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SCIENTIFIC-INFORMATION CENTER

ACTIVITY REPORT

on the project "Support to the network of Russian speaking water management organizations and organization of a work meeting on water in Moscow, March 2017"

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Table of contents

1. Introduction 4

2. Project activity during the reporting period 5

2.1. Organization of the Network Conference 5

2.2. Maintenance of the Network web-site 32

2.3. Preparation and publication of the collection of scientific papers 33

2.4. Development of the Atlas of water-management and environmental organizations in EECCA countries 35

Appendix 1
Programme of International EECCA NWO Conference
Challenges of River Basin Management in the context of Climate Change

Appendix 2
List of participants of International EECCA NWO Conference

Appendix 3
Members of the Network of (basin) water-management organizations from
Eastern Europe, Caucasus, and Central Asia

1. Introduction

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

Work done by SIC ICWC for the reporting period:

1. Organized and held the international conference of EECCA water management organizations “Challenges of River Basin Management in the context of Climate Change”, Moscow, 18-19 May 2017.
2. Published the collection of EECCA NWO papers “Challenges of River Basin Management in the context of Climate Change”
3. Regularly updated and maintained web-site of the Network
4. Created “Atlas of water-management and environmental organizations in EECCA countries”
5. Contributed to the development of the knowledge base on the CAWater-Info portal as one of the main components of NWO EECCA activity

2. Project activity during the reporting period

During the reporting period, the following activities were accomplished:

2.1. Organization of the Network Conference

The International Conference of the EECCA NWO "Challenges of River Basin Management in the context of Climate Change" was held in premises of the Russian Research Institute of Hydraulic Engineering and Land Reclamation (VNIIGiM) on 18-19 May 2017 in Moscow. The Conference brought together researchers and experts from many countries, including Russia, Belarus, Moldova, Azerbaijan, Armenia, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, France, Switzerland, and Austria.

The focus areas addressed at the Conference included:

- transboundary river basin cooperation,
- sustainable water management and adoption of information-communication technologies (ICT) at basin level,
- adaptation of water management to climate change and anthropogenic impact,
- water-food production-hydropower-environment nexus,
- SMART-water,
- water supply and sanitation,
- river basin reclamation issues.

During the opening ceremony, the welcoming addresses were delivered by:

- Prof. D.V.Kozlov, EECCA NWO President
- V.A. Zhukov, Director, Land Reclamation Department, Ministry of Agriculture, Russian Federation
- A.A.Filtchakov, Head, Moscow-Oksk Basin Water Administration
- B. Libert, Regional Advisor for Environment, UNECE
- JF Donzier, Permanent Technical Secretary INBO
- B.M. Kizyaev, Chief Research Officer, VNIIGiM
- N.A. Sukhoy, Chairman of the Board, Union of Water and Land Reclamation Experts

Prof. V.A.Dukhovniy, EECCA NWO Executive Secretary in his report on EECCA NWO activity in 2016 - first quarter 2017 demonstrated developments of the Network, including publications by the Secretariat and a number of events:

- organization of the conference of EECCA water management organizations on "Cultural and Educational Issues Related to Water Management in the EECCA Countries" in Almaty on 9 February 2016 and of the roundtable for discussion of the ways to improve activities of the Network on 10 February 2016;
- events dedicated to 50 years since initiation of the ambitious program "Large-scale reclamation of land for higher and sustainable yields of grain and other crops" (Moscow, June 2016);
- XIV international scientific practical symposium and exhibition "Clean water of Russia - 2017" (Ekaterinburg, April 2017);
- issue of Network's information collections and scientific publications, including the collection of scientific papers titled "Cultural and Educational Issues related to Water Management in the EECCA Countries", and "Irrigation and Drainage in Central Asia, Caucasus, and Eastern Europe";
- further development of the Central Asian knowledge base on the CAWater-Info portal (cawater-info.net) as a part of a set of harmonized tools for implementation of IWRM that are adapted to specific conditions of water management in river basins with different water stresses in arid and semi-arid zones of EECCA countries.

The following challenges facing the water communities in EECCA countries need to be underlined:

- Slowly progressed transboundary water cooperation;
- Insufficient information coverage of climate change and adaptation;
- Continued, in some countries, tendency towards paying less attention to water issues that results in decreased potential of the water sector;
- Failure to put forward water conservation as the main regional initiative.

During the opening ceremony the following speakers made their presentations as well:

JF. Donzier (INBO) Presentation of INBO activity with the focus on adaptation to climate change

INBO was established as a non-profit association, which has the following objectives:

- to develop lasting relations between the organizations interested and favor exchanges of experiences and expertise among them;
- to promote the principles and means of sound water management to reach sustainable development;
- to facilitate the implementation of tools suitable for achievement of specific objectives;

- to promote information and training programs;
- to encourage education of the population;
- to evaluate ongoing actions and disseminate their results.

INBO quickly responds to the current problems and challenges, the most significant of which is climate change. Initiated by INBO and UNECE the Paris Pact on water and adaptation to climate change in the basins of rivers, lakes and aquifers offers a range of practical measures to overcome the consequences of climate change. The Pact has been already signed by 357 organizations over the world.

V.A.Dukhovniy (EECCA NWO Secretariat/SIC ICWC) The future: water saving and cooperation

The assessment of available water in the Aral Sea basin until 2030 made by SIC ICWC on the basis of various economic and climate scenarios shows that river runoff would decrease by 10-15% in the Amudarya River Basin and by 6-10% in the Syrdarya River Basin.

To promote cooperation in given conditions we need to take necessary measures for improvement of water accounting in interstate sources so that to reduce river water losses. Such measures include implementation of the SCADA system along transboundary rivers and fostering of willingness to cooperate among all riparian countries. Other cooperation tools are:

- adoption of strategic long-term planning on the basis of assessment of future situation for 15-20 years ahead to ensure long-term regulation;
- revision of regional water strategy by taking into account new knowledge, sustainable development goals, and challenges, such as climate change;
- development of water diplomacy in form of a continuous dialogue;
- strengthening of legal base as a revision of basin agreements, development of procedures for governance and interaction of regional agencies;
- establishment of common information space;
- use of non-conventional water sources.

T. Efimova (OECD) and M.Sutter (UBA, Austria) Presentation of «EUWI+East» Project in support of implementation of WFD

European Union Water Initiative for Eastern Europe, Caucasus and Central Asia (EUWI EECCA) is an effective mechanism for promotion of environmentally sustainable water use as part of policy dialogue. The Initiative supports achievement of main objectives of the European Neighborhood Policy and implementation of priority tasks of the EU Strategy for Central Asia. One of the main objectives of this work is to promote achievement of the Sustainable development goals (SDGs).

T.M.Belyakova (CIS Executive Committee) Regarding the Concept on cooperation of CIS member states on land reclamation and integrated use of interstate water bodies and the First Priority Measure Plan for its implementation

The CIS member states cooperate actively in the area of land reclamation and integrated use of interstate water bodies.

Such cooperation pursues the following objectives:

- improvement of irrigation, drainage, and reclamation constructions for more efficient use of natural resources;
- prevention of growing food shortage, while preserving and using rationally natural resources;
- increasing competitiveness, profitability and sustainability of agricultural production through integrated land and water development in the context of global and regional climate change;
- improvement of effectiveness of agricultural land use;
- expansion of cropland through putting back into operation reclaimed land;
- development of innovation technology and science in the area of land reclamation;
- establishment of information services for timely distribution of information to stakeholders;
- improvement of existing regulatory documents and unification of acts, rules and norms for operation of hydraulic structures along transboundary watercourses of CIS member states.

The First priority measure plan for implementation of this concept of cooperation for 2018-2019 includes the following measures:

- Improve a mechanism of interaction and cooperation among CIS member states
- Create favorable conditions for reclamation of agricultural land
- Elaborate proposals for adoption of economic incentives and mechanisms for land and water development in CIS member states
- Develop and implement joint projects and research programs
- Maintain information exchange and establish knowledge bases

SESSION 1: NATIONAL STRATEGY FOR ADAPTATION TO CLIMATE CHANGE, RIVER BASIN MANAGEMENT PLANS, TRANSBOUNDARY BASINS

B.Libert (UNECE) UNECE projects on adaptation of transboundary basins to climate change

The key activity in developing adaptation strategies in transboundary river basins in the EECCA region is undertaken by UNECE through a number of pilot projects (in Chu-Talas, Dnestr and Neman basins) and publications (guidelines, collection of best practices, reports, etc.). This activity is pursued as part of the UNECE Water Convention and its water and climate taskforce together with other international organizations, such as INBO, GWP, OECD, UNDP, GEF, etc.

P. Polad-Zade (JSC Vodstroy, Russia) Tasks of efficient water use in the face of global challenges

World's population growth, increasing social needs of population and technological needs of developing industry, as well as the needs of agriculture, mainly irrigation – all this leads to growth of water consumption. This makes prerequisite to hold down the economic development.

The importance of water was recognized by the United Nations. The UN special report "Water for Life" concludes that if we do not take any actions, by 2030, 5 billion people or 67% of the world's population will have no access to safe freshwater.

Thus, it is logical to ask: what should we do?

Reasonable response only lies in elaboration of an efficient state program, which will include characterization of the current situation, identification of appropriate engineering and management measures to solve the problems, and design of a system of engineering and institutional measures to oppose natural extremes caused by climate change.

M.G.Morozov (RosNIIVH, Russia) Water strategy as a tool of water resources management

The focus areas of water development in the Russian Federation in order to achieve sustainable water use, conserve water sites, and protect from negative water impact are set in the Water Strategy 2020 of the Russian Federation approved by the Russian Government N1235-p of 27 August 2009. Currently the draft Water strategy until 2030 is under discussion. The objective of this document is ensuring sustainable development of the water sector to have balanced solution of socio-economic tasks, including clean water for population, favorable environment and natural-resource potential, and minimized damage from negative water-related phenomena.

The implementation plan of the Water strategy includes the following key directions:

- Improvement of legal normative regulation.
- Improvement of state regulation of water use and protection and coordination of water actors.
- Provision of clean drinking water for population of the Russian Federation.
- Use and protection of water bodies, prevention of negative water impact, and ensuring of hydraulic structure safety.
- R&D and staffing support of the water sector, education and awareness-raising of population in the area of water use and protection.

G.Tilyavova (BWO Amudarya) Transboundary cooperation in the Amudarya River Basin

BWO Amudarya deals with the tasks of optimal water distribution between the states and economic sectors according to the water quotas approved by the Interstate Coordination Water Commission (ICWC) of Central Asia, based on the current water availability and environmental situation, and supervises implementation of water quotas and operation of the whole system of institutional and technological measures in this context, including provision of sanitary-environmental water releases to the Aral Sea and its coastal region (Prearalie).

BWO Amudarya has four territorial divisions for performance of its tasks related to transboundary water management: in Kurgan-Tyube (Republic of Tajikistan), in Turkmenabad (Turkmenistan), in Urgench (Republic of Uzbekistan), and in Takhiatash (Republic of Karakalpakstan).

A complex irrigation system, including canals, pump stations, collecting drains, etc. was established in the Amudarya River Basin.

For better water cooperation among the riparian countries in the Amudarya River Basin the following actions are required:

- Develop and apply models for water management and reservoir operation at the regional level, taking into account probable changes in reservoir capacities (due to siltation) in the future;
- Develop a model for identification of runoff losses in the context of changing conditions;
- Re-establish meteorological and hydrological stations and gauging stations along rivers and in reservoirs in the basin to improve accuracy of water data in the basin;
- Implement the SCADA system along interstate canals.

A.R. Uktamov (BWO Syrdarya) Transboundary cooperation in the Syrdarya River Basin

The present water infrastructure in the Syrdarya River Basin is comprised of numerous hydraulic structures along the Syrdarya and its tributaries that convey water, transform runoff in reservoirs, deliver water to users, generate hydropower, and measure and monitor quality of water.

Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan cooperate in the transboundary Syrdarya River Basin under umbrella of ICWC.

For further improvement of transboundary water management in the Syrdarya River Basin, it is necessary:

- to respect basin-wide interests and understand their priority over any local and departmental concerns;
- to improve discipline of implementation of interstate agreements and ICWC decisions;
- to observe strictly the limits of water withdrawals and operation regimes of Naryn-Syrdarya reservoir cascade;
- to repair hydraulic structures on timely basis and restore their operability in the near future, while constructing new structures and waterworks facilities for radical improvement of basin management in the long-term;
- to reconstruct old and construct new gauging stations along Naryn, Karadarya, Chirchik, and Syrdarya;
- to reconstruct head intake structures that are under responsibility of BWO Syrdarya;
- to automate hydraulic structures and adopt radiotelemetry-based water control;
- to improve water accounting and introduce advanced technology;
- to increase reliability of communication and telecontrol for on-line information collection and transmission;
- to improve communication on interdepartmental gauging stations between riparian countries of the Syrdarya basin.

SESSION 2: PRACTICAL MEASURES FOR ADAPTATION TO CC IN BASINS IN LINE WITH THE CONCEPT OF WATER-FOOD-HYDROPOWER-ENVIRONMENT NEXUS

JF Donzier (INBO) European directives and adaptation to climate change

Directive 2000/60/EC of 23 October 2000 establishes a framework for the Community action in the field of water policy. All kinds of water – surface water, groundwater, transitional water, and coastal water – in all the river basins in the European Union are concerned in the Directive.

"Management plans" (defining the objectives to achieve) and "programs of measures" (defining the necessary measures) must be formulated for each water district.

The Directive covers all main types of water use:

- Hydropower
- Industrial water use
    - intake,
    - outflow,
- Agricultural water use
    - intake,
    - outflow,
- Urban water use
    - drinking water supply
    - sewage treatment
- Recreational / environmental water use
    - fishery
    - bathing, etc.

Water management must be organized together with mobilization of finances needed to cover the costs.

The problem of global climate change and its demographic, economic, and ecological consequences makes it essential to adapt water resources management policies. The frequency of extreme phenomena, such as floods and droughts, is projected to increase in Europe.

B. Libert (UNECE) UNECE nexus assessments in transboundary basins

Since 2013 the Secretariat of the UNECE Water Convention has been working on the assessment of water-food-energy-ecosystem nexus in the selected basins, such as Alazani/Ganykh, Sava, Syrdarya, Isonzo/Soca, Drina, and the North-West Sahara Aquifer. This activity fosters transboundary cooperation by:

- identifying intersectoral synergies that could be further explored and utilized;

- determining policy measures and actions that could alleviate tensions or conflict related to the multiple uses of or needs for common resources;
- building capacity in the countries to assess and address intersectoral impacts.

The general methodology was developed and could be applied to any transboundary river basin.

G.V. Stulina (SIC ICWC) Usage of the positive effects of climate change in the basin in modeling crop water requirements

The research found that the general increase of temperature potential resulted in shortened growing periods of particular crops. The research results for the Fergana Valley showed that the observed growth of thermal potential leads to achievement of the total effective temperature in shorter time. Thus, this enables earlier sowing of crops. First, this reduces duration of the plant development phases and the growing season as a whole, and, second, possibly decreases crop water requirements.

N.N. Balgabayev (KazNIIVH, Kazakhstan) Efficient water management in Kazakhstan

The temperature rise driven by climate change causes in Kazakhstan:

- higher climate aridity;
- intensive evaporation and decreased soil moisture, particularly in dry summer, with

consequent higher risks of droughts and fires;

- increased frequency of high temperatures;
- more intensive precipitation and, consequently, intensive erosion;
- changed intra-annual patterns of mountain runoffs, i.e. shifts of peak runoff to earlier dates;
- changed ice conditions of rivers.

The water resource management issues were incorporated into the State agricultural development program of the Republic of Kazakhstan for 2017-2021 adopted on 14 February 2017. The primary goal of the program is ensuring production of competitive agricultural commodities of high demand. The State program stipulates reclamation of 610,000 ha of irrigation land, construction of 22 small reservoirs, and reconstruction of 41 hydraulic structures by 2021.

Besides, the project "Irrigation and drainage improvement", Phase II is implemented with the support of the World Bank. The aim of the Project is to transform 113,000 ha of irrigated land in transboundary river basins, such as Syrdarya, Talas, Shu, and Ily to water conservation and soil protection technology.

Ya.E. Pulatov (Institute of water problems, hydropower engineering and ecology of Academy of Sciences of the Republic of Tajikistan) Water resources and irrigated agriculture in the context of climate change in Tajikistan

Sustainable development in Tajikistan, like in any other country, depends on how effective is the use of available nature-climatic, water, land, mineral, energy, and human resources. Considerable stock of water, hydropower, recreation resources and limited land play an important role in economic development of the country. Thus, exactly from this perspective the national water strategy of Tajikistan addresses the water issues, integrated water management, conditions of the water sector and its development prospects aimed at economic growth and population wellbeing.

Tajikistan has a complex hierarchical structure in the field of water resources (regulation, forecasting, use and protection, planning, analysis, policy, strategy). It is characterized by multisectoral water uses and diverse water demands in terms of quantity, quality, and time.

At present, serious improvements of the national water management system are needed, taking into account that the public management system, while maintaining its admistrative/governance capacities and public ownership of water conveyance systems, has lost economic levers, such as finances and material resources.

V.A. Omelianenko (National Information Agency "Nature", Russia) Russia's river basins in the climate change context

Processes observed in Russia in the context of climate change are not uniform in time and space – along with warming, there is shift in the average annual climate to more humid conditions.

There is a growing need for scientifically-based forecasts of climate change impact on water resources for 30-50 years ahead.

In addition, we urgently need to develop a concept or plan for water re-distribution through inter-basin canals built not only to meet all water uses and protect from negative water impact but also to maintain optimal environmental situation when negative socio-economic and ecological consequences of the above impacts are minimized. The role of the long-term and seasonal flow regulation system must be enhanced in order to respond to extreme water conditions.

For serious improvement of catastrophic flood control in Russia, it is necessary to adopt flood prevention and elimination and risk management policies at all levels. To this end, the up-to-date systems of flood forecast, warning and protection must be developed at basin level, land use and urban planning in the flood risk zones need to be regulated on the basis of reliable assessment of flood-prone and vulnerable zones, a flood insurance system should be established, and effectiveness of state action and responsibility in emergency situation must be improved.

R.M. Corobov (Eco-TIRAS, Moldova) Lessons learnt from the assessment of river basin vulnerability to climate change and elaboration of common adaptation strategy by the example of Dnestr basin

As projected, the Dnestr Basin would be strongly affected by climate change, with consequent warmer and more humid winter and hotter and drier summer. Another major transboundary problem in the basin is floods. Besides, the Lower Dnestr has been suffering from droughts in the recent time. It the late decade, droughts became more frequent (occurring every 2-3 years) and led to increased, sometimes catastrophic losses. The combination of floods and droughts can be caused by quite irregular precipitation patterns during a year.

Such impacts on water resources affect population and economic sectors, such as agriculture (irrigation water shortage combined with growing demand), energy (decreased hydropower potential), recreation (worse conditions for aquatic tourism), fishery and fish farming, and biodiversity.

A project supported by the Government of Austria and the European Commission has enhanced adaptive capacity of riparian countries by fostering transboundary cooperation. Local residents in

the Dnestr River Basin have become more resilient to negative consequences of climate change and extreme weather events. The main project results include the developed transboundary basin strategy for adaptation to climate change plus the plan for mobilization of resources and the supported implementation of some first-priority measures in the basin. This, in turn, helped the countries to fulfill their obligations under international conventions, including UN Framework Convention on Climate Change and UNECE Water Convention and prepared the former for implementation of the EU Water Framework Directive.

SESSION 3: SUPPORTING THE DEVELOPMENT OF OPERATIONAL BASIN ORGANISATIONS AND EFFICIENT NETWORKING

P. Henry de Villeneuve (OIEau, France) Steps for developing Basin Organisations

Historical examples of basin organization development in Europe:

1) Development of first generation of basin organisations in charge of management of water works:

- in Spain in the 1930s
- in Romania in the 50s and other countries at that time in Soviet Union

2) A new type of basin organisations born in Europe in the 1960s, and six water agencies and six basin committees were created in France.

Water agencies are in charge for implementation of the national water policy in their respective hydrographic basins, based on:

- 'polluter pays' principle via fees collected from various economic sectors (population, industry, agriculture)
- funding of investments (treatment structures, sewage systems, …) needed for environmental protection, through collected fees
- comprehensive and coordinated management via basin committees.

Each basin committee consists of three colleges:

- State: prefect, representatives of public water-related services
- Municipalities and local authorities
- Users (industry, agriculture, user associations, nature protection societies, fishing societies, recreation, …)

The Basin committee by vote sets the sizes of fees and adopts action programs and management plan (SDAGE).

Y. Videnina (OIEau) Stakeholders and public participation in line with WFD requirements

Stakeholder participation implies more informed decisions, i.e. properly understood and perceived by the community ideas. This includes:

- Collection and taking into account of different opinions, visions, and problems: from water users to individual consumers
- Taking into consideration of actual interests of water users and citizens
- Wider information of the general public and shaping of public opinion and, thus, indirect participation in formulation and implementation of water policy in a river basin.

Stakeholders and public participation is mentioned in the initial clauses of EWFD: "The success of this Directive relies on … information, consultations and involvement of the public, including users." Article 14 describes 3 main forms of participation:

- Information supply
- Consultation
- Active involvement

Information supply is fulfilled in 3 main categories of information:

- General and basin information on water management
- Main characteristics of river basins and sub-basins
- EU Water framework directive

D.V. Kozlov (Russian State Agrarian University) Current issues of water management and engineering in Russia

The current tasks of the Russian water management system include the following:

- improving enforcement mechanisms for federal target programs in part of timely allocation of funds to budget recipients;
- enhancing control over targeted and efficient spending of budget funds, including by regions of the Russian Federation. Involvement of community and basin councils in this control;
- facilitating integration of the water sectors of the Republic of Crimea and Sevastopol city into the system of state water management of the Russian Federation;
- implementing the Comprehensive system of measures for minimization of flood risks in the area of the Far East Federal region that suffered from large scale flooding in 2013;
- improving the estimation basis of reservoir operation regimes for sustainable life activities and economies under conditions of low-water;
- increase gradually safety of federal hydraulic structures and helping to increase safety of regional and municipal hydraulic structures;
- organizing monitoring over fulfillment of the Russian Government decree №360 of

18.04.2014 “On identification of flooding and waterlogging zones” by federal regions of the Russian Federation;

- ensuring national interests of the Russian Federation in transboundary water cooperation.

A. Inozemtseva (CAREC, Kazakhstan) CAREC activity on water resources management: progress and prospects

The Central Asian Regional Environmental Center (CAREC) fulfills its activity in the following program areas:

- climate change and sustainable energy
- water initiative support
- environmental management
- education for sustainable development
- environment and health

The aim of the Water initiative support program is promoting best world practices to establish the inter-sectoral cooperation on water resources management at regional, national, and local levels in Central Asia. The program is focused on:

I. Transboundary cooperation and promotion of IWRM approach

II. Water diplomacy at different levels

III. Promotion of “green economy” principles in water management

IV. Capacity building and scientific exchanges

Thus, CAREC is assisting the Central Asian countries in solving national and regional environmental problems.

A.L.Buber (VNIIGiM named by A.Kostyakov, Russia) Development of strategic and operation plans for Volgian-Kamsk reservoir management in the context of climate change

For the Volgian-Kamsk reservoir cascade, specific computational technology and software were designed for current and long-term water management.

SESSION 4: MONITORING FOR SUSTAINABLE WATER MANAGEMENT AND IMPLEMENTATION OF DATA FLOW MANAGEMENT AND INFORMATION-COMMUNICATION TECHNOLOGIES (ICT) AT BASIN LEVEL

JF Donzier (INBO) Importance of organisation and management of water related data

Data and information management is a key issue to develop water management. Easy access to information on the status and evolution of water resources and uses in one of the keys to a successful water policy.

Water resource managers need reliable, up-to-date and relevant information on issues, such as regulations, planning, risk management and public information. The needs are different following the actors and their level of action: different type of information, different level of aggregation for regional/national or local decision.

Water data and information management is particularly needed for:

- Sectorial water management
  - drinking water supply
  - irrigation
  - energy
  - health
  - transportation
  - …
- Integrated water sector planning
  - local level
  - basin level
  - national level
  - transboundary basins
  - regional level
- Climate change adaptation
- Disaster risk reduction
  - flood
  - shortage
  - drought
- Reporting
  - global (exc. SDG)
  - regional (ex EC)
  - national statistics
  - specific conventions
- Specific decision taking
  - operational management
  - territory management
  - emergency situation
- Other water sector activities
  - regulatory aspects
  - partners/public information

M. Sutter (UBA, Austria) Example of WFD compliant monitoring

The current nationwide monitoring system in Austria has been in operation since 1991. The monitoring of surface water quality is performed in 285 permanent sites. This type of monitoring is performed for 3 different types of monitoring sites:

- sites with high relevance
- reference sites
- additional sites

In addition, there are 2,440 sites of non-permanent monitoring for 3 different types of monitoring sites:

- sites with high risk (chemical/hydromorphological)
- sites for assessment of measures (after measures)
- international obligations

Groundwater quality is monitored on about 2,000 permanent representative sites. This type of monitoring is focused at the most sensitive part of the groundwater basin (as a rule, the upper zone of shallow groundwater basin). Sampling site density varies between 8 and 90 km²/site (depending on pressures and importance). In total 129 parameters of groundwater are monitored and grouped into two blocks:

- Block 1:
    - 26 important inorganic parameters with relevance to the environment, e.g. NO_3, NO_2, NH_4, PO_4, B, alkali metal and alkaline earth metal (K, Ca, Mg);
- Block 2:
    - the heavy metal group (As, Hg, Cd)
    - lightly volatile halogenated hydrocarbons (13),
    - the broad group of pesticide substances (~80)
    - polycyclic aromatic hydrocarbons (PAHs).

The legal basis of monitoring is the EU Water Framework Directive, the Austrian Federal Water Act, and Austrian Ordinance on the Monitoring of the Status of Water Bodies. WFD compliant monitoring is fully paid by public funds. Surveillance and pperational monitoring data are “environmental data” and all public.

M.Yu. Kalinin (Association of river guardians “Eco-Kronos”, Belarus) Belarus towns’ influence on surface water in transboundary river basins of the Baltic Sea

Belarus has a representative national environmental monitoring system, which includes observations over water quality in rivers and water bodies. All transboundary rivers and water bodies are covered by their own monitoring system.

Methodology of surface water quality monitoring in river basins is based on spatial-temporal analysis of the annual average content of substances. When comparing quality indicators, different years in terms of flow conditions are selected and then whether pollution is increased (or decreased) is determined. This is not quite correct as there is no readjustment to flow conditions of a particular year. In fact, the same quantity of pollutants emitted from pollution sources to different volumes of water will show different contents of the former.

Major pollution sources of water bodies are provincial (Brest, Vitebsk, Grodno, …) and regional cities accommodating large industries (Polotsk, Novopolotsk, Stolbtsy, Mosty, Molodeshchno, Kobrin, etc.) and densely populated.

There is no stormwater drainage to urban treatment facilities. Urban water utilities make as much as possible efforts to clean drainage water. For modernization of equipment and training in modern treatment methods, water utilities widely apply best practices of foreign countries through the projects of WB, EBRD, NDEP and those supported by the Governments of Switzerland, Finland, and Austria. The Belarusian Government has decided to make full compensation by population of communal services through tariffs, remove cross-subsidies by 2017, and achieve funding transparency and EBRD standard compliance in order to provide high-quality communal services at lower prices.

J. Mukhatov (Shu-Talas Basin Commission Basin Inspection for Water Use Regulation and Protection, Kazakstan) Water resource management in Shu-Talas River Basin in the context of climate change

The Shu-Talas basin covers the territories of Zhambyl province (excluding Moynkus, Kordai, and Shu districts), Sozak district, and a part of Turkestan city in South-Kazakhstan province, as well as partly Zhanakorgan and Shiyeli districts in Kyzylorda province and Zhambyl district in Almaty province.

Water is allocated between Kazakhstan and Kyrgyzstan in accordance with the Provisions on allocation of flow in the Shu River Basin and the Talas River Basin approved by the USSR Ministry of Land Reclamation and Water Resources in 1983. These Provisions set 50% water share for each republic along the Talas River and 42% for Kazakhstan and 58% for the Kyrgyz Republic along the Shu River.

A. Karlykhanov (Aralo-Syrdarya Basin Inspection for Water Use Regulation and Protection, Kazakstan) Transboundary cooperation in the Syrdarya River Basin

The Aralo-Syrdarya Basin Inspection for water use regulation and protection functions within the boundaries of South Kazakhstan and Kyzylorda provinces in Kazakhstan.

One of important projects is that of regulation of the Syrdarya River channel and preservation of the Northern Aral Sea. The Project's first phase made it possible to save the north part of the Aral Sea. Fish quantity and, more importantly, fish species have increased in the sea. Only flatfish inhabited the sea in the most critical period of the Aral Sea, whereas now 27 fish species live there and the microclimate have started to change. Moreover, the distance from the sea to the port of Aral'sk has shortened from 100 to 17 kilometers. The following was completed during the first phase:

- Dam of the Northern Aral Sea
- Aklak waterworks facility
- Aitek waterworks facility
- Rehabilitated Shardara dam
- Protection dams along the Syrdarya River
- Straightened Syrdarya River Channel
- Reconstructed Kazalinsk and Kyzylorda waterworks facilities

Today the region expects the second phase of the Project. First, it is planned to implement 6 out of 8 proposed projects with the total cost of 23.2 billion tenghe. Those include rehabilitation of the left-bank regulator at Kyzylorda waterworks facility, straightening of the Syrdarya River channel along Korgansha and Turumbet reaches, construction of protection dams in Kazalinsk and Karmakshi district and of road bridge in the area of Birlik settlement. Besides, Kamystybas and Akshatou lake systems are to be restored in the Aralsk district and nursery ponds are to be reconstructed and extended in Tastak site of Kamystybas fish hatchery.

Then, the reconstruction of the Northern Aral Sea will be continued and the operational center for water management in the Kazakh part of the Syrdarya Basin will be established.

B.O. Askaraliev (Kyrgyz National Agrarian University) Sustainable management of water in irrigation systems of the Sokuluk River Basin, Shu depression in Kyrgyzstan

In the last 25 years investments in irrigation infrastructure have become minor. In this context, the technical conditions of irrigation systems and agricultural land conditions have been deteriorating.

The current ineffective methods and principles of water distribution in irrigation systems in Kyrgyzstan lead to lower productivity of irrigated land and deterioration of socio-economic conditions and environmental situation in irrigation schemes. Inefficient water management also has a negative effect on operation and maintenance of irrigation systems.

The major factors of poor land conditions and deteriorating irrigation and drainage systems are the following:

- lack of scientifically based irrigation regimes adapted to new economic environment in Kyrgyzstan;
- water delivery exceeds design irrigation norms, especially in the area with poor land conditions;
- low performance of irrigation systems, the average efficiency of which is 0.56 in the republic;
- lack of water accounting in the on-farm irrigation system;
- no proper operation and maintenance of the on-farm irrigation and drainage systems that are on the book of public operating entities.

The on-farm (local) level of irrigation systems is characterized by the same problems as the sector as a whole.

To overcome the situation, the Sokuluk River Basin, which is representative for Shu valley and the submontane zone in general, has been chosen for implementation of IWRM.

SESSION 5: ROLE OF ECONOMIC ANALYSIS AND FINANCIAL MECHANISMS FOR SUSTAINABLE BASIN PLANNING

T. Efimova (OECD) Use of economic analysis and deployment of economic instruments

Water Framework Directive clearly integrates economics into water management and water policy decision-making. To achieve its environmental objectives and promote integrated river basin management, the Directive calls for the application of economic principles (*polluter-pays principle*), economic approaches and tools (e.g. cost-effectiveness analysis) and instruments (e.g. water pricing).

Economic instruments can help:

- raise revenues
- promote efficient uses
- allocate water where it creates more value
- value the benefits of water-related services
- provide incentives to explore low-cost options
- engage stakeholders

River basin governance and planning is one of the key emerging challenges to IWRM in EECCA countries.

P. Henry de Villeneuve (OIEau) Financing the Program of Measures included in RBMPs

Fund raising strategy for an IWRM should be based:

- at the national level:

- coordination between different institutions (ministries) and integration of different budgets (sectoral plans) for the PoM preparation
- coordination of the donors
- support to local project holder for their relation with donors
- develop economic instruments

- at the river basin level:

- definition of the needs and prioritization

- awareness raising on financing needs
- run some economic instruments.

A.Row (KazNAU, Kazakhstan) Effects of climate and anthropogenic load on flow quality in the river basins of rice-growing areas in the South Kazahkstan

The research efforts identified that application of the rice irrigation technology using drainage and waste water in the rice-growing areas in the Ileh, Syrdarya, and Karatal basins has contributed to:

- 15% lowered water diversions from irrigation sources,
- 27% increased water supply of rice irrigation systems,
- lessened anthropogenic load and better socio-environmental conditions in the rice-growing areas.

The cost effectiveness of the use of drainage and waste water for irrigation of rice is 94,599 tenghe/ha, the profitability of rice growing is 37.3 %, and the payback time is 1 year.

Finally, the Conference adopted the resolution:

EECCA NWO CONFERENCE RESOLUTION "CHALLENGES OF RIVER BASIN MANAGEMENT IN THE CONTEXT OF CLIMATE CHANGE"

The participants of the International Conference "Challenges of River Basin Management in the context of Climate Change" gathered in Moscow on 18-19 May 2017 within the framework of the Network of Water-Management Organizations from Eastern Europe, Caucasus, and Central Asia (EECCA),

having discussed urgent issues in the following focus areas:

- National strategies for adaptation to climate change, river basin management plans, transboundary basins;
- Practical measures for adaptation to CC in basins including in line with the concept of water-food-hydropower-environment nexus;
- Supporting the development of operational Basin Organisations and efficient networking;
- Monitoring for sustainable water management and implementation of data flow management using , information-communication technologies (ICT) at basin,

national and transboundary levels to develop operational Water Information Systems (WIS) for decision making;

- Role of economic analysis and financial mechanisms for sustainable basin planning;
- Land reclamation issues in river basins; protection and restauration of wetlands and aquatic ecosystems.
- Control of water demands and strengthening efficient uses of water.

have agreed that:

- The challenges related to climate change and its consequences (floods, droughts, aquatic ecosystem destruction, etc.) become more acute for the water sector. In this context, the Paris Pact on water and adaptation to climate change in the basins of rivers, lakes and aquifers, promoted by INBO and UNECE at UNFCCC COP21 in December 2015, offers practical measures through:
  - enhanced work for capacity building and knowledge generation among the staff of water-management organizations and the general public;
  - adaptation of the water sector to climate change, mainly at river basin level;
  - strengthened governance;
  - adequate financing.
- Of particular note is the role the UNECE Water Convention and its task-force on water and climate play in the development of adaptation strategy for transboundary river basins by preparing guidelines, implementing projects, and exchanging experience.
- There is a considerable value and potential of engaging economic development sectors into a dialogue about management and use of resources. In this respect the efforts by UNECE in developing dialogues and assessments on water-food-hydropower-environment nexus in transboundary basins thus facilitating cooperation among concerned parties in various sectors were highlighted.
- Particular measures for adaptation to climate change include the following:

  - the need for better application of long-term flow forecasts and the long-term planning of multi-year regulation on the basis of more accurate forecasts and IWRM.

  - In line with IWRM, it is necessary to enhance participatory governance and involve energy, Inland transport, agriculture, tourism fishery, hydrometeorological, and environmental organizations in the activities of basin organizations.

- Moreover, it is necessary facilitate the creation and strengthening of basin councils or committees and to develop a network of basin councils representing the interests of all water using and water supply sectors that would be able to assume coordination and supervision over management;

- the river basin water management to be sustainable requires that the long-term strategic tools be implemented on the basis of prospective assessment for 15-20 years and a set of measures be developed to overcome potential demographic and climate challenges;

- water conservation is the most powerful adaptation mechanism. The tools that could be used include:

  - selection of appropriate crop patterns;
  - full use of irrigation area;
  - revision of hydromodule zoning and irrigation regimes;
  - reduction of productivity losses by using programming methodology;
  - reduction of salinized areas and, consequently, leaching requirements;
  - selection of appropriate irrigation techniques, including drip irrigation;
  - IWRM as a whole;
  - improvement of water accounting;
  - use of treated wastewater and saline water;
  - agricultural extension services;
  - production of less water intensive crops.
  - Implementation of all kind of Natural Water Retention Measure.

While underlining the importance of professional unity, information exchange and best practices dissemination maintained within EECCA NWO, the participants *stressed the Network's achievements* in 2016-2017 including:

- organization of the conference of "Cultural and Educational Issues related to Water Management in the EECCA Countries" in Almaty on the 9th of February 2016 and the round-table for discussion of the ways to improve activities of the Network (February 10, 2016);
- events dedicated to 50 years since initiation of the ambitious program "Large-scale reclamation of land for higher and sustainable yields of grain and other crops" (Moscow, June 2016);
- XIV International scientific-practical symposium "Clean water of Russia – 2017" (Yekaterinburg, April, 2017);

- issue of Network's information collections and scientific publications, including the collection of scientific papers "Cultural and educational issues related to water management in the EECCA countries";
- further development of the Central Asian knowledge portal - CAWater-Info (cawater-info.net) - as part of the system of uniform tools for implementation of IWRM that are adapted to specific conditions of water management in river basins with different water stresses in arid and semi-arid zones of EECCA countries.

The participants *agreed on the necessity* to strengthen activities on:

- Increasing availability of water information;
- exchange of information on best practices and effective technologies for rational water use and decreased water pollution and exhaustion;
- development of (regional and national) knowledge hubs with the task to assist water users at different levels of water hierarchy;
- involvement of basin organizations in the Network's activity;
- training workshops and study tours to learn best practices and exchange experience and knowledge on water management.

They expressed a strong interest in the European Union Water Initiative plus for the Eastern Partnership in 6 EECCA Countries and wished to be informed of the results of this project.

In the context of the above mentioned, the participants *deemed it necessary* to deepen joint activities of the Network by:

- keeping submitting on a regular basis information on national events in the area of water management and information on new publications, software, methodologies and training materials in order to raise awareness among water professionals and encourage water sector development in EECCA;

- enhancing cooperation with national focal points of international networks and organizations, such as Global Water Partnership (GWP), International Commission on Irrigation and Drainage (ICID), Europe-INBO and CEENBO and others.

The participants *proposed* to organize the next Network's conference in 2018 on the theme "Land reclamation in the EECCA countries in XXI: problems and solutions" and discuss the following:

- new approaches and technology for reclamation of land, more effective use of water, and prevention of soil salinization;
- prospects of irrigated agriculture development through innovations;

- application of up-to-date information technologies for monitoring and assessment of irrigated land.

The participants expressed high interest in the participation of representatives of EECCA basin organizations and national authorities in next international events such as Europe-INBO international conferences in Dublin (Ireland) in September 2017 and in Sevilla (Spain) in October 2018 and in the 8th World Water Forum in March 2018 in Brasilia (Brazil) and asked for financial support in traveling from organizers and donors.

The participants *thanked* the Government of Russia, UNECE and the International Network of Basin Organizations (INBO) for assistance provided to the Network, including in organization of this Conference, and seek for the continuance of financial support to core activities of the Network.

The participants also *appreciated very much* the assistance rendered by the A.N.Kostyakov Russian Research Institute of Hydraulic Engineering and Land Reclamation in preparation and organization of the Conference.

2.2. Maintenance of the Network web-site

The web-site (www.eecca-water.net) is maintained to support activity of the Network of Water Management Organizations in EECCA countries. The web-site sections were filled with information from the Network's members and from open Internet sources during the reporting period. The following sections are accessible 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 the Network's members (profiles)

NWO EECCA web-site

All sections of the web-site were updated regularly during the reporting period. The average visits of the web-site were 200-250 persons a day.

2.3. Preparation and publication of the collection of scientific papers

As assigned, in the course of activity we collected the papers from the EECCA NWO members and published a collection of scientific papers titled "**Challenges of River Basin Management in the context of Climate Change"**.

This collection contains the following papers:

Tasks of efficient water use in the face of global challenges
P.A. Polad-Zade

The future: water saving and cooperation
V.A. Dukhovniy

Water strategy as a tool of water resources management
N.B.Prokhorova

Approaches to elaboration of an effective water management strategy for Central Asian river basins
A.G.Sorokin, D.A.Sorokin, I.Ergashev

Russia's river basins in the context of climate change
V.A. Omelianenko

Water resources and irrigated agriculture in the context of climate change in Tajikistan
Ya.E. Pulatov, A. Kurbonzoda

Influence of Belarus towns on surface water in transboundary basins of the Baltic Sea
M.Yu. Kalinin

Water for life
I.Kh.Domulajanov, Sh.I.Domulajanova

Improvement of transboundary water management in the Shu-Talas basin in the Republic of Kazakhstan
M.N.Sennikov, N.K.Yerzhanova

The impact of agricultural production on irrigated land conditions in Kyzylkum irrigation scheme, South Kazakhstan province
K.A.Anzelm. A.Omarova

Implementation of IWRM in the area of the South Fergana Canal
V.G.Boyarinova, I.Kh.Domulajanov, U.S.Kurbanova

Water intake structures at pumped storage plants
V.A.Volosukhin, M.A.Volynov, Ye.N.Belokonev

Development and application of water-saving technologies in the Uzbek water sector
S.S.Khodjaev, M.P.Tashkhanova

Transboundary cooperation in the Syrdarya River Basin
A. Karlykhanov

Estimation of crop water requirements in irrigated area of the Khorezm oasis in the context of climate change
G.V.Stulina, G.F.Solodkiy

Sustainable water management in irrigation systems in the Sokuluk River Basin, Kyrgyzstan
N.P.Mamataliev, B.O.Askaraliev, N.I.Ivanova

The mechanism of financing the Water Consumer Associations in Uzbekistan on the basis of social partnership
Sh.Kh.Muminov, B.V.Gojenko

International Conference of the EECCA NWO "Challenges of River Basin Management in the context of Climate Change"

Resolution of International Conference "Challenges of River Basin Management in the context of Climate Change"

2.4. Development of the Atlas of water-management and environmental organizations in EECCA countries

For visualization of the geographic scope of activity of EECCA NWO, we developed am Atlas of water-management and environmental organization in the countries of Eastern Europe, Caucasus, and Central Asia (Figure 2).

The Atlas is an interactive tool offering broad options (Fig. 3-4). For example, the search of organizations can be made visually on a map or through selection of country/organization type from the side menu.

Through such search the user by pushing on “get results” will see the displayed under the map a summary list of organizations that meet the search query.

Figure 5 shows the page of information displayed about selected organization.

There is an option to add the data by any user to the Atlas. This tool can be accessed in the top menu bar through “Add data”. After feeling appropriate fields in the displayed table, the user should tag the map (by clicking the relevant place on the map or by inputting coordinates in the fields left to it). Then, clicking on “Save” button sends the created form for moderation. When the administrator approves the form, all the data is published in the database and displayed on the map.

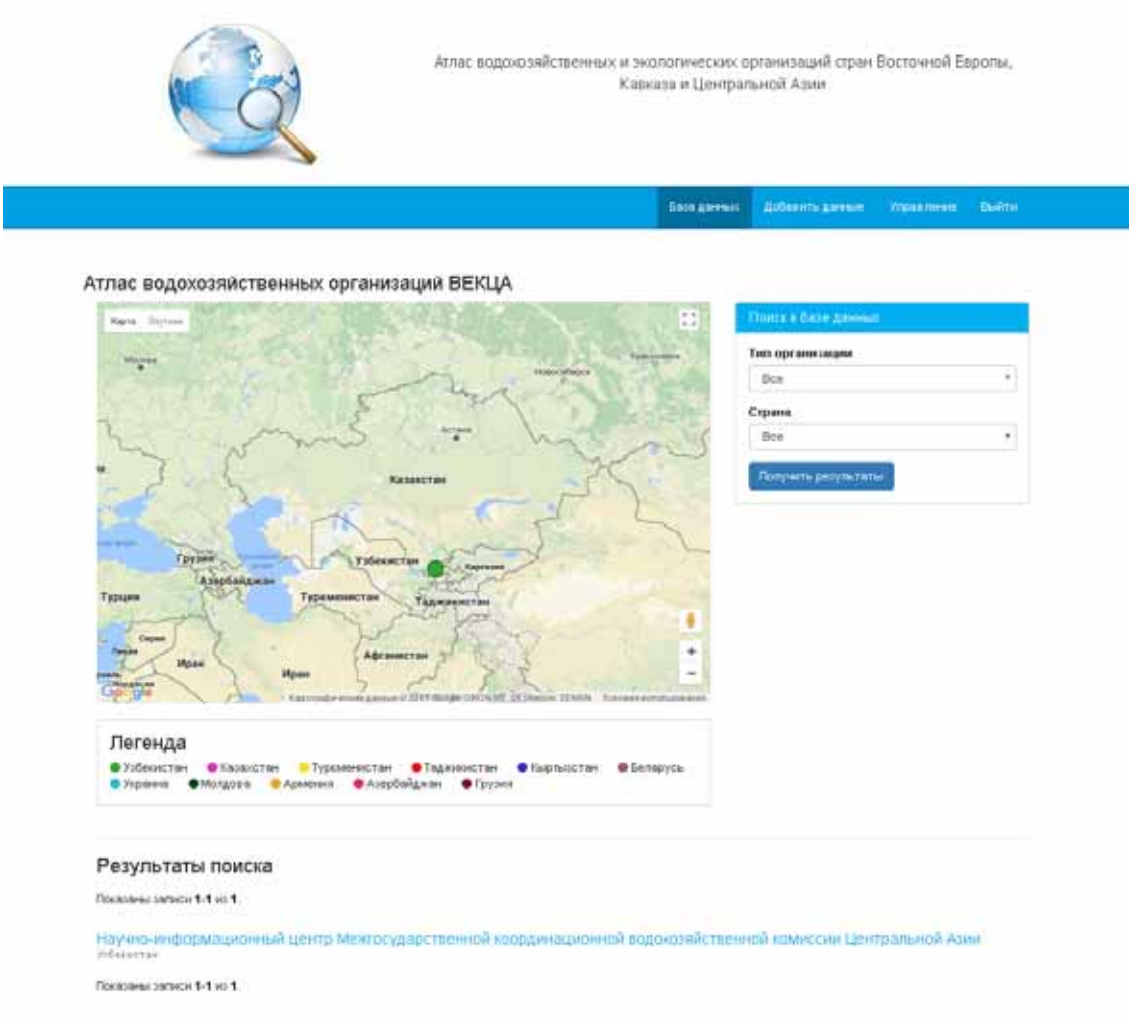

Fig. 2. Overview of the Atlas

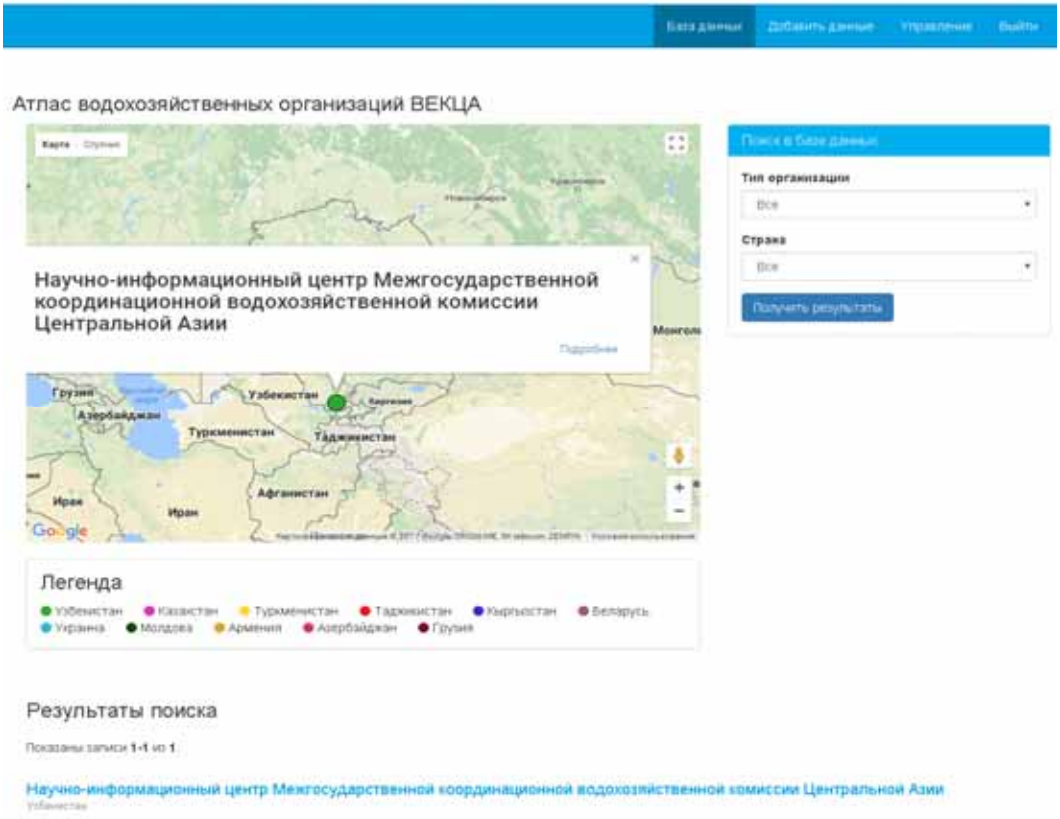

Fig. 3. Selection of organization: pop-up box on the map

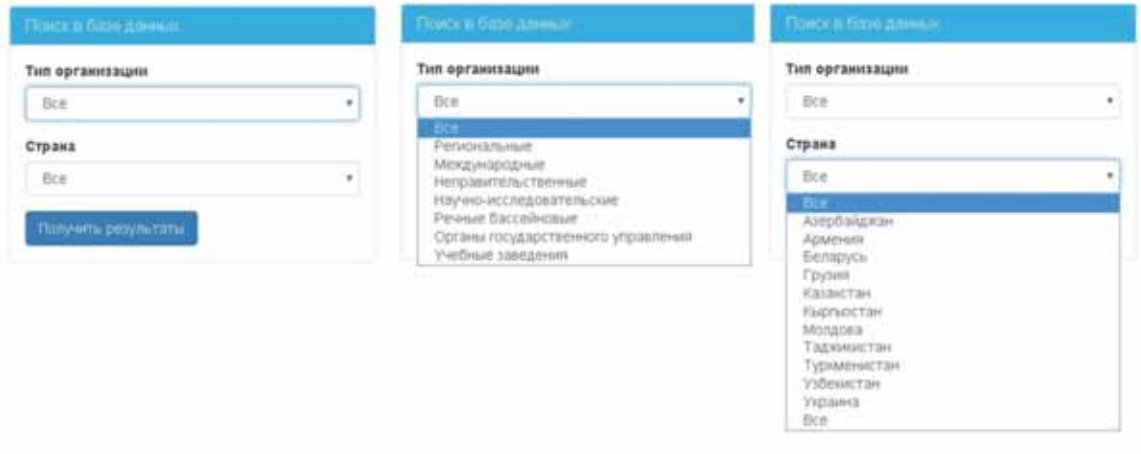

Fig. 4. Selection of organization: side menu

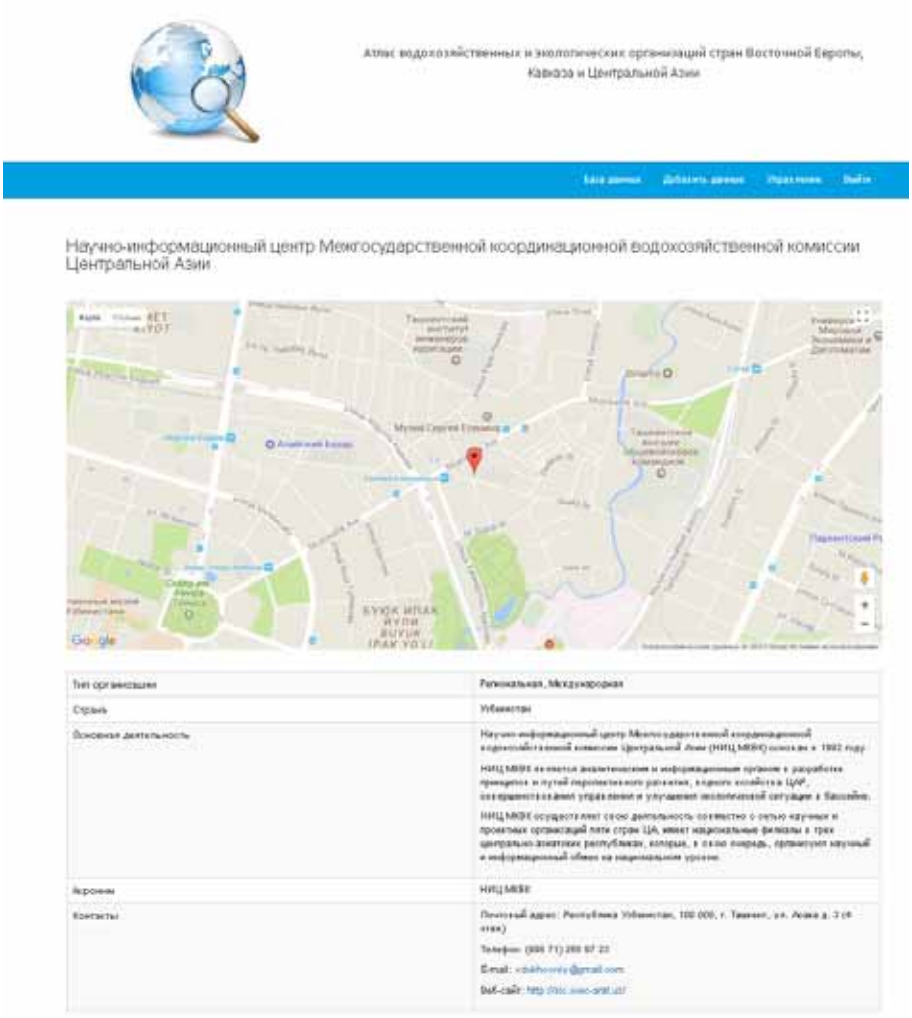

Fig. 5. Information displayed about the selected

The Atlas can be found on the Portal of water and ecology knowledge of Central Asia, CAWater-Info on **www.cawater-info.net/atlas/**

Appendix 1

Programme

International Conference
EECCA NWO
Challenges of River Basin Management in the context of Climate Change

Moscow, Russian Federation
May 18-19, 2017

Venue:
Russian Research Institute of Hydraulic Engineering and Land Reclamation (VNIIGiM)
B.44, Bol'shaya Akademicheskaya Street, Moscow

Thursday 18 May

08:30 Registration of the participants

09:00 Official opening of the conference

Opening speech by EECCA NWO President Prof. D.V.Kozlov.

Welcoming adresses:

- V.A. Zhukov, Director, Land Reclamation Department, Ministry of Agriculture, Russian Federation
- A.A.Filtchakova, Head, Moscow-Oksk Basin Water Administration
- Prof. V.A. Dukhovniy, Executive Secretary of EECCA NWO
- B. Libert, Regional Advisor for Environment, UNECE
- JF Donzier, Permanent Technical Secretary INBO
- B.M. Kizyaev, Chief Research Officer, VNIIGiM
- N.A. Sukhoy, Chairman of the Board, Union of Water and Land Reclamation Experts
- T.M.Belyakova (CIS Executive Committee) Regarding the Concept on cooperation of CIS member states on land reclamation and integrated use of interstate water bodies and the First Priority Measure Plan for its implementation

09:30 JF Donzier (INBO, France) Presentation of INBO activities with focus on adaptation to

climate change

09:50 V.A. Dukhovny (Secretariat EECCA NWO/SIC ICWC) The future: water saving and cooperation

10:10 T. Efimova (OECD) and M. Sutter (UBA, Austria) Presentation of EUWI+East project supporting implementation of WFD

10:30 Break

11:00 **SESSION 1: National Strategy for adaptation to CC, River basin management plans, transboundary basins**

Key speakers

B. Libert (UNECE) UNECE projects on adaptation of transboundary basins to climate change

P. Polad-Zade (JSC Vodstroy, Russia) Tasks of efficient water use in the face of global challenges

Presentation of relevant case studies by country representatives

M.G. Morozov (RosNIIVH, Russia) Water strategy as a tool of water resources management

G. Tilyavova (BWO Amudarya) Transboundary cooperation in the Amudarya River Basin

A.R. Uktamov (BWO Syrdarya) Transboundary cooperation in the Syrdarya River Basin

Questions and answers /Debates

13:00 Lunch

14:00 **SESSION 2: Practical measures for adaptation to CC in basins in line with the concept of water-food-hydropower-environment nexus**

Key speakers

JF Donzier (INBO) European directives and adaptation to climate change

B. Libert (UNECE) UNECE nexus assessments in transboundary basins

Presentation of relevant case studies by country representatives

G.V. Stulina (SIC ICWC) Usage of the positive effects of climate change in the basin in modeling crop water requirements

N.N. Balgabayev (KazNIIVH, Kazakhstan) Efficient water management in Kazakhstan

Ya.E. Pulatov (Institute of water problems, hydropower engineering and ecology of Academy of Sciences of the Republic of Tajikistan) Water resources and irrigated agriculture in the context of climate change in Tajikistan

V.A. Omelianenko (National Information Agency “Nature”, Russia) Russia’s river basins in climate change context

R.M. Corobov (Eco-TIRAS, Moldova) Lessons learnt from the assessment of river basin vulnerability to climate change and elaboration of common adaptation strategy by the example of Dnestr basin

Questions and answers /Debates

15:30 Break

16:00 **SESSION 3: Supporting the development of operational Basin Organisations and efficient networking**

Key speakers

P. Henry de Villeneuve (OIEau, France) Steps for developing Basin Organisations ;

Y. Videnina (OIEau) Stakeholders and public participation in line with WFD requirements

Presentation of relevant case studies by country representatives

D.V. Kozlov (Russian State Agrarian University) Current issues of water management and engineering in Russia

A. Inosemtseva (CAREC, Kazakhstan) CAREC activity on water resources management: progress and prospects

A.L.Buber (VNIIGiM named by A.Kostyakov, Russia) Development of strategic and operation plans for Volgian-Kamsk reservoir management in the context of climate change

Questions and answers /Debates

Friday 19 May

9:00 **SESSION 4: monitoring for sustainable water management and implementation of data flow management and information-communication technologies (ICT) at basin level**

Key speakers

JF Donzier (INBO) Importance of organisation and management of water related data

M. Sutter (UBA, Austria) Example of WFD compliant monitoring

Presentation of relevant case studies by country representatives

M.Yu. Kalinin (Association of river guardians “Eco-Kronos”, Belarus) Belarus towns’ influence on surface water in transboundary river basins of the Baltic Sea

J. Mukhatov (Shu-Talas Basin Commission Basin Inspection for Water Use Regulation and Protection, Kazakstan) Water resource management in Shu-Talas River Basin in the context of climate change

A. Karlykhanov (Aralo-Syrdarya Basin Inspection for Water Use Regulation and

Protection, Kazakstan) Transboundary cooperation in the Syrdarya River Basin

B.O. Askaraliev (Kyrgyz National Agrarian University) Sustainable management of water in irrigation systems of the Sokoluk River Basin, Shu depression in Kyrgyzstan

Questions and answers /Debates

10:30 Break

11:00 **SESSION 5: Role of economic analysis and financial mechanisms for sustainable basin planning**

Key speakers

T. Efimova (OECD) Use of economic analysis and deployment of economic instruments

P. Henry de Villeneuve (OIEau) Financing the Program of Measures included in RBMPs

Presentation of relevant case studies by country representatives

A.Row (KazNAU, Kazakhstan) Effects of climate and anthropogenic load on flow quality in the river basins of rice-growing areas in the South Kazahkstan

Questions and answers /Debates

12:00 Conclusions of the conference

12:30 Closing ceremony

Appendix 2

List of participants
EECCA NWO Conference
"Challenges of River Basin Management in Context of Climate Change"
(18-19 May 2017, Moscow, Russian Federation)

Russia

1. Kozlov D.V. – RGAU-MSHA, President of EECCA NWO
2. Polad-zade P.A. - JSC Vodstroy, Honorary President of the Network
3. Polad-zade A.P. - JSC Vodstroy
4. Morozov M.G. - RosNIIVH
5. Shevchenko V.A. – VNIIGiM
6. Kizyaev B.M. - VNIIGiM
7. Bondarik I.G. – VNIIGiM
8. Yashin V.M. – VNIIGiM
9. Yalamova G.Kh. – VNIIGiM
10. Lentyaeva Ye.A. – VNIIGiM
11. Buber A.L. – VNIIGiM
12. Kireicheva L.V. – VNIIGiM
13. Isaeva S.A. – VNIIGiM
14. Galimullina D.Z. – VNIIGiM
15. Fedotova I.V. – VNIIGiM
16. Yalalova G.Kh. – VNIIGiM
17. Filtchakov A.A. – Moscow-Oksk BWA, Rosvodresursy
18. Sukhoy N.A. - Union of Water and Land Reclamation Experts
19. Omeliyanenko V.A. - National Information Agency "Nature"
20. Zhukov V.A. - Land Reclamation Department, Ministry of Agriculture
21. Belyakova T.M. – Department of economic cooperation, CIS Executive Committee
22. Gulyuk G.G. – Journal "Land Reclamation and Water Economy"

Moldova

23. Korobov R.M. - Eco-TIRAS
24. Cazacu R. – Water Resources Agency

Belarus

25. Kalinin M. Yu. - Association of river guardians “Eco-Kronos”

Kazakhstan

26. Balgabaev N. - KazNIIVH
27. Inozemtseva A. - CAREC
28. Mukhatov Zh. – Shu-Talas Basin Commission
29. Karlykhanov A. - Aralo-Syrdarya Basin Inspection for Water Use Regulation and Protection
30. Sharipova B. – Executive Direction of IFAS in the Republic of Kazakhstan
31. Row A.G. - KazNAU

Kyrgyzstan

32. Askaraliev B.O. - Kyrgyz National Agrarian University

Tajikistan

33. Pulatov Ya.E. - Institute of water problems, hydropower engineering and ecology of Academy of Sciences

International organizations[*]

34. Libert B.- UNECE (Switzerland)
35. Donzier J.-F. - INBO (France)
36. Videnina Yu. - IOWater (France)
37. Henry de Villeneuve P. - IOWater (France)
38. Dukhovny V.A. - SIC ICWC (Uzbekistan)
39. Stulina G.V. - SIC ICWC (Uzbekistan)
40. Beglov I.F. - SIC ICWC (Uzbekistan)

[*] Location of offices is shown in the brackets

41. Tilyavova G.K. - BWO Amudarya (Uzbekistan)
42. Uktamov A. - BWO Syrdarya (Uzbekistan)
43. Efimova T. - OECD (Russia)

Azerbaijan

44. Abdulhasanov M. – Ministry of ecology and natural resources
45. Avazova M. - Ministry of ecology and natural resources

Armenia

46. Davtyan V. – Agency for water resources

Austria

47. Sutter M., UBA, Project leader EUWI+ East

Appendix 4

Members of the Network of (basin) water-management organizations from Eastern Europe, Caucasus, and Central Asia

#	Organization	Manager / Contact person	E-mail, Website	Phone Fax	Address
1.	Russian State Agrarian University of K.A.Timiryazeva, A.N.Kostyakov Institute of Environmental Engineering	**Kozlov Dmitriy** – Vice Rector, **Network President** Krasnoschyokov Valentin, Nemkina Yulia – contact persons	kozlovdv@mail.ru www.msuee.ru	+7 (495) 976 29 62 Fax 976 10 46 +7 (495) 976 16 45 Fax 976 47 91, 976 29 62	Pryanishnikova str., 19, Moscow, 127550, Russia
2.	SIC ICWC	Dukhovniy Viktor - Director, Network Executive Secretary	vdukhovniy@gmail.com sic.icwc-aral.uz cawater-info.net eecca-water.net	Phone (998 71) 268 97 23	Asaka str., 3, Tashkent, 100 000, Republic of Uzbekistan
3.	OAO "Vodstroy"	Polad-zadeh Polad – Director, Network President	e-mail: info@vodstroi.ru ppolad-zade@vodstroi.ru ppoladzade@gmail.com www.vodstroi.ru	+7 (499) 261-99-06	Novaya Basmannaya, 10, Moscow, 107803, Russia
Members of the Network of (basin) water-management organizations from Eastern Europe, Caucasus and Central Asia					
KAZAKHSTAN					
4.	Kazakh Institute of Strategic Research under the President of the Republic of Kazakhstan (KISR)	Sultanov Bulat Klychbayevich	sultanov@kisi.kz www.kisi.kz	(7 327) 264 34 04 Fax 264-49-95	Dostyk avenue, 87 b, Almaty, 050010, Kazakhstan
5.	"Kazgiprovodkhoz Institute"	Ryabtsev Dmitriy Anatoliyevich - Chair of the Board	kazgipro@mail.ru adr52@mail.ru	+7 (727) -279-16-10 Fax 279-16-14	Kazakhstan, Almaty c., Seyfullina str., 434
6.	Scientific Research Institute of Water Economy (SRIWE)	Balgabayev Nurlan Nurmakhanovich-director general, Karlykhanov	kiwr-t@mail.ru, www.kaziwr.isd.kz	8 (7262) 425540 426071, 4255483	Kazakhstan, 080003, City of Taraz, Koigeldy str. 12

#	Organization	Manager / Contact person	E-mail, Website	Phone Fax	Address
		Orazkhan Karlykhanovich – contact person			
7.	Association of enterprises of water supply and sanitation of the Republic of Kazakhstan - "Kazakhstan Su Arnasy"	Syundyukov Valeriy Vladimirovich- prezident Syundukova Yevgenia – chief editor of journal “Water resources and water use”	kazsu@astanainfo.kz Syundyukova_e@mail.ru www.kazsu.astanainfo.kz	7 (7172) 37 67 54 7 (7172) 37 66 85 Cell: 7 (701) 544 59 45 Cell: 7 (701) 552 88 32	Prospect Abaya 103, P.O. box 1050, Astana, 010008, Kazakhstan
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16.	Central Asia regional network for water capacity building CAR@AWAN	Mustafina Vera, manager	carawan.network@gmail.com	Phone/Fax:+7(727)2558778 Mobile +7(776)2558421	Seyfullina str., 597, office 416050022, Almaty, Republic of Kazakhstan
17.	Executive Direction of the International Fund for saving the Aral Sea in the Republic of Kazakhstan	Kenshimov Amirkhan, Deputy Director	info@infas.kz, kenshimov@gmail.com	Phone 298 63 80/81/85/76 Fax 250 77 17.	Dostyk str., 26, Alatou sub-distr., Bostandyk distr., Almaty, 050045, Republic of Kazakhstan
TAJIKISTAN					
18.	Institute of water problems, hydropower engineering and ecology of Academy of Sciences of the Republic of Tajikistan (IWRHE & E AS RT)	Kobuliyev Zaynalobudin Valiyevich	owp@tojikiston.com kobuliev@mail.ru	(99237) 2245231	Tajikistan, 734002, Dushanbe, Parvin st., 12
19.	State institution “Tajik hydraulic engineering and land reclamation research institute” (SI «TajikNIIGiM»)	Umarov Dilshod, Director General	tj-water@mail.ru water_sogd@mail.ru	(992 37) 235 35 23, (236 59 40	Tajikistan, 734 064, Dushanbe, Shamsi, 5/1
20.	ICWC Secretariat	Babadjanova Malika Pulatovna	babadjanmalik@yahoo.com secretariat@icwc.info	Phone (992 37) 221-55-88	Dehkan str., 2, Khojent, Republic of Tajikistan
21.	SIC ICWC Tajik branch	Yuldashev Rauf - Director	tb_sic_icwc@mail.ru	Phone: (992 93) 563 33 93	Tajikistan, 734 064, Dushanbe, Shamsi, 5/1
TURKMENISTAN					
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24.	Executive Committee of the International Fund for saving the Aral Sea (EC IFAS)	Baydjanov Guizgeldy Chairman	ecifas.tm@mail.ru		Ashgabat, Turkmenistan
UZBEKISTAN					
25.	Coordinating Control Center "Energy", (CCC "Energy")	Shamsiyev Khamidulla Amanovich- director, Bychikhina Svetlana Pavlovna - contact person	sekretar@udc.uz snr2@udc.uz	(99871) 236-75-12 (99871) 236-75-32 (99871) 236-78-64	Istiklol str., 6, 100000, Tashkent, Uzbekistan
26.	Institute of forecasting and macroeconomics under the Cabinet of Ministers of the Republic of Uzbekistan (IP&M)	Sadykov Avazbek Madaminovitch - Director, Zhumanov Utkir Karshibaevich - Deputy Director	info@ifmr.uz http://www.ifmr.uz	(99871) 237-26-32 Fax 237-06-57	Kayumova str., 2, Tashkent, 100000, Uzbekistan
27.	State Inspection for Control and Supervision of technical conditions and safety of large and strategic structures at the Cabinet of Ministers of Uzbekistan (Gostehvodnadzor)	Ernazarov Nazimjon Sheralievich - Director,	info@v-nadzor.uz www.v-nadzor.uz	+ 998 (71) 226-69-10 Fax: 226-71-93 226-76-69	Turkurganskaya str, 26, Tashkent, Republic of Uzbekistan
28.	Council of Ecological Forum of non-governmental non-profit organizations of Uzbekistan (Eco-Forum of Uzbekistan)	Sanginov Saidrasul	saidrasuljon@mail.ru	(998-71) 230 42 56	700017, Tashkent, C-6, 118/ 1
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31.	Basin Water Organization "Syrdarya" (BWO "Syrdarya")	Kholhujaev Odil, Head	bvosyrdarya@mail.ru www.icwc-aral.uz/bwosyr_ru.htm	265-82-42 Fax: 265-73-45	11, Karasu-4, Tashkent, 100 187, Republic of Uzbekistan
32.	Global Water Partnership of Central Asia and Caucasus (GWP CACENA) – Secretariat	Sokolov Vadim Il'ich, regional coordinator	vadim_sokol@mail.ru i.babaev@cgiar.org www.gwp.org/en/CACENA/	Phone: (998 71) 237 04 45 Fax: (998 71) 237 03 17	IWMI Office for Central Asia and Caucasus, office 123, b.6, Murtazaeva str., POB 4564, Glavpochtampt, Tashkent, 100 000, Uzbekistan
33.	Research Institute for Irrigation and Water Problems at TIIEMA	Makhmudov Il'khom Director	saniiri@tkt.uz http://saniiri.zzl.org		Asaka str., 3, Tashkent, 100 000, Republic of Uzbekistan
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35.	National Water Management Research Center at Samarkan Architectural-Construction Institute named by Mirzo Ulugbek (SamGASI)	A.N.Gadaev - Head E.H.Isakov – Vice-Rector for research work	samgasi_mo@yahoo.com	Phone: +998662370532 Fax: +998662372630	Lolazor str., 70, Samarkand, 140147b
36.	Non-governmental non-profit community organization "Protecting the Zerafshan River Basin"	Abduraimov Mansur Farmanovich	mansurzbz@mail.ru	Phone: (+99890) 212 66 34 Fax: (+83662) 73 04 08	Uzbekistanskaya str., 114A, Samarkand 140 147, Uzbekistan
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AZERBAIJAN					
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44.	Republican unitary research enterprise "Land reclamation institute" (RUE "Land reclamation institute")	Vakhonin Nikolay Kirillovich- director	niimel@mail.ru nik.vahonin@mail.ru http://niimelio.niks.by	+375(017) 292 47 14, 292-49-41(reception) Fax 292- 64- 96	Bogdanovitch str., 153, Minsk, 220040, Belarus
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50.	National Information Agency «Natural resources» (NIA-Priroda)	Rybalskiy Nikolay Grigoryevich - durector, Omelyanenko Viktor Anatolyevich- first deputy director, Boriskin Dmitriy Anatolyevich – contact person	nia_priroda@mail.ru boriskin2priroda@rambler.ru www.priroda.ru	Ph/F 7 (495) 240 51 27 Mob. (107) 916 153 36 71	Moscow oblast, business-park "Rumyantsevo", 352-G, NIA-Priroda
51.	Russian Research Institute for Integrated Water Use and Protection (FGBU RosNIIVH)	Prokhorova Nadejda – Director, Rudnitskaya Natalya – contact person	wrm@wrm.ru rudnv75@mail.ru http://www.wrm.ru/ ludmila.stp@mail.ru	Phone/Fax (343) 374 26 79	Mira str., 23, Yekaterinburg, 620049, Russia
52.	OOO Publishing house «Ecomedia», Water Journal	Shiryaeva Marina – Director General	info@watermagazine.ru http://www.watermagazine.ru	Phone: (495) 380 11 48 Fax: (495) 380-20-18	b.2, Golovinskoye road 8, Moscow, 125212, Russia
53.	Non-profit partnership «Union of water and land reclamation professionals»	Sukhoy Nikolai Avksentievich - Chairman of the Union Board	soyuzvod@yandex.ru	Phone: 8 (499) 153-85-38 8 (499) 976-02-89	Office 8, floor 8, B.Akademicheskaya str, 44, Moscow, 127550, Russia
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59.	Closed corporation "Sovintervod"	Polyakov Leonid, Director General	mail@sovintervod.ru	(8499)189-21-96	Yeniseiskaya str., b.2. st.2, Moscow 129344
60.	Selective magazine "Food Security"	Gruzd Sergei, Editor in Chief	news@foodsecurity.ru www.foodsecurity.ru	(8495) 151-82-53 (8499) 431-20-65	Udaltsova str., 73, Moscow, 119454
61.	Crimean Basin Water Authority	Lisovskiy Andrey – Head, Ignatovskaya Nataly – contact person	kbuvr@crimea.com.ua http://csrc.com.ua/	+38 (0652) 594280, Fax 59-42-96 594259	Kievskaya str., 77/4, Simferopol, 95034
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71.	State Water Design Institute ”Acvaproiect”	Katrinesku Valeriy Ivanovich - director	acvaproiect@acva.md; ank@acva.md www.acva.md	Phone: 438122 Fax: 449761	str. Russo Alecu 1, Chisinau, MD-2068, Moldova
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KYRGYZSTAN					
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78.	Talass basin water administration	Batyrkulov B. - Head	basssein@mail.ru http://www.water.kg	Тел: 03422-52827 031254-90-79 Факс: 03422- 53400	Phone: 03422-52827 031254-90-79 Fax: 03422- 53400

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80.	Orto-Tokoi Reservoir Authority	Ozubekova T.S. - Head		Phone: 03944-51430 Fax: 03944-50015	UOV, Orta-Tokoy village, Issyk-Kul province, 720230, Kyrgyz Republic
81.	Batken basin water administration	Shukurov Zh. - Head	basssein@mail.ru http://www.water.kg	Phone: 03622-5-01-56 Fax: 03622-50688	Batken BUVH, Batken, 715100, Kyrgyz Republic
82.	Jalal-Abad basin water administration	Anarkulov B.K. - Head	basssein@mail.ru http://www.water.kg	Phone: (03722) 5-51-49 Fax: (03722) 5-24-43	Moghol 4, Jalal-Abad, 715600, Kyrgyz Republic
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