

WATER QUALITY IN CENTRAL ASIA

 **CAWATER**info
Portal of Knowledge for Water and Environmental Issues in Central Asia



PROGRESS REPORT

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE (UNECE)

INTERSTATE COMMISSION FOR WATER COORDINATION
IN CENTRAL ASIA

SCIENTIFIC-INFORMATION CENTER

ACTIVITY REPORT
PROJECT
«WATER QUALITY IN CENTRAL ASIA»

Tashkent - 2011

Prepared by:

Gapparov B.Kh. – report drafting

Beglov I.F., PhD – report drafting

Usmanova O.K. - translation

This material is published with the support of UNECE.
The presentation of material in this publication is under responsibility of authors and does not imply the expression of any opinion whatsoever on the part of the United Nations Economic Commission for Europe.

Contents

1. Introduction	4
2. Project activities during the reporting period.....	5
2.1. Database on water quality	5
2.2. Organization of the training workshop.....	7
2.3. Project publications	12
2.4. Project web-site	13
3. Lessons learnt.....	14

1. Introduction

The countries in Central Asia are dependent on each other with regard to important transboundary rivers, lakes and groundwater. Water quality is an important aspect of integrated water resources management that requires further measures to be taken at both national and regional level.

Management of water quality in the regional rivers – being in the focus of the project – is ineffective and insufficient since major attention is paid to water quantity and water distribution mainly for irrigation and hydropower generation. Thus, there is a need to improve national policies and regional cooperation with the ultimate aim to improve water quality.

The principles laid down in the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the Protocol on Water and Health to the Convention, as well as the EU Water Framework Directive are the important international frames that support national and transboundary development in this area.

The project “Water Quality in Central Asia” is implemented by UNECE in collaboration with the Central Asian Regional Environmental Center (CAREC) and the Scientific-Information Center of ICWC (SIC ICWC). It is directed toward enhancement of the development of efficient and coordinated policy on water quality improvement under integrated water resources management in Central Asia. The project was started in March 2009.

The main project objective is to contribute to the development of efficient and coordinated national policies with regard to water quality aspects of integrated water resources management in Central Asia.

Outputs of SIC ICWC over the reporting period are as follows:

1. developed database on water quality building on the existing regional IS CAREWIB¹, with free online access;
2. Kazakh, Kyrgyz, Tajik, and Uzbek experts trained in the use of this DB during the training workshop (Tashkent, 18-19 October 2011);
3. developed «Guidelines on the use of the on-line database on water quality»;
4. produced analytical report «Water quality in the Amudarya and Syrdarya river basins»;
5. designed and opened the project web-site;
6. reviewed documentation developed in the project (diagnostic report, etc.);
7. the experts from SIC ICWC participated in the following project workshops: fourth meeting of the Regional work group on water quality in Central Asia, 25 May 2011, Bishkek (Kyrgyzstan); fifth meeting of the Regional work group on water quality in Central Asia, 21 September 2011, Astana (Kazakhstan).

¹ Central Asia Regional Water Information Base

2. Project activities during the reporting period

The following work was completed during the reporting period:

2.1. Database on water quality

The database on water quality, with free online access on www.cawater-info.net/data_ca/, was developed as part of the regional IS CAREWIB (Fig. 1).

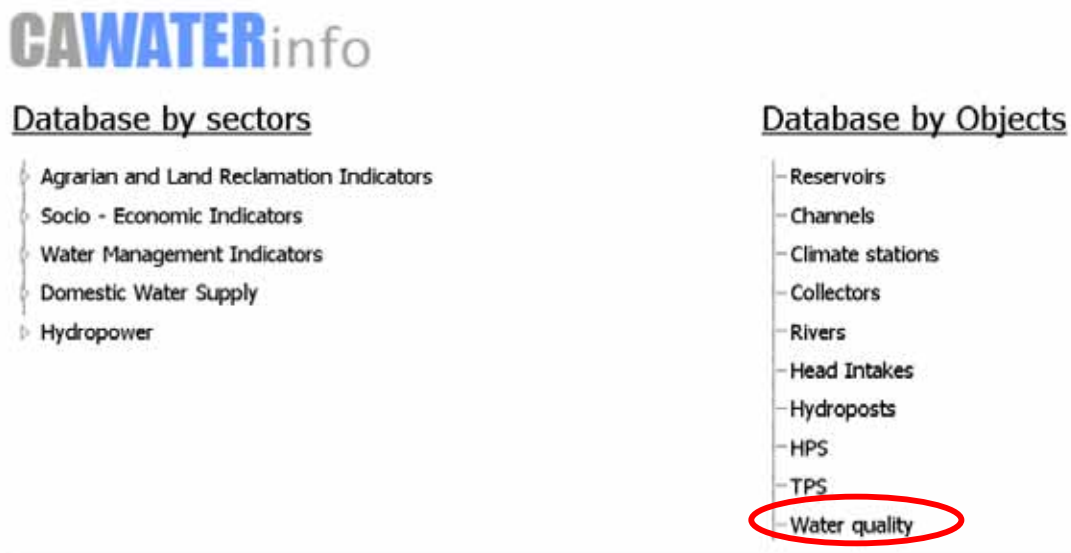


Fig. 1 - Layout of IS CAREWIB

The database displays information on the following parameters (Fig. 2):

- Oxygen, mg/l
- Ammonium, mg/l
- Nitrates, mg/l
- Temperature, C°
- BOD, mg/l
- COD, mg/l
- Salinity, mg/l
- TSS, mg/l
- Water discharge at the moment of sampling, m³/s

Information is displayed in tabular and graphical forms.

In addition, a special page serves for notes about sampling dates, etc.



Fig. 2 - Output of data on water quality

The regional work group on water quality has chosen the following pilot gauging stations:

- Tigrovaya Balka on the Vakhsh river
- Blagoveshenka village on the Chu river
- Zhasorken village on the Talas river
- Downstream Talas town on the Talas river
- Boor-Terek village on the Talas river
- Uch-Korghon village on the Talas river
- Manas village on the Talas river

Information is displayed on monthly basis:

- since 1980 till 2005 - once in every 5 years (historical data)
- since 2006 till present time - annually.

In addition to this information, the portal CAWater-Info has data on water quality in the Amudarya and Syrdarya river basins (the data provided by BWO “Amudarya” and BWO “Syrdarya”, respectively).

Amudarya river basin:

In the tabular form:

- The reach from Kelif gauging station to Tuyamuyun reservoir
 - Collector-drainage water flowing into the Amudarya river
 - Salinity of CDW flowing into the Amudarya river

- The reach from Tuyamuyun reservoir to Samanbay gauging station
 - Collector-drainage water flowing into the Amudarya river
 - Salinity of CDW flowing into the Amudarya river
- The reach from Samanbay gauging station to the Aral Sea
 - Collector-drainage water flowing into Prearalie
 - Salinity of CDW flowing into the Amudarya river
- Dynamics of annual salt influx in the Amudarya along its stem stream for different flow probabilities
- History of changes that influence the lower reaches of the Amudarya
- History of changes that influence the middle reaches of the Amudarya

In the graphical form:

- Dynamics of annual salt influx in the Amudarya along its stem stream for different flow probabilities
- Dynamics of water and salt inflows in South Prearalie
- Dynamics of water and salt inflows to Tuyamuyun

www.cawater-info.net/amudarya/

Syrdarya river basin:

- Dynamics of average annual water salinity in Syrdarya

www.cawater-info.net/syrdarya/

2.2. Organization of the training workshop

The training workshop on the project «Water Quality in Central Asia» was held in Tashkent on 18-19 October 2011. The workshop was organized with the support of UNECE.

In total 15 representatives of hydrometeorological and environmental organizations from Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan participated at this workshop.

The following reporters delivered their reports:

- Beglov I.F. (SIC ICWC, Uzbekistan) – Water and environmental knowledge portal in Central Asia - CAWater-Info
- Nazariy A.M. (SIC ICWC, Uzbekistan) – Analytical tools of CAREWIB

- Gapparov B.Kh. (SIC ICWC, Uzbekistan) – CAREWIB Information System (IS) on water and land resources in the Aral Sea basin

The following materials were distributed among the participants:

- «Guidelines on the use of the CAWater-Info portal in everyday practices»
- «Guidelines on the use of the on-line CAREWIB database (DB)»
- «Guidelines on the use of the on-line database on water quality» (*developed specially for this workshop*)





Fig. 3 - Water quality workshop in Tashkent

The development of regional information exchange has become one of the most important elements of water resources and ecosystem management improvement at the regional, national, and provincial levels. ICWC paid great attention to the use of many available tools in the region

that help establishing exchange of information among different stakeholders and are suitable for different conditions and groups of actors. Thanks to the good will and support from all ICWC members, the portal and IS developed under the CAREWIB project are the unique information products having no analogues throughout the Central Asia.

The regional information system has become fully functional and can provide decision makers, professionals, and the general public with timely, regular, accurate and reliable information. This regional information system contains information on water sector, water resources and related issues, such as hydropower, environment, best international practices, and actions undertaken for achievement of sustainable water management.

In terms of environmental security in the Central Asia countries, the major problems are the shortage and pollution of water resources (surface water and groundwater). Rivers, canals, and reservoirs of the republics and even groundwater are subjected to multifold anthropogenic loads.

Since the sixties of the last century, due to intensive development of new lands and extensive development of industry, livestock farming, urbanization, construction of drainage systems, and diversions of river water for irrigation, water quality in river basins has progressively deteriorated. This fact worsens the ecological-hygienic, sanitary and epidemiological situation, particularly in the river lower reaches. The river water in the flow formation zones contains pollutants from outwash of rocks forming river channels and sewages from economic activities.

At present, the water quality problem is critical and has to be timely addressed. In this context, the project «Water Quality in Central Asia» initiated the development of DB on water quality in order to inform professionals and decision makers, as well as the general public about the situation in area of water quality using the three pilot rivers.

The Scientific-Information Center of ICWC has designed a new section titled “Water quality” in the regional CAREWIB IS. This section was presented to the participants of the training. The capabilities of this section were discussed and necessary adjustments were made. Besides, practical exercises were given in the use of this section and input of data into the DB.

During discussions, the participants formulated the following wishes for improving the database²:

- It is desirable to have concurrent representation on the graph of the monitoring data both for Kazakh and Kyrgyz parts of the Chu river and the Talas river;
- It is desirable to make provision for simultaneous output of tabular data on different gauging stations for comparison;
- In the output data it is necessary to develop the single sub-section “Information on samples” with descriptive text about sampling date and other relevant data, while other similar subsections containing description of samples should be removed.

As the main outcome of the workshop we may consider the involvement into information exchange of Kazhydromet, Kyrgyzhydromet, and Tajikhydromet that will provide information on water quality, yet beginning with the three pilot rivers and later on expanding the coverage, for

² All the wishes were considered in the DB Interface

the regional CAREWIB IS. Thus, capacities and capabilities of both CAREWIB IS and the CAWater-Info portal as a whole are expanding.

Having discussed the reports and exchanged opinions, the participants have made the following decisions:

- Make special mention of SIC's efforts related to development of the information system on water and land resources in the Aral Sea basin - CAREWIB - and the knowledge portal on water and environment in Central Asia - CAWater-Info.
- When filling in the database on water quality under the project «Water Quality in Central Asia», free access to DB should be provided with the following note “Currently the database is filled in”.
- Representatives of SIC ICWC should assist the trainees in filling in the database.
- Express thanks to the UN Economic Commission for Europe for the support rendered in this event and to CAREC for assistance in organization of the training.
- Express thanks to SIC ICWC for organization and holding of the training.

2.3. Project publications

The analytical report “Water Quality in the Amudarya and Syrdarya River Basins” was produced. This report summarizes information on water quality in the Amudarya and Syrdarya basins, which is available on the Internet, and serves as a certain indicator of accessibility and completeness of such information. While drawing up this report, we were not aiming at verifying whether used quantitative indicators were adequate or not. Therefore, these indicators are presented in initial form as in their sources.

The report also gives information on water quality data that are available on the portal of knowledge on water resources and environment in Central Asia - CAWater-Info.

2. The “Guidelines on the use of the on-line database on water quality” were produced for participants of the training workshop. The guidelines describe in details how to register to DB, input data, and handle the DB.

3. The following materials were produced and published as an in-kind contribution of SIC ICWC:

- Fundamental principles of national water legislation in area of water quality regulation in the Central Asian countries, Volume 1: Kyrgyz Republic, Republic of Tajikistan
- Fundamental principles of national water legislation in area of water quality regulation in the Central Asian countries, Volume 2: Republic of Kazakhstan, Turkmenistan
- Fundamental principles of national water legislation in area of water quality regulation in the Central Asian countries, Volume 3: Republic of Uzbekistan

All these publications are accessible for free downloading on the project web-site.

2.4. Project web-site

The web-site was designed in order to disseminate information generated under the project (www.cawater-info.net/water_quality_in_ca/).

This web-site contains the following sections:

- Database (descriptive part, user manual)
- Knowledge base (publications of SIC and project partners, standards, and other information on water quality)
- About the project (General information)
- Contacts

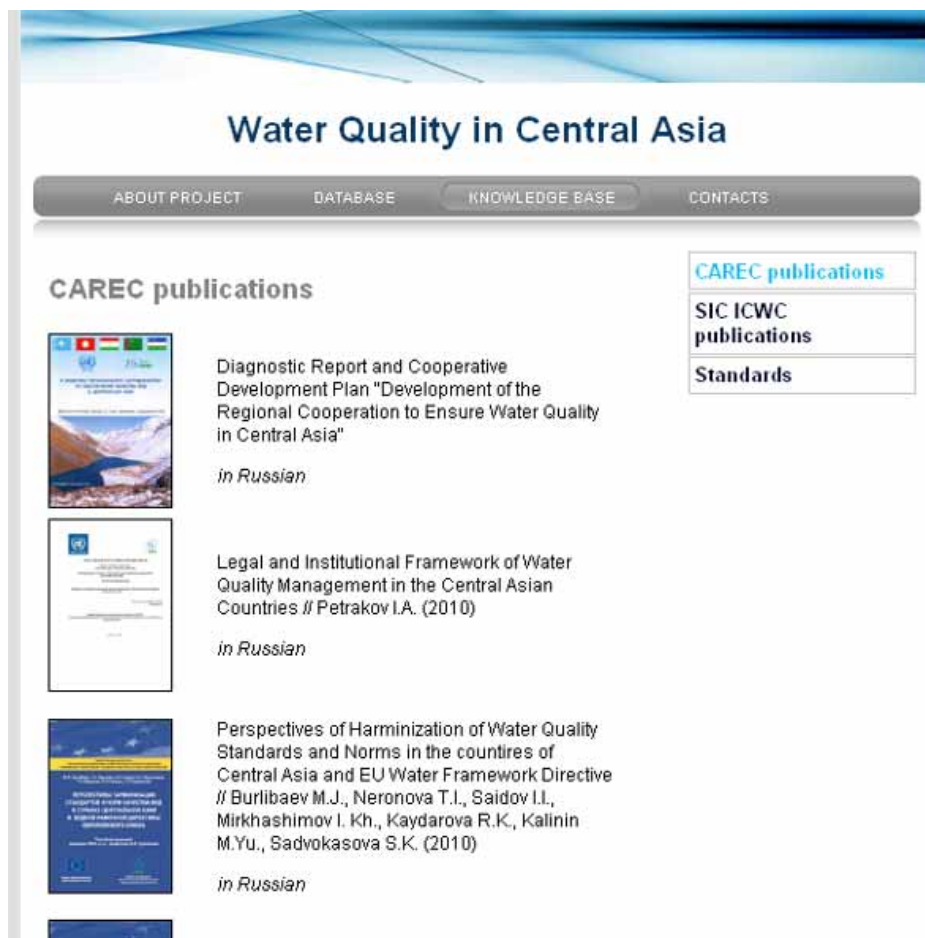


Fig. 4 - Project web-site

3. Lessons learnt

1. One should note the absence of representatives from Turkmenistan at the training workshop and, consequently, no relevant pilot site is available in the database.
2. Lack of data on water quality on the Internet from the sources of these data, i.e. national hydrometeorological services comes to the front. Scarce and scattered data that can be found via Yandex or Google mainly refers to the nineties.

Program of workshop-training on the use of database for national experts

18-19 October 2011

Hotel “Shodlik Palace”, Tashkent

17 October

Arrival of participants

18 October - Training

- | | |
|-------------|--|
| 9.30-10.00 | Registration |
| 10.00-10.20 | Welcome speech on behalf of SIC ICWC (Sokolov V.I.), CAREC (Strikelyova Ye.) |
| 10.20-10.40 | Presentation of the CAWater-Info portal (Beglov I.) |
| 10.40-11.00 | Presentation of the CAREWIB information system (Gapparov B.) |
| 11.00-11.20 | Presentation of analytical products developed by SIC ICWC (Nazaryi A.M.) |
| 11.20-11.40 | Coffer-break |
| 11.40-13.00 | Training in the use of DB on water quality. Theory of DB use |
| 13.00-14.30 | Lunch |
| 14.30-16.00 | Training in the use of DB on water quality. Practical exercises. Input of monitoring data. |
| 16.00-16.20 | Coffer-break |
| 16.20-17.30 | Training in the use of DB on water quality. Practical exercises. Input of monitoring data. |
| 17.30-18.00 | Summarizing |
| 19.00-21.00 | Dinner |

19 October – Training/Work meeting

- | | |
|-------------|---|
| 10.00-11.00 | Training in the use of DB on water quality. Improvement of water quality database, recommendations of participants. |
| 11.00-11.30 | Coffer-break |
| 11.30-13.00 | Training on water quality. Subject scope of training – brainstorm. Identification of training audience and venues. |
| 13.00-14.30 | Lunch |
| 14.30-16.00 | Possibilities for continuation of the project. Generation of ideas. |
| 16.00-16.30 | Coffer-break |
| 16.20-17.30 | Wrap-up |
| 19.00-21.00 | Dinner |

20 October

Departure of participants

List of participants
Workshop-training on the use of database for national experts

Tashkent, 18-19 October 2011

№	Name	Position, affiliation	Contacts
1.	Kaminskaya Tatyana	Chemical engineer, Zhambyl hydrometeorological center	meteo-tz@bk.ru
2.	Strikelyova Yekaterina	Project manager, CAREC	estrikeleva@carec.kz
3.	Bespalova Rayisa	Head of laboratory, Zhambyl hydrometeorological center	meteo-tz@bk.ru
4.	Kanygina Lyudmila	Leading expert, Surface water pollution monitoring division, Kyrgyzhydromet	inter@meteo.ktnet.kg
5.	Samiev Sanginmurod	Head of surface water laboratory, Agency for hydrometeorology of the Republic of Tajikistan	Phone: +992 918 74 74 35 sangin712@mail.ru
6.	Yarullina Zulfiya	Chief expert, Central land and water control administration, State Committee for Nature Conservation of the Republic of Uzbekistan	Phone: +998 71 239 48 13 ersuv@uznature.uz
7.	Belikov Ivan	Head of environmental monitoring group, Environmental information and forecasts administration "Ecoakhorot istikbol", State Committee for Nature Conservation of the Republic of Uzbekistan	Phone: +998 71 150 03 39 ibelikov@uznature.uz
8.	Golotyuk Ainyu	Head of surface water monitoring laboratory, Uzhydromet	Phone: +998 71 235 86 14 ainyug@rambler.ru
9.	Gapparov Bakhtiyor	Engineer, CAREWIB Project, Scientific-Information Center of ICWC	Phone: +998 71 266 42 01 gapparov_b@icwc-aral.uz
10.	Beglov Iskander	Manager, CAREWIB Project, Scientific-Information Center of ICWC	Phone: +998 71 265 03 53 iskander@icwc-aral.uz
11.	Idiev Ilkhom	Programmer, CAREWIB Project, Scientific-Information	ilkhom.id@gmail.com

№	Name	Position, affiliation	Contacts
		Center of ICWC	
12.	Yuldasheva Kamilla	CAREWIB Project, Scientific-Information Center of ICWC	Phone: +998 71 265 03 53
13.	Nazaryi Alisher	Engineer, CAREWIB Project, Scientific-Information Center of ICWC	Phone: +998 71 266 42 01
14.	Mukhamedjanov Shavkat	Scientific-Information Center of ICWC	
15.	Obidina Svetlana	Scientific-Information Center of ICWC	Phone: +998 71 266 42 01