providing important water information in local languages could add value to the portal within the region. Therefore, during the bridging period it has been decided to translate some pages in local languages, which would expand the portal outreach to the grass root level.

The extended information coverage of the portal include:

- A database on international river basins in the world available on the project website ‘Promoting Twinning of River Basins for Developing Integrated Water Resources Management Practices (TWINBASIN^{XN})’ (www.cawater-info.net/twinbasinxn/);
- Russian-language websites of the International Network of Basin Organizations (INBO, www.cawater-info.net/int_org/inbo/ - Fig. 4) and International Commission on Irrigation and Drainage (ICID, www.cawater-info.net/int_org/icid/ - Fig. 5) having the objective to attract a wider Russian-speaking audience to their activities.



Fig. 4. Website dedicated to INBO activities



Fig. 5. Website dedicated to ICID activities

Regular information on the state of natural water resources and their forecast and comparison of forecast and actual data on the water use and the main rivers’ balances contributed to an improved water management and a more developed trust, community and sense of responsibility among the countries and economic sectors. A new section “Analysis of the water-related situation in Amudarya basin and Syrdarya basin” (www.cawater-info.net/analysis/water/, Fig. 6) was opened on the portal with the objective to assess the effectiveness of water use by all actors of joint management and to determine more exactly the volume of unproductive withdrawals. This section gives analytical information on the water situation in the basins for 10-day periods.

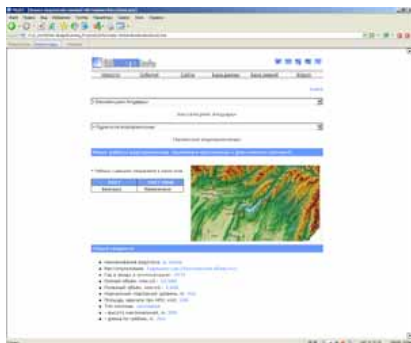


Fig. 6a. Section “Analysis of the water situation in the Amudarya and Syrdarya river basins”



Fig. 6b. Example of analytical information display

The Knowledge Base “International and National Water Law” was developed. The knowledge base contains generalized data on international water law and national water law in Central Asian states (www.cawater-info.net/bk/water_law/) (Fig. 7). The creation of this base reflects requests from users expressed during discussion at the regional conference under the project with participation of all stakeholders (Almaty, April 2007).



Fig. 7. Knowledge base “International and National Water Law”

2.1.2. Information system

The regional information system created during Phase 1 was recorded on DVD disks and distributed to all ICWC members. To this end, installation packages for all five states were developed.

An attempt to develop cooperation with NHMS in the region was made with the assistance of the Swiss Cooperation Office. The CAREWIB Project staff took part in a meeting of the Coordination Council of Project “Swiss Assistance to Hydromet Services in the Aral Sea Basin” held in Bishkek on 16-17 April 2007. The minutes of this meeting included the following item: «2.2. Based on the conclusions of the discussion on Result 4.9 of YPO, cooperation between NHMS in Central Asia and the ‘Central Asia Regional Water Information Base’ (CAREWIB) Project at present should be considered inexpedient”. Thus, cooperation between NHMS and the CAREWIB Project was deferred sine die on initiative of NHMS. However, it is essential that the national water management organizations and NHMS will come to an understanding in the creation of information systems in Project Phase 2. Without information from NHMS, it will be impossible to introduce an “Analysis” block into the national information systems.

At present, the operational DB is augmented with climatic information from the website at: <http://meteocenter.net>.

Available data (INTAS Project, etc.) on the Aral Sea were analyzed, dividing into Small and Big Aral. At present, “CAREWIB” DB contains the following information on the Aral Sea:

- Level (m) from 1911 to 2005;
- Water surface area (km²) from 1911 to 2005;
- Sedimentation (Mt) from 1950 to 1985;
- Ice volume (Mt) from 1911 to 2005;
- Evaporation from water surface (km³) from 1911 to 2005;
- Water salinity in river delta (g/l) from 1950 to 2005;
- Precipitation (km³) from 1950 to 2005;
- Salt mass from river (Mt) from 1950 to 2005;
- Water mass (km³) from 1911 to 2005;
- Water amount from river (km³) from 1950 to 2005.

All missing data for 2006 on all the Aral Sea basin states in blocks “Land”, “Water” and “Economy”, and new blocks “Land reclamation” and “Domestic water supply” containing data for the period from 1980 to 2007 were entered in CAREWIB DB.

The whole CAREWIB Information System was translated into English that is currently used for IS demonstration to English-speaking audience. This will make it possible to transfer the methodology for creation of such information systems to foreign organizations, including on a commercial basis, which will improve the project sustainability. The positive experience of IS interface language adaptation will undoubtedly be useful in the establishment of national information systems.

GIS layers for Syrdarya, Djizak, Kashkadarya, Samarkand, Surkhandarya, Khorezm, Navoi and Bukhara provinces of Uzbekistan were created. In the process, the following work was done:

- Analysis of DB on objects was made. The list of functioning waterworks objects (facilities) was specified and supplemented in linkage to administrative division of the Republic of Uzbekistan. Thematic GIS layers were created;
- Thematic information layers (GIS data) were coded, for interconnection of GIS data (spatial data) with tables of the Central Asia Regional Water Information Base - CAREWIB;
- Thematic information layers were linked to DEM model and CAREWIB DB interface.

The sources for the creation of thematic GIS layers were thematic maps (provided by MAWR and Basin Administrations of Irrigation Systems of Uzbekistan) and topographic maps with a 1:100 000 scale. During the formation of linear objects such as rivers, canals and administrative points, the information sources were topographic maps with a 1:100 000 scale.

2.1.2.1. Analytical instruments

An Analysis Block was created in the regional information system. Using this block, analytical reports for ICWC members as well as reviews for publication on the portal for the general public were prepared monthly. Analytical reviews make it possible to make an integrated assessment of the water situation in the Amudarya and Syrdarya river basins and their sites, in particular with regard to:

- planned (predicted) and actual indicators on reservoir volumes, inflows, releases, water withdrawals;
- differences between planned (predicted) and actual indicators with water availability for withdrawal.

The following was created in the Analysis Block:

- Instruments for online analysis through finding analogue year in DB (Fig. 8) on discharges of gauging stations and sedimentation of weather stations;
- A module for calculation on cumulative total basis for average daily gauging station discharges and realization of a capability to select arbitrary year for comparison;
- A module for calculation on cumulative total basis for *average daily reservoir parameters measurement data* and realization of a capability to select arbitrary year for comparison;
- An online database and a structure for tables and specification of data;
- Directories and control lists based on queries, program modules for calculation of analysis indicators, forms for analytical information representation, table structures for analysis of water situation, queries and program modules for numerical calculations, models of forms (in MS Excel) for analytical information representation;
- Improved navigation elements of online database;
- Structures for temporal tables for construction of reporting block, queries and program modules for the reporting block;
- Forms for call and setup of reports representing analytical information, and
- Optimized queries, program modules and table structures for improving the efficiency of the database.

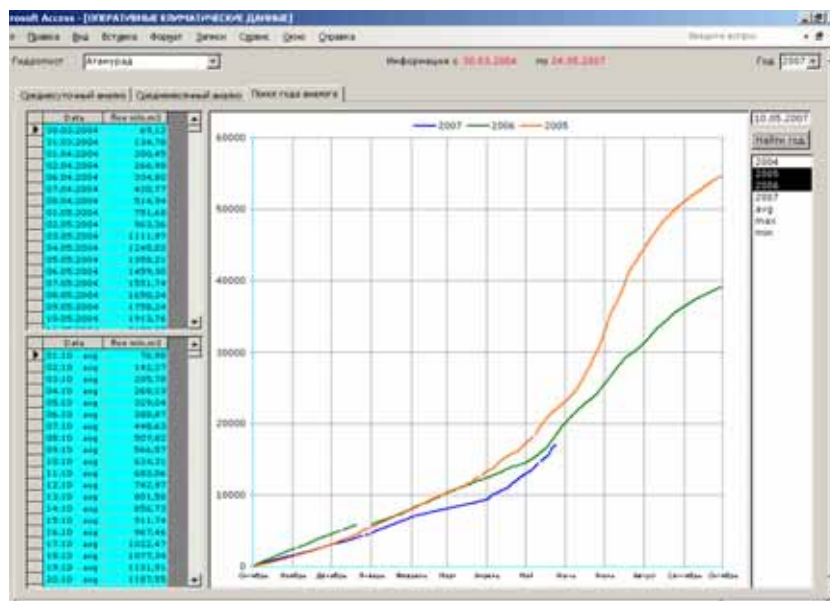


Fig. 8

A computer program for analysis of deviations in calculated (predicted, planned) and actual indicators of water resources management in the Syrdarya and Amudarya river basins was developed. For this purpose, the following work was done:

- A method was developed for basin analysis showing integrated assessment of the current situation with water resources management in the Syrdarya and Amudarya river basins. The main point of this method lies in comparison of predicted (planned) and actual indicators. The method was worked out using available data;
- Input and output analysis forms (tables, diagrams, nomograms) were developed for the Syrdarya and Amudarya basins (research environment – MS Excel)
- Program macros were written in Access environment, and the Analysis Block interface was supplemented with new forms implementing an analysis method for the Amudarya and Syrdarya basins;

Using the material of Analytis Block of the online “CAREWIB” DB, two types of analytical reports have been developed:

- Complete version - distributed to ICWC members. Updated every month. Analogue years are selected for water inflow to upper reservoirs (based on the current situation); water inflow to upper reservoirs for selected period (season, year) is predicted; actual and planned reservoir regimes, deviations of actual water withdrawal from planned water withdrawal per water-management sites, and the water situation are analyzed using indicators of water availability and water distribution uniformity; and a memo is prepared.
- Brief version - placed on the portal (Fig. 6 a, b). Updated every ten days. This section of the portal is unique not only in the region, but also in the world, as there is no analogue anywhere.

A computer program for analysis of hydrochemical river regime was developed and the following work done:

- Methods for assessment of hydrochemical river regime and reliability of data on hydrochemical river regime were developed;
- Forms for display of analytical results were developed, data on quality were entered into CAREWIB DB for the Amudarya river basin and a method for assessment in MS Excel was implemented;
- An analysis of hydrochemical river regime was made using actual data for the Amudarya river, and an assessment of reliability for actual data from DB on hydrochemical analysis of the Amudarya river was carried out, and
- A hydrochemical river regime analysis block was linked to “Analysis” block interface.

For information transmission from provincial centers to the national focal points at the ministries of water resources in the states and to the project office (SIC ICWC), a block of data transmission via e-mail was developed. Thus, an opportunity emerged to automatically augment and update information in the database of the regional information system.

2.2. Production and dissemination of publications and other types of information

During the reporting period, ICWC Bulletins, collected articles with general information, reviews and legal documents, ICWC Press-Releases, and CAWater-Info News bulletins were published. All publications were placed on the Portal and disseminated among subscribers via e-mail and in hard copies.

Updated advertising booklets of the Project were prepared and distributed throughout Central Asia among potential information users and partners. The booklets were also distributed among participants of international conferences and workshops.



Fig. 9

The following publications, prepared by project staff, were produced and made available on the portal:

- V.A. Dukhovny. Water and Energy. Together or separately?;

- V.A. Dukhovny. ICWC - achievements and challenges of the future: water cooperation on the way to sustainable development;
- Afghanistan: Return to a Quiet Life: Development Trends and Directions of Regional Cooperation (a View from Central Asia). Review prepared in SIC ICWC with the participation of GRID-Arendal; recommended by the Ministry of Foreign Affairs of Uzbekistan for dissemination with stamp “restricted”;
- Central Asia Regional Water Information Base: Web-Portal and Information System (brief progress report of CAREWIB Project Phase 1);
- Brief Concept for Developing a Sustainable Information Service on Water Resources in the Aral Sea Basin;
- Decisions of the Interstate Commission for Water Coordination in Central Asia (1992–2007);
- Guidelines for use of the CAWater-Info portal in daily practice;
- Guidelines for use of the Regional Information System of the Aral Sea basin countries, and
- Instructional guidelines for creation of a water information system at the national level.

2.3. Capacity building in water management organizations and among other users and integrating CAREWIB into decision-making processes of national, regional and international bodies as well as in public debate

2.3.1. Integrating CAREWIB into decision-making processes of national water management organizations

While considering the results of Project Phase 1 at the 46th ICWC meeting, ICWC members noted the progress of the CAREWIB Project with regard to the creation of a Portal for water and environmental issues in Central Asia and an Information System. It was agreed to continue the activities under the project areas stated in the “Concept for Development of Activities” with a focus on the improvement of national information systems (except for the Republic of Tajikistan).

ICWC (with the exception of the Republic of Tajikistan) also noted the significance of the project with regard to increasing the confidence, openness of functioning of water management organizations and water users in the basin, opportunities for continual information updating on all aspects of ICWC activities, as well as popularization of ICWC activities.

The following workshops were held to develop capacities of water-management organizations and raise awareness.

A workshop on “Integrated Water Resources Management in Fergana Valley” (IWRM-Fergana) and “Central Asia Regional Water Information Base” (CAREWIB)

Projects was held on 22 February 2007 in the Osh Office of the ICWC Training Center for members to Board of the Water Department (WD) at the Ministry of Agriculture, Water Resources and Processing Industry (MAWRPI) of the Kyrgyz Republic and basin water management organizations (Appendix 6). A similar workshop was held on 24 February 2007 in Khodjent for personnel of the Ministry of Land Reclamation and Water Resources (MLRWR) of Tajikistan and province water management organizations (Appendix 7). The workshops informed about the results of IWRM implementation in Fergana Valley, the capabilities of CAWater-Info Portal and CAREWIB Information System.



Fig. 10. Workshop in Osh



Fig. 11. Workshop in Khodjent

The main outcome of these workshops is the support of the initiative to establish national information systems at the Ministry of Agriculture, Water Resources and Processing Industry of the Kyrgyz Republic and Ministry of Land Reclamation and Water Resources of Tajikistan and their departments, using the methodology of CAREWIB IS and fully integrated with it. The application of national information systems will make it possible to improve the planning process for water use planning and to use up-to-date water resources use planning and control processes.

The conclusion of the Workshop discussions was that there is undoubtedly a need for further development of information exchange in the region and for the introduction of information systems in the ministries of water resources and province water management organizations as well as at lower level, i.e. in district water management organizations and WUAs. To this end, continued financial, institutional and political support from governments and donors is necessary at an initial stage.

The advantages and benefits of the use of CAREWIB IS were demonstrated to ICWC members and personnel of the national water management organizations at meetings discussing regional water policy and at the International Conference in Israel with the participation of all ICWC members. As a result, all ICWC members finally adopted the idea of developing national information systems for use by decision-makers as well as by personnel of the national water management organizations in their daily activities.

Thereupon, responsibilities and obligations of the Parties in creation of national IS were determined, and Memoranda of Understanding on creation of national information systems were concluded between SIC and five national water management organizations, including with the Ministry of Land Reclamation and Water Resources of Tajikistan.

Thus, a consensus was reached with all Central Asian countries on the creation and development of national information systems, which is undoubtedly the main achievement of the project for the reporting period.

2.3.2. Regional training workshop

A regional workshop on the 'Central Asia Regional Water Information Base (CAREWIB)' Project was held in Tashkent on 25-26 September 2007. The aim of the workshop was to provide training for the establishment of national information systems (Appendix 9). The workshop brought together representatives from the stakeholders of the CAWater-Info Portal and CAREWIB Information System, the executors and donor of the CAREWIB Project.

At the workshop, staff members of the CAREWIB Project made presentations on the application of the CAWater-Info Portal, CAREWIB Information System, including its analytical capabilities, application of Geographic Information Systems (GIS) in water resources management, methods for creation of databases. A practical training was organized for the participants to reinforce skills to create databases and conduct operations with data. A number of instructional guidelines and special questionnaires (see item 2.2) were prepared and published for the workshop.

As a result, the understanding of the workshop participants on how to organize and provide necessary information support in transboundary water resources management and development of cooperation was improved.

2.3.3. National training workshops

According to the Memoranda signed between the national water management organizations and SIC ICWC, the CAREWIB Project staff analyzed the needs for hardware for the national focal points established at the ministries of water resources. Optimal hardware configuration for development of the national information systems was determined and specified. After that, computer equipment was purchased, including: servers for storage of national databases; computers for data input and handling; printers; network equipment (hubs, cables and modems). The equipment was delivered to and installed at the national focal points established at the ministries of water resources.

During practical exercises, the participants of training workshops were familiarized with the procedure for information input to the database. The fundamentals for DB design in management systems were considered: it was demonstrated how tables, queries, data visualization forms and reports should be made up at the requests of users.

Training workshops on creation of national information systems were held:

- in the Republic of Tajikistan - 25-28 October 2007, Dushanbe
- in the Republic of Kazakhstan - 12-15 November 2007, Astana
- in the Republic of Uzbekistan - 5-7 December 2007, Tashkent
- in the Kyrgyz Republic - 12-15 December 2007, Bishkek



Fig. 12. Workshop in Dushanbe



Fig. 13. Workshop in Astana



Fig. 14. Workshop in Bishkek

The portal and information system were presented to Deputy Director General of WD MAWRPI of the Kyrgyz Republic Mr. Ch.M. Uzakbayev and met with support from him.

The participants of the workshops made the following suggestions on the further upgrading of IS:

- Above all, the national information systems should be aimed at solving operational problems that appear in the operation of water management organizations;
- After their population with data, the national information systems should be applied for use in the daily activity in the ministries of water resources as well as in all province/basin water management organizations after appropriate personnel training;
- Other provinces should also be developed in the national information systems in Kazakhstan and Kyrgyzstan;
- Special attention should be given to data reliability, which is why official statistical data should be used;
- It is expedient to foresee in DB a capability to print out data and/or a capability to export them to other applications (Excel, Word);
- Many projects implemented in the countries have information systems, but often it is impossible to use them due to the absence of trained specialists and incompletely adapted interface. The CAREWIB IS meets all fundamental requirements for such information systems and has an intuitive interface, could be used successfully not only by water specialists, but also in projects.

2.4. Ensuring of long-term political and financial support to CAREWIB

2.4.1. Development of cooperation within the region

Agreements on cooperation were concluded with a number of leading organizations in the region in order to establish and develop cooperation, extend information scope and implement scientific projects. These agreements promote regional and national cooperation aimed at solving prioritised environmental and water problems for sustainable development in Central Asia, and planning and carrying out bilateral actions of mutual interest.

Organizations, with which agreements were concluded:

1. Kazakhstan Institute of Strategic Studies
2. SIC ICSD
3. Ecoforum NGO, Uzbekistan
4. CAREC
5. IFAS GEF Agency
6. Center for Socio-Economic Studies
7. Institute of Water Problems, Hydropower and Environment at the Academy of Sciences of Tajikistan
8. State Water Inspection of Uzbekistan
9. “Kazakhstan Su Arnasy”
10. CDC Energy

Cooperation with “KEGOC” JSC, Kazakhstan, was established without concluding an Agreement.

UNEP and GRID-Arendal are leading an Environment and Security (ENVSEC) assessment of the Amu Darya basin. SIC ICWC participated in regional consultations in Ashgabat in September 2007. Consultations in Kabul in November 2007 further addressed issues in the upper part of the basin, particularly with respect to Afghanistan – Tajikistan cooperation (see meeting conclusions in Annex, cf. item 6 on the substance of cooperation). With support from NATO, GRID-Arendal is also developing a project to strengthen cooperation in water information management between Afghanistan and Tajikistan. Both activities are expected to further contribute to CAREWIB’s development through offering new networking opportunities and, eventually, data and information.

Discussions on CAREWIB cooperation with competent authorities of the Islamic Republic of Afghanistan were initiated by UNEP / GRID-Arendal already in 2006. On 19-21 November 2007 GRID-Arendal held meetings in Kabul (Shojaudin Ziaie,

Deputy minister of energy and water; Sayed Sharif Shobair, FAO project coordinator / emergency irrigation rehabilitation; Qaseem Naimi, Advisor to the Ministry of energy and water and the Supreme water council.) Afghanistan would like to be informed about processes and decisions in shared basins, including that of the Amu Darya. The Ministry of Water and Energy stressed the value of entering water discussions in Central Asia, initially on the technical level. Taking part in Central Asian water information exchange network may give a concrete opportunity to engage Afghanistan in a discussion on the technical, and, if successful, on the political level. The Ministry agreed to discuss with the Supreme Water Council of Afghanistan whether and how it can participate in CAREWIB activities, for instance upon a formal invitation to CAREWIB meetings in 2008 as an observer. Afghanistan's National Environmental Protection Agency (Director-General Mostafa Zaher Shah) is interested in cooperation and information exchange with respect to water quality and protection of the Amu Darya, especially in the upper part of the basin shared with Tajikistan.

CAREWIB was presented and discussed during the Annual meeting of SPECA Project Working Group on Energy and Water Resources 14-15 November 2007 in Bishkek, Kyrgyzstan.

In the development of two UNECE projects – Capacity Building for Dam Safety in Central Asia and Water Quality in Central Asia – cooperation with the CAREWIB project and use of the established websites and IS is planned.

2.4.2. Development of cooperation with international organizations

On the initiative of Prof V.A. Dukhovny, member of the Board of Governors of the World Water Council (WWC) and of the Board of the International Network of Basin Organizations (INBO) Prof. V.A. Dukhovny, it was agreed that SIC ICWC establishes and maintains Russian-language sections at the websites of these organizations, and popularizes their activities on Russian-speaking space through publishing in Russian and distributing bulletins and booklets. This is part of ICWC activities to develop a common information space for Russian-speaking “water” audience.

At the Regional Consultation Meeting for Candidate Water Knowledge Hubs in the Asia-Pacific Region hosted by Singapore's Public Utilities Board (PUB Singapore) on 29-31 October 2007 at the Singapore WaterHub, a presentation was made on SIC ICWC activities within the framework of the CAREWIB Project. Moreover, an application was submitted for establishing at SIC a knowledge hub as an element of the network for water knowledge sharing in the Asia-Pacific region.

2.4.3. User needs and feedback assessment

A session “Central Asia Regional Water Information Base” was held on 26 April 2007 within the framework of the Central Asian International Scientific-Practical Conference dedicated to the 15th anniversary of ICWC. The presentations included an account of an independent evaluation of the project.



After the discussion, the participants adopted the following resolution:

1. Approve the results of Project Phase 1, and note the substantial and unique work done on creation of Regional Web-Portal and Information System.
2. Approve the prepared “Brief Concept for Developing a Sustainable Information Service on Water Resources in the Aral Sea Basin” containing the general provisions on activities in Project Phase 2; include remarks and suggestions made by stakeholders to the Project Document.
3. Focus Phase 2 on the improvement of national information systems in the same format as that of CAREWIB, while institutionally formalizing partnerships between organizations at the national level as well as between national and regional levels.
4. Further orientate the development of the Portal and Information System in three directions correlating with water hierarchy levels in the Aral Sea basin:
 - a) Regional, including IFAS, ICWC, ICSD and key BWOs in the basin;
 - b) National, including ministries and departments of water resources/agriculture, environment, energy and emergency situations, hydromet services, NGOs, and
 - c) Lower hierarchy level (“grass roots”), including farmers and WUAs: including to create and develop on the portal a knowledge base for extension services to farms and WUAs, using the experience of the “IWRM-Fergana” Project for this purpose.

5. In further upgrading the information system (IS), it is necessary to develop instruments for analysis, including a mechanism for information validation for completeness and reliability, and instruments for modeling, which would enable to improve:

- Methods for assessment and forecasting of usable water resources, including calculation of channel losses and lateral inflow;
- Methods for planning of water resources distribution and flow regulation by reservoirs;
- Methods for assessment of water use efficiency (assessment of water requirements in comparison with water withdrawal and non-productive water losses, assessment of water and land productivity with respect to potential value, assessment of collector water disposal, identification of idle discharges and so on);
- Measures to reduce risks of extreme situations in the basin (drought, flood), and mitigate them, and
- WUA extension services regarding analysis and forecasting of climatic and water situations (irrigated agriculture).

6. The Information System should be as accessible as possible through the Portal.

III. CONSTRAINTS AND LESSONS LEARNT

Taking into account the main constraints for project implementation, the following directions of development are important:

1. An efficient mechanism, technically as well as organizationally, for information exchange with partners signing an agreement on cooperation should be established.
2. Extensive demonstration of IS capabilities in order to involve more partner organizations from Central Asian countries in the project.
3. Extended information relations with CIS countries having similar water problems.
4. A mechanism for information supplier and user feedback should be developed.
5. Determination of the most important and actual information on the portal to be translated into national languages.
6. Improved information on other water user and related sectors, in addition to ICWC. A section informing about activities of IFAS and its executive bodies should further be launched on the portal.

7. News Digest should include information on forthcoming events (conferences, workshops, meetings), and not only on their results. In this section, a list of issues to be discussed at these meetings can be announced.

8. To improve the performance of the CAREWIB Project, it is suggested to study the issues of interaction with national information systems in water resources management and environmental protection within the framework of the project. The main areas of such interaction should be:

- Thematic Internet forums for experience exchange between Central Asian countries on rational use and protection of water resources, improvement of water use culture;
- Training workshops on the active use of information resources on water-related problems for personnel of ministries and departments, enterprises and organizations in charge of water resources management and environmental control. This will make it possible to use the capacity of the CAREWIB Project more effectively.

Appendix

Patents



REPUBLIC OF UZBEKISTAN

STATE PATENT OFFICE

FORMAL SOFTWARE REGISTRATION CERTIFICATE

No. DGU 00130

According to the Law on Legal Software and Database Protection as adopted in the Republic of Uzbekistan on 6 May 1994, the State Patent Office issues the present Certificate for the following software

The Aral Sea Basin Regional Information System Software Package

Rightholder(s): *Scientific-Information Center of the Interstate Commission for Water Coordination in Central Asia, UZ*

upon application No. DGU 2007 0096 date of application: 14.06.2007

Author(s): *Dukhovny Victor Abramovich, Sorokin Denis Anatoliyevich, Beglov Iskander Ferdinandovich, Kats Anatoly Vladimirovich, Shakhov Victor Yurievich, UZ*

Registered in the public software inventory
The Tashkent city, Republic of Uzbekistan, 03.07.2007

ЎЗБЕКИСТОН РЕСПУБЛИКАСИ



ДАВЛАТ ПАТЕНТ ИДОРАСИ

МАЪЛУМОТЛАР БАЗАСИНИНГ РАСМИЙ РЎЙХАТДАН
ЎТКАЗИЛГАНЛИГИ ТЎҒРИСИДАГИ

ГУВОҲНОМА

№ ВГУ 00130

Ушбу гувоҳнома Давлат патент идораси томонидан Ўзбекистон Республикасининг 1994 йил 6 майда қабул қилинган «Электрон ҳисоблаш машиналари учун яратилган дастурлар ва маълумотлар базаларининг ҳуқуқий ҳимояси тўғрисида»ги Қонунга асосан

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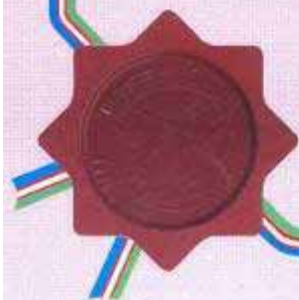
14.06.2007 йилда келиб тушган № ВГУ 2007 0013 талабнома бўйича

Ҳуқуқ эгаси(лари): *Марказий Осиё Давлатлараро сув ҳўжалигини мувофиқлаштириш комиссиясининг ақлий-ахборот маркази, UZ*

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Ўзбекистон Республикаси маълумотлар базалари давлат реестрини 03.07.2007 йилда Тошкент шаҳрида рўйхатдан ўтказилган.

 Директор
А.А. Азимов



REPUBLIC OF UZBEKISTAN

STATE PATENT OFFICE

FORMAL DATABASE REGISTRATION CERTIFICATE

No. BGU 00130

According to the Law on Legal Software and Database Protection as adopted in the Republic of Uzbekistan on 6 May 1994, the State Patent Office issues the present Certificate for the following database

The Aral Sea Basin Water Database

Rightholder(s): *Scientific-Information Center of the Interstate Commission for Water Coordination in Central Asia, UZ*

upon application No. BGU 2007 0013 date of application: 14.06.2007

Author(s): *Dukhovny Victor Abramovich, Sorokin Denis Anatoliyevich, Beglov Iskander Ferdinandovich, Kats Anatoly Vladimirovich, Shakhov Victor Yurievich, Degtyareyva Anastasiya Sergeevna, Romanova Tatyana Vladimirovna, Zherlieva Svetlana Georgiyevna, UZ*

Registered in the public database inventory
The Tashkent city, Republic of Uzbekistan, 03.07.2007