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CENTRAL ASIA REGIONAL WATER INFORMATION BASE  
PROJECT

**‘CAREWIB’**

**PROGRESS REPORT OF OPERATION 2004**

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## **PROJECT EXECUTORS' CONSORTIUM:**

Kazakh Branch of  
Scientific-Information Center ICWC  
(KB SIC ICWC)

Office 242, Seyfulin str., 434, Almaty, 480091  
Kazakhstan

Phone/fax (7 3272) 79 16 11  
E-mail: [nkipshakbaev@nursat.kz](mailto:nkipshakbaev@nursat.kz)  
Web site: [www.sic.icwc-aral.uz](http://www.sic.icwc-aral.uz)

Scientific-Information Center ICWC  
(SIC ICWC)

11, Karasu-4, Tashkent, 700 187,  
Republic of Uzbekistan

Phone (998 71) 166 50 95, 166 50 69  
Fax (998 71) 166 50 97  
E-mail: [dukh@icwc-aral.uz](mailto:dukh@icwc-aral.uz),  
[iskander@icwc-aral.uz](mailto:iskander@icwc-aral.uz)  
Web site: [www.sic.icwc-aral.uz](http://www.sic.icwc-aral.uz),  
[www.cawater-info.net](http://www.cawater-info.net)

GRID-Arendal  
UNEP Regional Office for Europe

15, Chemin des Anemones, CH-1219  
Chatelaine, Geneve, Switzerland

Phone (41 22) 917 82 81  
Fax (41 22) 797 34 20  
E-mail: [nickolai.denisov@unep.ch](mailto:nickolai.denisov@unep.ch)  
Web site: [www.grida.no](http://www.grida.no)

United Nations  
Economic Commission for Europe  
(UNECE)

Palais des Nations, Room 315  
CH-1211 Geneva 10 Switzerland

Phone (41 22) 917 23 96  
Fax (41 22) 917 06 21  
E-mail: [bo.libert@unece.org](mailto:bo.libert@unece.org)  
Web site: [www.unece.org](http://www.unece.org)

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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

# I. INTRODUCTION

## 1.1 Project organization

The project beneficiary is ICWC, an organization that is active in the Aral Sea basin. A bilateral project agreement has been signed between ICWC and SDC. Under this agreement a project consortium have been established by KB SIC, UNECE and GRID-Arendal for executing the project with KB SIC as the lead organisation, and with a mechanism established for discussions within the consortium. A contract has been signed between the consortium and SDC on the basis of the project agreement. The partners of the consortium, KB SIC, GRID-Arendal and UNECE, signed a cooperation agreement for the implementation of the project in which mutual responsibilities, obligations and rights are defined.

A Project Steering Committee (PSC) has been established for the project. It includes representatives from ICWC (1), SDC (1) with voting power, and KB SIC (1), GRID-Arendal (1), UNECE (1) without voting power. Terms of Reference, meeting schedules and agendas for the PSC meetings are to be developed by the consortium that is also responsible for the minutes of the meetings.

The PSC will endorse the Progress Reports and yearly Work Plans, yearly accounts and budgets.

The meetings of a Steering Committee will be held twice a year in the presence all partners of project.

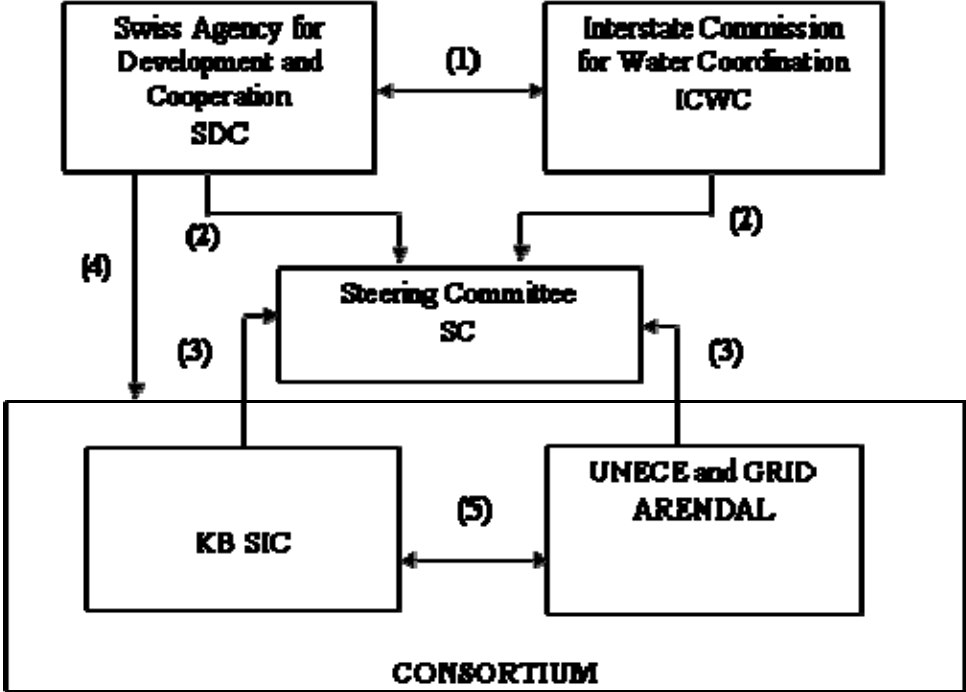
The roles of the consortium partners are foreseen as follows:

**KB SIC** is the contractor, which has the responsibility for the financial organization and monitoring of the work. SIC ICWC is in charge of the management of the Project. SIC acts as the main executive agency, responsible for project activities and contacts with the regional network of national branches. Ministries of agriculture and water resources in the five republics, EC IFAS, BWO « Amudarya», BWO « Syrdarya», donors and participants of the Aral Sea Basin Programme 2 (ASBP-2).

**UNECE** provides policy advice and linkages with respect to processes it is leading such as the Environment-for-Europe, and also SPECA and 'Water, Environment and Security in Central Asia'. UNECE is also the liaison towards the Swiss Government on project matters in Switzerland, as well as towards donors etc that are not presently active in the region.

**GRID-Arendal** provides technical advice and support to tasks where it has state-of-the-art knowledge and experience, namely in web site architecture and design, graphical design and publications, user consultations and feedback. GRID-Arendal ensures linkages to processes and networks delivering environmental information, such as UNEP-UNDP-OSCE's ENVSEC, UNEP-UNDP-ADB-ISDC's Regional Environmental Action Plan, the regional network of the Ministries of the Environment, and through support to the implementation of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. The main task of GRID-Arendal is together with SIC development of the environmental component of the knowledge and data base.

The project organization is further outlined on the chart below.



- (1) Bilateral Project Agreement
- (2) Voting members of the PSC
- (3) Non-voting members of PSC, report to PSC
- (4) Contract for project implementation
- (5) Agreement on project implementation / Association Agreement

### 1.2 Project scope

One of the priority tasks of the project is to create a Regional Water and Environmental Web Portal with regularly updated information on the water situation and environmental problems in Central Asia.

Water management in Central Asia is not sustainable, which is the cause of major environmental problems in the region. Problems such as the consequences of the Aral crisis and the unresolved disputes on the allocation and management of the regional water resources are still acute. On-going developments, such as development of management systems, reconstruction activities, development of water management and irrigation, transition to market relations in the sector, strengthening of international cooperation, improvement of efficiency attract a considerable interest. Collection and processing of knowledge in the form of information and expert systems are likely to become important with the use of the new information technology. An intensive development of Internet and communication links will give increased opportunities to find solutions of different problems.

The second main direction of the project is the development of a multi-level, inter-state, inter-sectoral information system on water and land resources in the Aral Sea basin. The system is based on the hierarchical levels for management of water and land as well as on different levels of formation and use of water resources. The main objective is to, using modern technology, software and communication facilities, create a single integrated information system with data on water resources formation, distribution and prediction of water resources, assessment of various aspects of water use and measures to make water use more efficient, providing sustainable water management, and improving the productivity of economic activities.

A web portal is being established to provide information to the water and environmental sectors of Central Asia, to develop the public opinion and to consolidate of partnerships in the field of natural resources conservation. The portal is developed on the basis of existing, but not easily accessible data from SIC and other organizations subordinated to ICWC.

Different levels of access have to be specified for all clients of the information system: for example for users (only reading), information providers (reading-recording) and system manager (free access). Each user will be provided with an identification password to improve responsibility of work with data according to resulting work report.

To achieve a well-functioning regional information base on the Internet, it is necessary to define the requirements of the system and to make an analysis of the new technologies available.

The main requirements on the web-module to manage the database are:

- System dialogue mode (through the web-site);
- No setup and servicing on the client side;
- Possibility to ensure simultaneous operation of a large number of users (through web-site);
- Compatibility of the used operational systems and platforms of clients and server of the Information Base;
- Data security against unauthorized access (through web-site).

Based on certain requirements on the Information Base, an analysis of information technologies for developing web-applications for the databases was carried out.

It is proposed to:

- Strengthen the existing database, integrate it with national databases such as dispatch databases of BWO “Syrdarya” and BWO “Amudarya”, and gradually transform it into a corporate (for water management of Aral Sea basin) system of accounting, analysis and use of water and land resources in the Aral Sea basin;
- Create and develop national information systems and systems on the basin level
- Enhance information capacity, data completeness and reliability;
- Extend functional capabilities and operational safety of the system;
- Improve and intensify partnerships between information suppliers and users;
- Broaden and open up access to information;
- Give special consideration to the implementation of IWRM.

During the project, it is also planned to regularly issue and disseminate a number of publications to inform decision-makers, NGOs and the public (third direction of work).

In this connection, all the activities under the project are implemented in two blocks, which are called “Portal” (includes the first and third directions mentioned above), and “Information System” (work in the second direction).

The activities of SIC in these two blocks are conducted by two teams led by the Project Manager Iskander Beglov and under the supervision of SIC Director Prof. Viktor Dukhovny.

### **1.3 Project personnel and management**

To manage the project activities, including financial activity, all the consortium partners have appointed corresponding project managers.

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

“Portal” Block:

Iskander Beglov, project manager/block coordinator/web designer; Bakhodyr 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. 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.

### **1.4 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. Alisher Aliyev 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 Khajimurat Gapparov 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. With this purpose, the project has had negotiations with the Natural Resources Management Project (NRMP, funded by USAID) in Tashkent, Uzbekistan, and the Regional Hydrologic Center (financed by SDC) in Dushanbe, Tajikistan. Negotiations have also been initiated to establish cooperation and information exchange with the network CARNet, supported by UNDP (portal Caresd.Net), as well as with the five Hydromets of CAR. Collaboration has been established with GWP CACENA. 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 four Aral Sea basin donor meetings held in Tashkent. Contacts have been established for exchange of information with donors.

Moreover, directors of SIC (Prof. Dukhovny V.A., Sokolov V.I., Umarov P.D.) met repeatedly different donors and other organizations. During these meetings the portal CAWater-Info was promoted and cooperation with different informational bases of international financial organizations discussed.

## II. PROJECT ACTIVITIES DURING THE REPORTING PERIOD

### 2.1. SIC ICWC activities

#### 2.1.1. Project preparation

- 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

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.caresd.net](http://www.caresd.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 regard 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 (Fig. 2.1).

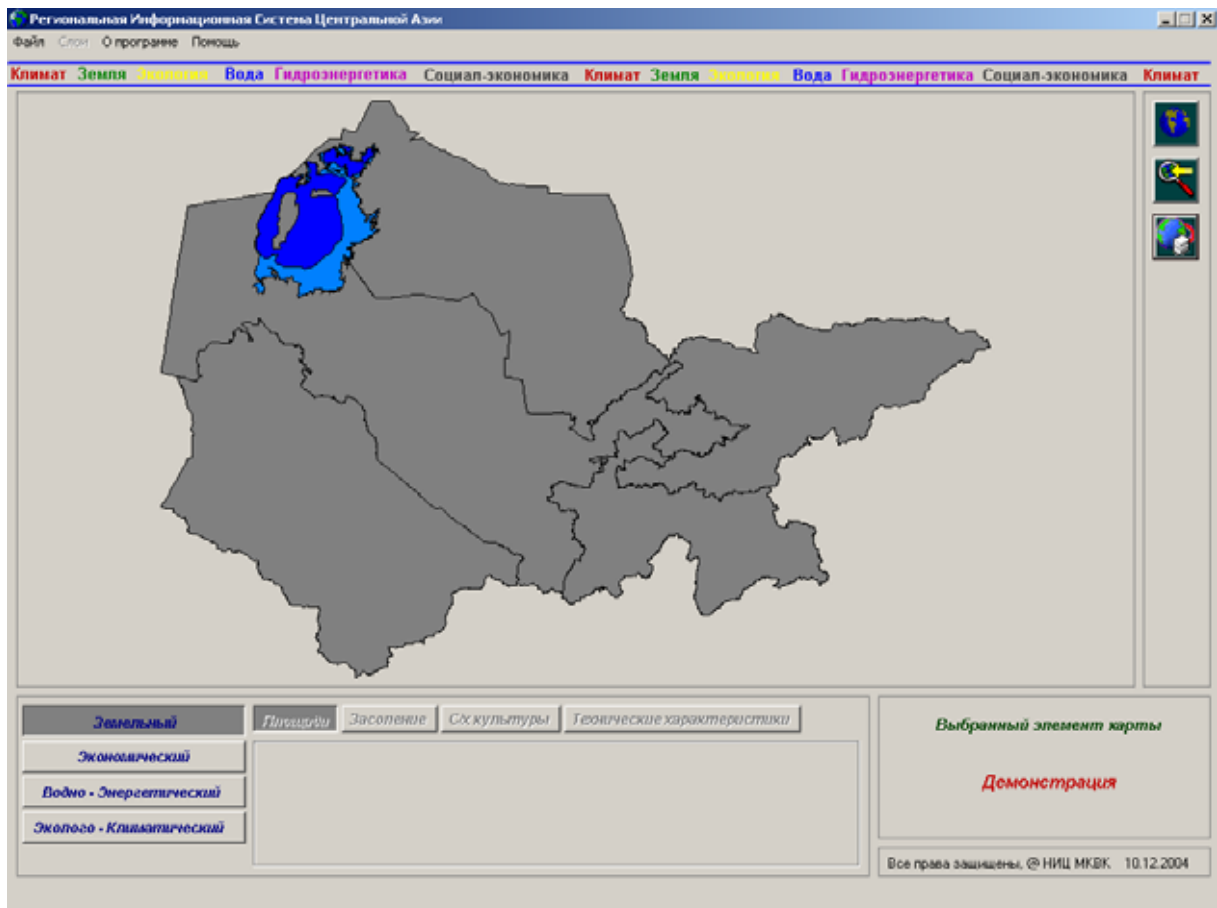


Fig. 2.1

- The forms for the components Water, Power engineering, Ecology. Climate, Land and Economy were created and linked up in the CAREWIB Information System interface (Fig. 2.1). 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 (Fig. 2.2):
  - Water flows
  - Water levels
  - Regime of reservoirs
  - Ten-day water flow

- Water balances of reservoirs
- River flow balances

In addition, it is possible to display a diagram on the site “Regime of reservoirs”, which shows the dynamics of reservoirs work, using Excel. This diagram can then be transferred into a GIF-file.

Река	Гидропост	Расходы воды, м3/с				
		Среднедекадные		Среднесуточные		
		1991-2000	2003	01.XII	02.XII	03.XII
Чирчик	приток к Чарвакскому вхр.	82	90	89	85	86
Чирчик	нж. бьеф Чарвакского вхр.	112	137	70	80	21,0
Чирчик	Газалкент	131	133	74	74	74
Чирчик	Чиназ	78	110	82	73	76
Уган	Ходжикент	11,5	12,8	9,4	8,7	8,7
Ахангаран	выше ус. р.Ерташ	6,0	4,9	4,7	4,4	3,8
Ахангаран	приток к Ахангаранскому вхр.	8,9	9,1	10,1	4,8	5,3
Ахангаран	приток к Ташкентскому вхр.	35	32	80	100	70
Ахангаран	Солдатское	34	63	93	77	50
Келес	устье	19,7	26,9	24,8	23,8	23,3
Бозсу	ГЭС No. 6	62	83	50	55	
Сох	Сарканда	16,1	15,0	15,8	15,0	15,0
Нарын	нж. бьеф Токтогульского вхр.	511	575	624	684	646
	нж. бьеф					

Fig. 2.2

- 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 (Fig. 2.3).

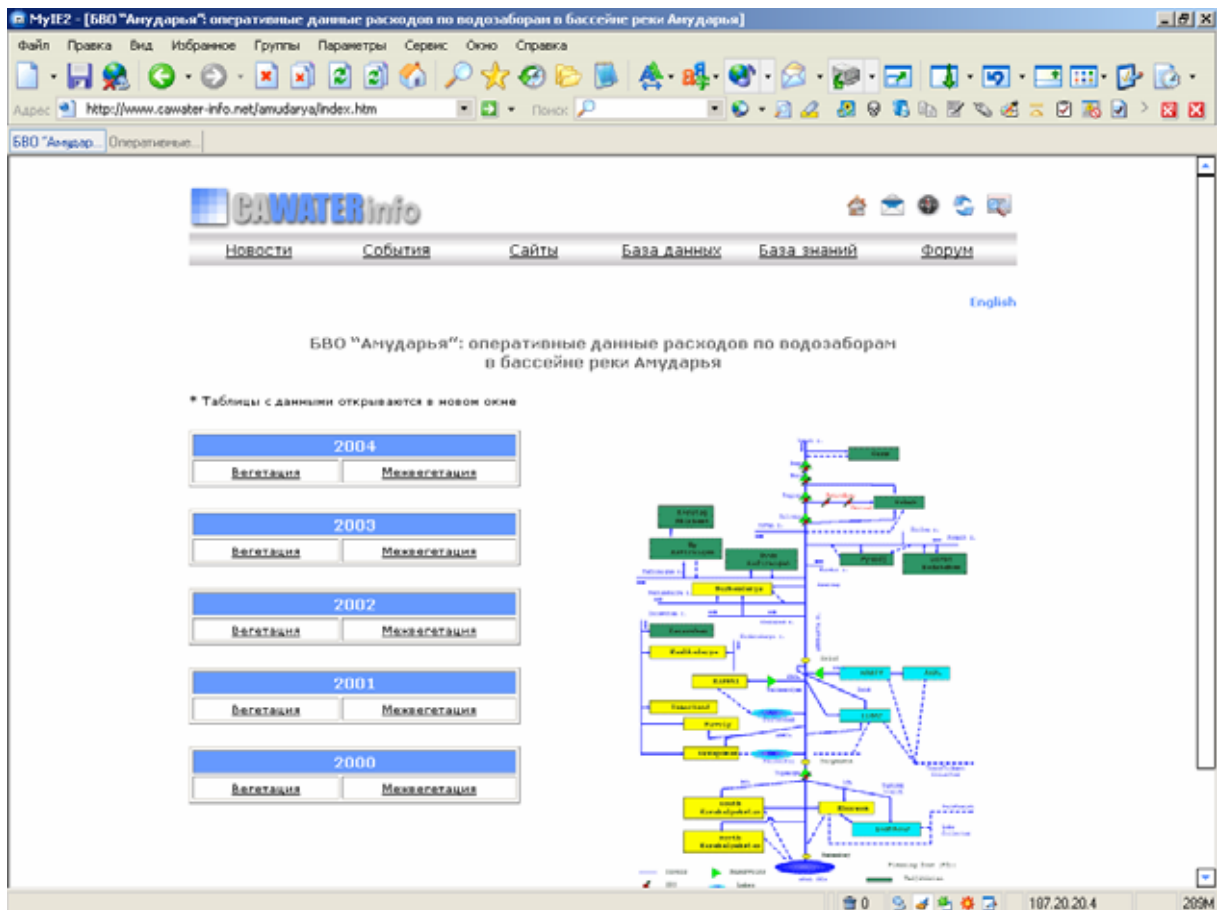


Fig. 2.3

- Work for creating the database “Aral” was initiated for the following parameters (Fig. 2.4):
  - Total volume, surface area, altitude, salinity, including Big and Small Sea
  - Flow from Big Sea to Small Sea
  - Level of inflow from rivers
  - Reservoir levels, surface area
  - Level, minimal level of filling; normal level, fluctuation of the level, mineralization
  - Level, Suspended area, surface area at the present level, volume at the present level
  - Level of free surface
  - Area of free surface
  - Water volume of the water area
  - Maximal depth of water
  - Average depth of water
  - Water mineralization
  - Water temperature
  - Water density
  - Quantity of soluble oxygen
  - Thickness of ice,
  - Area covered by reed
  - Depth temperature gradient
  - Biomass density

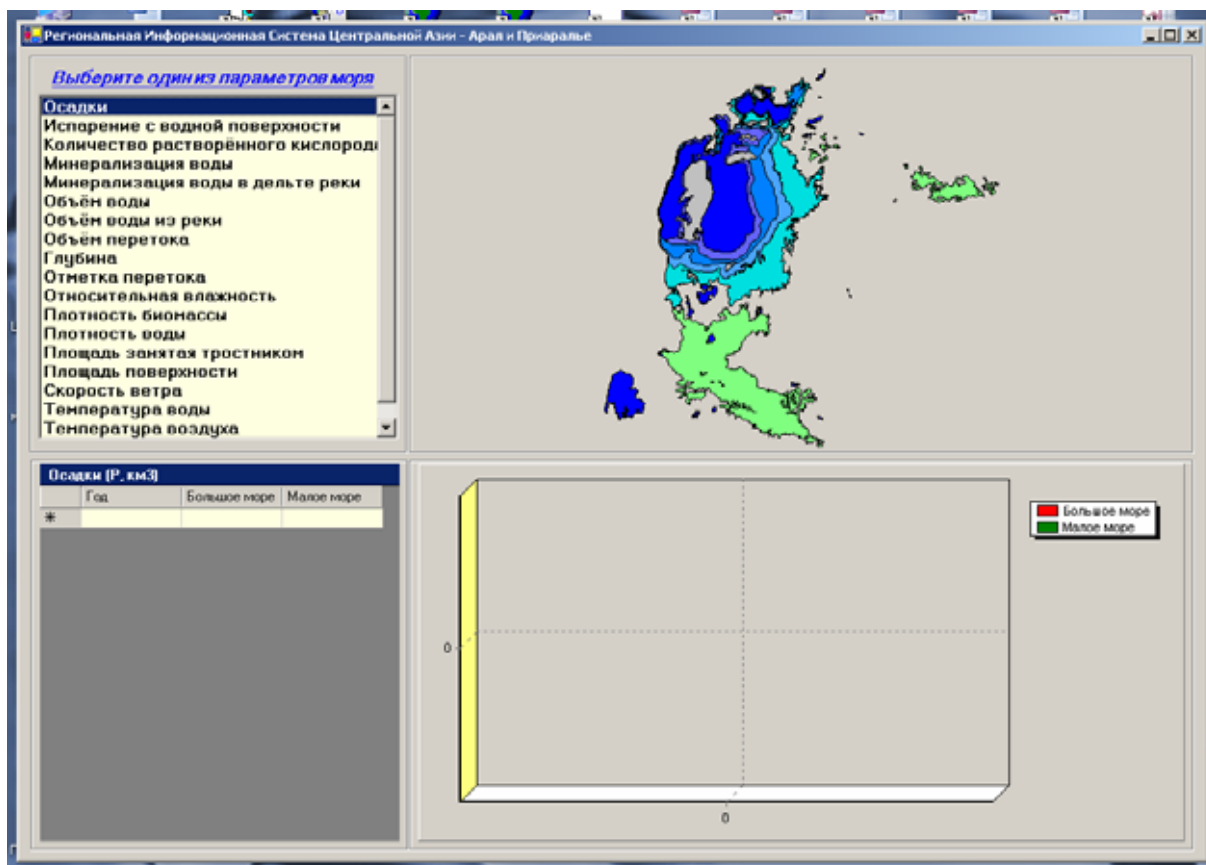


Fig. 2.4

- National project correspondents in CARs sent information to SIC, which was introduced into the CAREWIB database (Annex 5):

### 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/](http://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 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 4<sup>th</sup> Central Asian festival of environmental journalism, where representatives of governmental organisations, 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. LIMITATIONS AND LESSONS LEARNT**

Taking into account that portal is developed primarily for Central Asia, SIC realized it in Russian and gave at first less consideration to the English part of portal. As a result of active work of project partners - UNECE and GRID-Arendal – the interest of English community in portal has risen. For this reason SIC started translating all sites of the portal (whenever possible) to English.

The cooperation and information exchange with EC-IFAS and the Regional Hydrometeorological Centre has not worked properly and will need to be developed. SDC will play an important role in this respect.

### **VI. OUTLOOK FOR 2005**

Project CAREWIB will develop an active and mutually beneficial cooperation with Executive committee IFAS and the Regional Hydrometeorological Centre, which is also financed by SDC.

The cooperation with CARNet and its regional environmental portal Caresd.Net will be an important direction of portal activities.

In 2005 a new section in the portal dedicated to the 4<sup>th</sup> World Water Forum will be created. It will inform about the preparation of CA states to the Forum in Mexico.

The quality and scope of the material on the portal available in English will be developed.

The English version of the CAWater-Info Newsletter will be improved.

The opportunity for oblast water management organizations to establish home pages on the server will hopefully attract attention of these organizations to the portal.

In 2005 there are plans to start the publication of a series of popular booklets dedicated to the problems of the water management in CA. Two issues are planned: The water-energy consortium and Afghanistan. This opportunity was discussed in June 2004 in Arendal.

The CAREWIB Project will continue to develop a stable information exchange with international organizations and associations active in the water sector- World Water community, ICID, GWP, IWRA and other.

A plan to achieve a long-term financial sustainability of the website will be prepared during 2005. This plan will assess the benefit and costs of different options to increase incomes and reduce operation costs. The first draft will be available 1 October 2005 for discussion, and the final proposal should be ready for approval by PSC in January 2006.

## Appendix 1

### Visit statistics of portal sites

Domain [www.cawater-info.net](http://www.cawater-info.net)

Month	Hits	Files	Cached	Pageviews	Sessions	KB sent
<a href="#">December 2004</a>	8682	5724	2396	439	843	216196
<a href="#">November 2004</a>	8653	4280	915	188	249	49990
<a href="#">October 2004</a>	1102	865	185	35	93	14933
<a href="#">September 2004</a>	6284	5495	391	281	269	96217
<a href="#">August 2004</a>	1348	1110	136	89	141	36380
<a href="#">July 2004</a>	4710	3541	759	296	269	42976
June 2004	0	0	0	0	0	0
May 2004	0	0	0	0	0	0
April 2004	0	0	0	0	0	0
March 2004	0	0	0	0	0	0
February 2004	0	0	0	0	0	0
January 2004	0	0	0	0	0	0
<b>Total</b>	<b>30779</b>	<b>21015</b>	<b>4782</b>	<b>1328</b>	<b>1864</b>	<b>456690</b>
<b>Average</b>	<b>2564</b>	<b>1751</b>	<b>398</b>	<b>110</b>	<b>155</b>	<b>38058</b>

Domain [www.icwc-aral.uz](http://www.icwc-aral.uz)

Month	Hits	Files	Cached	Pageviews	Sessions	KB sent
<a href="#">December 2004</a>	59106	41161	8417	4742	7320	2884057
<a href="#">November 2004</a>	62927	46407	6595	6272	6052	2249300
<a href="#">October 2004</a>	55918	41135	6213	3740	4986	3012060
<a href="#">September 2004</a>	51784	40350	4365	4818	4356	3007571
<a href="#">August 2004</a>	44838	35243	3925	3895	3939	2762707
<a href="#">July 2004</a>	41937	31156	4806	4324	3428	1479777
June 2004	0	0	0	0	0	0
May 2004	0	0	0	0	0	0
April 2004	0	0	0	0	0	0
March 2004	0	0	0	0	0	0
February 2004	0	0	0	0	0	0
January 2004	0	0	0	0	0	0
<b>Total</b>	<b>316510</b>	<b>235452</b>	<b>34321</b>	<b>27791</b>	<b>30081</b>	<b>15395471</b>
<b>Average</b>	<b>26375</b>	<b>19621</b>	<b>2860</b>	<b>2315</b>	<b>2506</b>	<b>1282956</b>

## Appendix 2

### Information transferred to and entered into the CAREWIB database

#### *By the correspondent from Kazakhstan:*

- a) Data on groundwater levels,, mineralization of groundwater and salinity of soils on irrigated land c;
- b) In the South Kazakhstan region (1995-2002, volumes): annual flows for gauging stations in Syrdarya for 1998-2004, annual flows for collector-drainage system of Syrdarya for 1998-2003, allocation of areas for regular irrigation for Kizilorda region from 1990 till 2004, the dynamics of water surface quality for period 1990-2000, The characteristics of water pollution level of Syrdarya, a list of the stations for water surface pollution monitoring;
- c) Data was gathered in the component “ Water”: by gauging (Koktobe, Tasboget, Kazalinsk- volumes-1998-2003), by hydraulic works of Kizilorda region with zoning (8 regions -1998-2003), volumes of main drain flow of Kizilorda region (K-1, K-2 and Kokcu-1998-2003), volumes of main canal hydraulic works of Kizilorda region (19 regions - 1998-2003);
- d) Monthly data for all reservoirs in Kazakhstan 1990-2003, inflow, volume, discharges.
- e) Data for main discharges water from rivers 1990-2003.

#### *By the correspondent from Kyrgyzstan:*

- a) Monthly data on the water volume for the rivers in the Talas and Chu river basins (1992-2002), monthly river flows (1998-2002): Narin, B.Narin, L.Narin, L.Chichkan, Ustasay, Karasu (left)- estuary, Aflatun, Tar, Donguztou, Kurshab,Yassi, Zerger, Kugart, Charbak, Karakol, Ararvansay, Minteke, Isfairamsay, Tostu, Chunkurchak, Shakhimardan, Kashkasu, Chu, Sokuluk, Aksu, Karabalti, Chonkaindi, Kirgizata, Changet, quantity of the discharges in the drainage system: Aravan area of Osh region, Naukat area of Osh region, Uzgent area of Osh, Batkent region, Observed mineralization levels: Narin- village UchTerek, Uzunakhmat- estuary of of Ustasay, Karadariya c.Uzgen,r. Tar-v.Cholma,r.assi-v. Salamalik,r.Kurshab-v.Gulcha,r.Zerger-v.Tssay.
- b) Data by all reservoirs of Kyrgyzstan monthly for 1990-2003, tinflow, volume, discharges;
- c) Data for major discharges from rivers 1990-2003.

#### *By the correspondent from Tajikistan:*

- a) Actual data on monthly discharges from the rivers Amudarya and Syrdarya (1990-2003)
- b) Information for the cartographic GIS-layers (administrative centers, meteorological stations, reservoirs, lakes, rivers, channels, hydraulic works, HES, WES, irrigated areas);
- c) Characteristic of work of river and endogenous reservoirs (levels, water volumes, inflow, discharges, water abstraction from reservoirs, discharges of collector drainage network in the reservoirs, water mineralization) in the Amudarya and Syrdarya basins (1980-2003);

- d)** Drainage flow formed in planning zones of Tajikistan (1998-2002);
- e)** Water abstraction and water use by regions in Tajikistan (1998-2002);
- f)** Data by hydraulic works of the main rivers in Tajikistan (1998-2002 volume)
- g)** Data for the “Land” component (1980-2004), irrigated areas gross and net, sown areas, sown areas, areas with perennial crops, drainage area, forest, general extension of collector drainage network, number of vertical drainage holes, extension opened horizontal drainage, extension of closed horizontal drainage, saline irrigated land, distribution of irrigated land according to salinity, distribution of sown areas of major agricultural crops, yield levels of major agricultural crops, total production of major agricultural crops, distribution of drained areas according to salinity, distribution of non-drained areas according to salinity;
- h)** Monthly data for all reservoirs in the Aral Sea basin 1990-2003, inflow, volume, discharges;
- i)** Data for main discharges from rivers in 1990-2003

***By the correspondent from Turkmenistan:***

- a)** Mineralization of water, and also turbidity, water hardness, content of chloride, calcium and magnesium (data from all gauging stations of Karakum channel in 2003);
- b)** Data for cartographic GIS layers (administrative centers, meteorological stations, reservoirs, lakes, rivers, channels, hydraulic works, hydroelectric power stations, thermoelectric power stations, irrigated areas);
- c)** Data for the land “Land” component (Dashkhovuz, Mari, Lebyap, Akhal planning zones (PZ) -1980-2004) irrigated areas gross and net, sown areas, areas under perennial crops, areas of drained land, forest, general extension of collector drainage network, number of vertical drainage holes, extension of opened horizontal drainage, extension of closed horizontal drainage, saline land, distribution of irrigated land according to salinity, distribution of sown areas, yield levels, total production, distribution of drained areas according to salinity, distribution of non-drained areas according to salinity;
- d)** Data for “Economy” component (Dashkhovuz, Mari, Lebyap, Akhal planning zones), GDP (only for Dashkhovuz planning zone)-1995-1998, structure of GDP-1995-1998y, capital investments-1980-1992, 1996-2000, population-1980-1982, 1984-1986, 1988, 1991-1993, 1995-2001, urban population-1980-1982, 1984-1986, 1988, 1991-1993, 1995-2001, fertility– 1980, 1985, 1989-1994, death-rate- 1980, 1985, 1989-1994, average annual population of labour resources– 1995-1998, average annual employment rate in the economy– 1995-1998, income of the population– 1995-1998, expenses of the population–1996-2000, housing resources– 1980, 1985-1993, supply of housing resources–1980, 1985-1993, index of education - 1980, 1985-1993, 1997-2000, number of doctors-1980-1986, 1989-1993, 1996-2000, number of hospitals-1980-1993, 1996-2000, industrial output– 1996-2000, production pattern of consumer goods– 1996-2000, production of cattle breeding– 1997-2000, livestock population (cows, sheep, goat)- 1980-1993, 1996-2001, purchase prices on agricultural produce– 1980-1989, 1992, 1993, 1996-2004;
- e)** Monthly data by all reservoirs in the Aral Sea basin 1990-2003, inflow, volume, discharges;
- f)** Data for main water discharges from rivers 1990-2003;

***By the correspondent from Uzbekistan:***

- a) Data for main water discharges from rivers 1990-2003;

***BWO Amudarya:***

- a) Monthly actual data of water balance by section of rivers and reservoirs -1998-2003;
- b) Characteristic of work of river and internal reservoirs (levels, volume of water, in-flow, discharges, abstraction from reservoirs, water flow from collector drainage network in the reservoirs, water mineralization) - 1980-2003;

***BWO Syrdarya:***

- a) Monthly actual data of water balance by section of rivers and reservoirs -1998-2003;
- b) Characteristic of work of river and internal reservoirs (levels, volume of water, in-flow, discharges, abstraction from reservoirs, water flow from collector drainage network in the reservoirs, water mineralization) - 1980-2003;