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INTERSTATE COORDINATION WATER COMMISSION OF CENTRAL ASIA  
SCIENTIFIC-INFORMATION CENTER

# **ACTIVITY REPORT**

**on the project**

**«Improvement of Water Information Exchange in the  
Countries of Eastern Europe, Caucasus and Central  
Asia on the Basis of the Central Asian Regional Water  
Information System (Phase II)»**

Tashkent - 2012

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# 1. Introduction

The main project objective is promoting contacts and extending information exchange among water professionals in the countries of Eastern Europe, Caucasus, and Central Asia, particularly outside Central Asia through the enlargement of membership of the established and maintained Network of Water Organizations of EECCA countries and the provision of greater exchange of information and accumulated experience.

SIC ICWC results for the reporting period include the following:

1. Prepared and organized research and practice workshop “Exchange of Information and Knowledge and Capacity Building in the Water Sector of EECCA” - Almaty, September 19, 2012.
2. Published NWO EECCA collection of scientific papers “Water Economy and Integrated Water Resources Management in EECCA Countries: Problems and Solutions”.
3. Regularly updated and maintained web-site of the Network.

## 2. Project Activity during the Reporting Period

During the reporting period, the following activities were accomplished:

### **2.1. Preparation and Organization of the Research and Practice Workshop**

During June-September 2012, preparatory activities for the research and practice workshop “Exchange of Information and Knowledge and Capacity Building in the Water Sector of EECCA”, which was timed to the Conference dedicated to 20<sup>th</sup> anniversary of ICWC:

- established initiative group headed by academician Polad-Zadeh P.A. The group was also comprised of Prof. Dukhovny V.A., Sokolov V.I. (GWP CACENA), Beglov F.F. (executive secretary);
- distributed invitations among interested organizations;
- date and venue of the workshop agreed with all participants (Almaty, 19<sup>th</sup> of September 2012);
- reserved hotel for the participants;
- drawn up, agreed and disseminated workshop agenda (Annex 1).

The research-practice workshop «Exchange of Information and Knowledge and Capacity Building in the Water Sector of EECCA» was held within an agreed timeframe.

In total, 28 representatives of water-management organizations, research institutes, academies, and NGOs from Armenia, Georgia, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan, Uzbekistan, Ukraine, and Sweden took part in this workshop (Annex 2).

The aim was to share experience in information exchange in the water sector of EECCA countries, identify problems, and develop recommendations for their solution.

The participants were presented experience in developing water information systems and the principles of information dissemination.

In **Kyrgyzstan**, the national information-analytical system is based on regulations of the Kyrgyz Water Code, Chapter 17 “The unified water information system”. The leadership of national water sector was among pioneers who recognized the benefits and advantages of developing a national information system for its use in daily work. A number of projects were implemented in different years with the support of donors under the auspices of the national water agency. This has resulted in the development of databases on various directions. The proposed information-analytical system should become a powerful tool supporting governance and development of the whole national water sector.



In **Tajikistan**, the national information system for the most part is integrated with the regional IS of CAREWIB. At present, the national team is occupied in testing of the Aral Sea basin management model (ASBmm) developed by SIC ICWC with the support of IHE UNESCO.

In **Turkmenistan**, high-level officials of the country have already raised the issue of regular information exchange between Turkmen agencies. This work is full-speed running in some agencies, including Statistics Committee, Ministry of Economy, and Strategic Planning Institute. Moreover, people start understanding the system of storage and comprehensive analysis of collected information using up-to-date technologies. Improvement of information storage and processing systems is of crucial importance in the short-term.

In **Armenia**, information support of the national water sector is provided by the Environmental Impact Monitoring Center at the Ministry of Nature Preservation. Information is provided on the web-site [www.armmonitoring.am](http://www.armmonitoring.am) and in form of monthly and annual bulletins. The Center performs hydrochemical monitoring at 131 stations located along 39 rivers, in 6 reservoirs, and Sevan Lake.

In **Georgia**, such state organizations as the Agency for Nature Preservation (former “Hydromet”) at the Ministry of Environment and the Emergencies Agency at the Ministry for Foreign Affairs mainly deal with prevention and mitigation of disasters (floods, droughts). There is also a network of non-governmental organizations for disaster mitigation.



The activity of the Seversk-Donets Basin Organization (**Ukraine**) shows an excellent example of basin management. The information-advisory framework for water resources management - Decision-Support System (DSS) - established by the North Caucus branch of the Water Research Institute is used in the Seversk-Donets Basin Organization and the Don Basin Organization. This system includes such subsystems as “Hydrochemistry” (database on water quality) and “Water balances” (database on hydrology). An interstate data exchange system has been applied since 2006 between Russia and Ukraine to support decision making in water management within these states. The system enables flexible handling of data sets received on:

- operation regimes of reservoirs, including small border ones;
- quality of water resources in border cross-sections;
- forecasts of flooding and flow conditions during low-water period;
- implementation of water measures affecting riparian party.

It was noted that the application of data exchange system, using modern data transmission methods, at the intra-state level enhanced timeliness and quality of information on transboundary water bodies within Kharkov, Donetsk, and Lugansk provinces in Ukraine. The information system in Ukraine is developed in conformity with the European Water Framework Directive.

The Federal Special-Purpose Program “Development of the water sector in Russia up to 2020” makes provision for advancing the information support in **Russia** that consists in the following:

- adoption of common legal mechanisms of environmental planning that should comply with the international law
- harmonization of standards in the area of nature conservation and natural resources use
- development of a single system of information exchange
- creation of databases on best environmental, resource-saving technologies and treatment systems and their regular updating.

The long-term objective of regional water cooperation in **Central Asia** should be ensuring environmental, food, and energy security through the balanced development, first of all, of water and energy sectors. The negotiation process is to aim at harmonizing the interests of water, energy and environmental spheres in connection with the national socio-economic development vectors. However, low success rate of forecasts, lack of reliable information on river runoffs, water diversions, and return water in some reaches are the destabilizing factors that further complicate the situation in the Aral Sea basin and lead to unjustifiable losses, shortages, irregular and unstable water supply to irrigation areas and to aquatic ecosystems in the basin. The problem is that decision makers do not have common tools for estimation and control that are based on agreed approaches to assessment of available water and to operation of large reservoir hydrosystems and HPP cascades. For solution of those tasks the following was developed.

- Aral Sea Basin Economic Allocation Model (BEAM), jointly by DHI, COWI and Global Water Partnership CACENA on request of the Executive Committee of IFAS and USAID
- Integrated model of the Aral Sea Basin (ASBmm) by experts from UNESCO IHE and SIC ICWC.

Many experts think that exactly those models (adequately enhanced, adapted and tested) can solve important tasks on flow control in river basins at transboundary (interstate) level.

The main purpose of this pair - BEAM & ASBmm - in the future is the professional use of given tool for studies of alternative scenarios and for building of effective national development strategies in the region. At the same time, this package is oriented to a wide circle of users. BEAM & ASBmm should become an element of the decision support subsystem<sup>1</sup>, which is a part of the regional information system.

The common problems for **EECCA** countries are:

1) those voiced at the meeting of the ICID Working Group on Irrigation and Drainage in the States under Socio-Economic Transformation (63<sup>rd</sup> meeting of ICID Executive Committee, Adelaide, Australia, 24-29 June 2012).

- There is population growth along with sharp rise in prices of food related with water (i.e. with irrigation).
- By 2025, the whole south territory of the Earth would virtually suffer from water shortage.

In this context, ICID sets the following priorities and targets for the near future:

- Target I Increase rainfed land productivity

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<sup>1</sup> The Decision support sub-system is a set of models integrated in the single information platform through user's Interface. The models should use uniform dataware and, primarily, be developed on an open and collaborative basis.



- Target II Increase water productivity in irrigated agriculture
- Target III Increase sustainable productivity and lower costs of water management such that by 2025 there is food security at acceptable prices for all
- Target IV Safe use of non-conventional waters in agriculture and aquaculture
- Target V Water storage in support of irrigated agriculture
- Target VI Personal visions
- Target VII Groundwater
- Target VIII Food supply chain efficiency
- Target IX Support to small-holder farmers.

2) those set in the presentation of Prof. V.A.Dukhovny, Executive Secretary of NWO EECCA:

- Changes in global water situation since 1997 to 2012:

- General water consumption increased by 550 billion m<sup>3</sup>;
- Water shortage (less than 1000 m<sup>3</sup>/person) affected 1.4 billion people as compared to 0.5 billions in 1990;
- Irrigation areas decreased by 12 Mha - 5 % of the total irrigation;
- Number of starving population increased from 850 to 1020 millions;
- 2 billion people do not have access to sanitation;
- Negative consequences of floods have grown dramatically.

- Major challenges in the EECCA region:

- Climate change impact: reduced runoff, melting of glaciers, prevalence and intensification of extreme phenomena;
- Demographic pressure – growth of population: 1.2-1.8% per year;
- Weak economic base;
- Poor water management;
- Hydro-egoism;
- Current restructuring of economy, particularly of irrigated agriculture;
- Market and price volatility;
- Lack of political attention.

It was underlined that the region has developed its own vision of IWRM, which includes:

- Multilevel water management system supported by appropriate governance system;
- Set of institutional, legal and engineering measures;
- Combination of state path with powerful community initiatives;
- Integration of land and water.

The main IWRM principles include:

- Water resources management within hydro-geographic boundaries;
- Use of all sources (surface water, groundwater, and return water);
- Close coordination of all water users and organizations;
- Public participation both in management of water resources and in financing, planning, and development of water infrastructure;
- Setting of ecosystem demand's priority;
- Water saving and control of non-productive losses;

- Information exchange, openness and transparency of water management system;
- Economic and financial sustainability of water-management organizations.

Finally, the participants made the following conclusions.

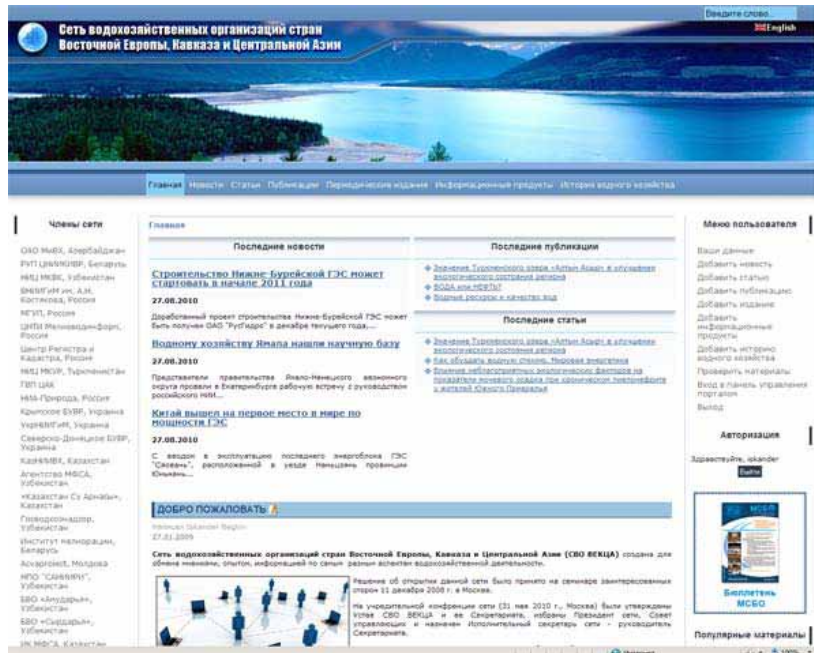
#### CONCLUSIONS:

1. The participants of the joint workshop of EECCA Network and GWP CACENA from 10 countries shared information about progress in cooperation among the partners in the field of water sector improvement in our regions.
2. Water sectors in all the countries show positive developments towards improved water supply and sanitation, especially in the urban sector, mainly at the expense of IFI loans. An importance of IWRM was recognized but also IWRM principles were developed specifically for conditions of the region, where irrigated agriculture prevails, and being implemented successfully on the vast areas in Central Asia, Ukraine and in Azerbaijan.
3. At the same time, in general, current water governance and management do not meet present requirements and need to be improved radically, as well as require significant efforts of both state and community actors. In this context, activities of GWP CACENA and EECCA Network need to be intensively developed and supported in part of:
  - Dissemination of appropriate governance and management principles in context of IWRM;
  - Enhancement of information exchange, with focus on dissemination of knowledge and best practices accumulated in the region;
  - Organization of training in the main directions that lead to improved water sector functioning (IWRM, water use technologies, IS application, international water law) in form of both training workshops and distant learning (“e-learning”);
  - Development of knowledge centers (regional and national) aimed to assist water users at different levels of water hierarchy;
  - Involvement of organizations of water profile, especially research institutions, and regular communication of R&D results for their application in practice for efficient water use and protection.
4. It is necessary to involve basin organizations in EECCA Network and enhance exchange of information on activities of lower level organizations.
5. The participants thanked RFBR (Russian Foundation for Basic Research), UNECE, and GWP CACENA for the provided financial support that allowed publishing 4 collections of scientific papers, maintaining the Network’s web-site [www.eecca-water.net](http://www.eecca-water.net), and organizing annual meetings, including the workshop in Almaty. At the same time, it was noted that the size of this support obviously is not enough for wider involvement of the Network’s members in regular activities. The same concerns attention of INBO to EECCA Network operation.

## 2.2. Maintenance of the Network Web-site

The special web-site ([www.eecca-water.net](http://www.eecca-water.net)) is maintained to support activity of the Network of Water Organizations in EECCA countries. The web-site sections are being filled with information from the Network's members and from open Internet sources. The following sections are available on the web-site:

- News
- Events (*information about workshops, conferences, work meetings*)
- Articles
- Publications (*information about published books, brochures, monographs, etc.*)
- Periodicals (*information about published journals and newspapers*)
- Information products
- Water economy history
- Brief information about Network's members (profiles)



NWO EECCA web-site

## 2.3. Preparation and Publication of the Collection of Scientific Papers

According to the Terms of Reference, the scientific papers were collected from the members of NWO EECCA and then their collection was composed and published under the title: “Water Economy and Integrated Water Resources Management in EECCA Countries: Problems and Solutions”.



The collection contains the following papers:

Concerning Organization of Basin Water Management in the Republic of Belarus - Kalinin M.Yu.

Environmental and Resource-Saving Rice Production Technology under Conditions of South Ukraine - Morozov V.V., Morozov A.V., Polukhov A.Ya., Dudtchenko Ye.V., Kornbergher V.G.

Identifying Prospects of the Northern Aral Sea in Light of Economic Activity and Climate Changes - Shivaryova S.P., Lee V.I.

Concept of Ukrainian Water Strategy - Stashuk V.A., Romaschenko M.I., Mikhailov Yu.O.

Aspects of Integrated Water Resources Management using Basin Approach in Ukraine - Stashuk V.A., Romaschenko M.I., Mikhailov Yu.O.

Effect of Integrated Irrigation Water and Groundwater Use on Water Supply of Irrigated Land in the Kazakh Part of Hunger Steppe - Bekbaev R.K.

Improving Damage Compensation Mechanisms as a Tool for Water Resources Management - Prokhorova N.B., Merzlikina Yu.V.

Water Resources of the Seversk Donets River Basin: Basin Principle of Water Management - Antonenko V.Ye., Trophantchuk S.I., Belotserkovskaya N.A.

Application of Hydro-ecological Monitoring under Integrated Water Resources Management - Chembarisov E.I., Nasrulin A.B., Lesnik T.Yu.

Methods for Assessing Quality of Collector-Drainage Water for Irrigation of Crops and Leaching of Land - Yakubov M.A., Yakubov Kh.E., Zainullo R.

Assessment of Drainage Efficiency through Mathematical Modeling Methods - Yakubov Kh.E., Khudaikulov B.S.

Experience in Reduction of Accounts Receivable by WUAs in the Command Area of the South-Fergana Main Canal - Umarov Kh.U., Yakubov Sh.Kh., Alimdjanov A.A.

About Development of Decision-Support System for Identification and Prevention of Hazardous Flooding Zones (Case-study of High Altitude Break-Prone Lakes in Tashkent Province) - Shaazizov F.Sh.

Economic Justification of the Effectiveness of Applying the Daily Water Distribution Planning - Alimdjanov A.A., Horst M.G., Pinkhasov M.A.

Hydrometrical Matters under Integrated Water Resources Management - Masumov R.R., Masumov A.R.

About Dublin Principles in Terms of Water Right and Marketability of Water - Rysbekov Yu.Kh.

Issues of Organizing Water Rotation in Irrigation System - Mirzaev N.N.

Example of Calculation of Water Rotation in Irrigation Systems - Mirzaev N.N.

The Role of New Crop Varieties for Water Conservation while Keeping High Production Characteristics under Conditions of Water Shortage - Mukhamedjanov Sh.Sh., Alikhadjayeva S.S., Sagdullaev R.R.

Innovative Partnership - Mukhamedjanov Sh.Sh., Khaliullina A.R.

State Programs for Rehabilitation and Development of Irrigation and Drainage System in Russia - Shedrin V.N., Ol'garenko G.V., Goratchyov S.N., Kozlov D.V.

Irrigation Regime of Winter Wheat for the Conditions of Dry Year - Nasonov V.G., Abirov A.

Forecast Calculations of Water-Salt Regime of Irrigated Lands by Using the Sredazgiprovodkhopok-CNIIKIVR Institute's Model and Experimental Data for Khorezm Province - Shirokova Yu.I., Paluashova G., Morozov A.N.

### **3. Lessons Learnt**

1. The Information-Advisory base for water resources management – Decision Support System (DSS) developed by the Northern Caucasus branch of Water Research Institute and used by the Seversk-Donetz Basin Water Management Organization and the Don Basin Water Management Organization for the water system of the Seversk Donetz basin – lower reaches of the Don River (Ukraine and the Russian Federation) is of interest for Central Asia. It seems that experience related to such DSS could be useful for further development of the Regional Information System for the Aral Sea basin.

**Program**  
**Research and Practice Workshop**  
**«Exchange of Information and Knowledge and Capacity Building**  
**in the Water Sector of EECCA»**

19 September 2012, Health Resort «Alatou», Almaty, Kazakhstan

**Organizers:** SIC ICWC, GWP CACENA, UNECE

Welcome speech by NWO EECCA Executive Secretary Prof. Dukhovny V.A.

Reports

Dukhovny V.A. (SIC ICWC, Uzbekistan, Executive secretary of NOW EECCA) The Network of Water Organizations in EECCA - our Present and Future.

Mukhamedjanov Sh.Sh. (SIC ICWC, Uzbekistan) About Activities of ICID Work Group on Irrigation and Drainage in the States under Socio-Economic Transformation.

Thalmeinerova D. (GWP, Sweden) Knowledge Management in GWP.

Sokolov V.I. (GWP, SIC ICWC, Uzbekistan) GWP CACENA's Activities for Capacity Building in the Water Sector.

Sorokin D.A. (SIC ICWC, Uzbekistan) Water Management Models for Transboundary Rivers in the Aral Sea Basin: Application, Development, and Integration.

Shivaryova S.P. (RHC IFAS, Kazakhstan) Experience of Cooperation among Hydrometeorological Services in CA in the area of Information Exchange.

Prokhorova N.B. (RosNIIVH, Russia) Development of Scientific-Methodological Bases for Transboundary Water Management.

Omelianenko V.A. (NIA «Priroda», Russia) Experience in the Development of Water Information System in Russia.

Trophantchuk S.I. (Seversk-Donets BWMA, Ukraine) Transboundary Cooperation and Data Exchange in the Seversk Donets River Basin.

Bulekbayeva L.B. (Department for Water Resources and Land Reclamation, Kyrgyz Republic) Development of Water Information System in Kyrgyzstan.

Kobuliev Z.V. (Institute of Water, Hydropower, and Ecology, Academy of Sciences, Republic of Tajikistan) Development of Water Information System in Tajikistan.

Nurmukhammedova G. (Analytical Agency “Ynanch-Vepa”, Turkmenistan) State of Information Systems in Turkmenistan.

Abduraimov M.F. (NGO “Zeravshan River Basin Protection”, Uzbekistan) Development of Water Information System in Uzbekistan.

Chkhobadze N. (National Water Partnership, Georgia) Development of Water Information System in Georgia.

Movsisyan G. (Scientific-Training Center for Environmental Law at ESU, Armenia) Development of Water Information System in the Republic of Armenia.

Workshop conclusions



**List of Participants**  
**Research and Practice Workshop**  
**«Exchange of Information and Knowledge and Capacity Building**  
**in the Water Sector of EECCA»**

19 September 2012, Health Resort «Alatou», Almaty, Kazakhstan

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