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CONTENTS

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| VIENNA DECLARATION ON THE STATUS AND FUTURE OF WORLD'S LARGE RIVERS | 3 |
| SECOND ISTANBUL WATER FORUM..... | 6 |
| XI INTERNATIONAL SYMPOSIUM "CLEAN WATER OF RUSSIA" | 8 |
| RESOLUTION OF XI INTERNATIONAL SYMPOSIUM "CLEAN WATER OF RUSSIA"..... | 9 |
| MEETING OF THE EXECUTIVE DIRECTOR OF THE NETWORK OF EECCA WATER MANAGEMENT ORGANIZATIONS WITH THE LEADERS OF THE UKRAINE WATER SECTOR..... | 17 |
| THE REGIONAL COORDINATOR'S WORK ON THE PREPARATION FOR THE SIXTH WORLD WATER FORUM | 19 |
| CAPACITY BUILDING IN THE INTEGRATED WATER RESOURCES MANAGEMENT AND PLANNING IN CENTRAL ASIA..... | 25 |
| WATER QUALITY IN CENTRAL ASIA..... | 33 |
| MARSEILLES PACT FOR BETTER MANAGEMENT OF NATIONAL AND TRANSBOUNDARY BASINS | 35 |

VIENNA DECLARATION ON THE STATUS AND FUTURE OF WORLD'S LARGE RIVERS

Vienna, 13 April 2011

PREAMBLE

Rivers provide mankind with key benefits, such as water supply, food, hydropower, navigation, irrigation, ecosystem services and recreation. They are fundamental to life and frequently possess major cultural significance. However, they are currently threatened by unsustainable “overuse”, increasing human pressure on their catchments and problems of increased floods and droughts driven by climate change, leading to changes in morphology, increased pollution, degradation of aquatic habitats, extinction of fish species etc. All these changes impact negatively on the many benefits of rivers to mankind and their continuing contribution to human needs.

To provide a scientific forum to discuss these benefits and threats, the first International Conference on the Status and Future of the World's Large Rivers (WLRs) was held in Vienna, Austria, from the 11th to the 14th of April 2011, supported by UNESCO, IAHR, IAHS, WASER and IAG. Over 450 conference participants, coming from 73 nations and representing all continents, large rivers and relevant thematic fields, contributed to the success of the event.

The following declaration was debated and adopted by the participants during the conference.

DECLARATION

The participants of the International Conference on the Status and Future of the World's Large Rivers declare the following:

Current Challenges

- The pressures and impacts on the WLRs, including their basins and tributaries, have increased greatly in recent years. As a consequence of their exploitation to meet human needs and the impact of global change, WLRs are severely endangered, and there is an urgent need for action.
- Large rivers are particularly exposed to the impacts of multiple use, often with conflicting aims, leading, for example, to disruption of the continuum of water and sediment transfer from source to mouth.
- At the global scale, there is currently no holistic assessment of the present status of WLRs, the conflicting demands on such rivers, their likely future response to climate change and other anthropogenic impacts and the potential for restoration.

- There is no existing international regulatory mechanism for protecting the few remaining near natural WLRs.

Future Needs

- Analysis of the current status, conflicting demands and the future development of WLRs, including the impact of medium and long-term climate change.
- Formation of a global forum to facilitate wide-ranging informed discussion of key issues related to research on, and management of, large rivers.
- Promoting the preservation of the remaining near natural WLRs (“red list”) and the sustainable management or rehabilitation of impacted WLRs, including knowledge transfer to decision makers and the population.

Integrated Management of the World’s Large Rivers and Their Basins

- Maintain or restore/rehabilitate (in a dynamic, spatial and temporal context) WLR basic functions, including biodiversity and ecosystem services, recognizing the individuality of rivers.
- Avoid single-aim infrastructure development projects and strategies.
- Aim for win-win solutions combining ecological functionality (based on EIA) and economic use.
- Implement IWRM in a long-term context, taking account of the potential impact of climate change on WLRs.
- Integrate use, protection and restoration of WLRs (including upstream-downstream interactions).
- Sustain or improve river type-specific hydrological and hydraulic conditions.
- Preserve or restore the continuum of biota and sediment and sustain or improve sediment transport and
- fluvial morphodynamics, to achieve (close to) natural conditions.
- Establish and fulfil water quality objectives, recognising the individuality and specific conditions of each river.
- Collect and freely exchange data for transboundary rivers, based on common standards and accuracy.
- Assess future trends of river hydro-morpho-ecodynamics; develop and test mitigation strategies.

Action plan

Creation of a global overview of the status and future of WLRs

Based on the contributions to the conference, a UNESCO-led and internationally-funded (e.g. World Bank) medium-term project, undertaken in collaboration with UNEP, UNDP, FAO, WHO, ADB, etc., should assemble and analyse existing data (free access) and knowledge on the status and future of WLRs, including evaluation of potential future infrastructure projects, their impact on WLRs and possible mitigation strategies.

Closing of knowledge gaps, knowledge transfer and a Global Observatory of WLRs

In a concerted action, the research required to close knowledge gaps relating to WLRs should be identified and promoted. Particular attention should be given to knowledge transfer to next generation scientists, stakeholders, decision makers, children (education) and the general public. A global observatory should be formed to document changes (including climate change effects) occurring in WLRs.

Collaborative International Action Plan to focus on WLR research and management

In a joint memorandum, international scientific bodies and associations (e.g. UNESCO, IAHR, IAHS, WASER, IAG, etc.) should formulate an action plan on WLR research and management as well as sponsor future WLR conferences.

World River Forum, World Rivers Day and WLR Commission Meetings

A World River Forum should be established to bring together scientists, stakeholders and decision makers, in order to promote and improve integrated management of WLRs. The UN World Rivers Day should be scientifically supported. The WLR Commissions (responsible for sustainable river management) should meet regularly to exchange experiences, define common standards on integrated management and debate future needs.

Future Conferences on the World's Large Rivers

A Conference on the Status and Future of WLRs should be held every three years, with the aim of expanding and disseminating scientific knowledge relating to WLRs.

Moving ahead

In order to improve the situation and reduce the threats to the World's Large Rivers the proposed actions should be implemented in the years 2011 to 2014, so that during the next WLR conference, to be held in Manaus, Amazonas, Brazil in 2014, ongoing activities can be evaluated and further initiatives planned.

The Vienna Declaration recommends that a collaborative and multidisciplinary international initiative is required to create the basis for a holistic, global scientific assessment of the status of the World's Large Rivers and to promote urgently needed improved, integrated and sustainable management of WLRs and their surrounding landscapes and basins

SECOND ISTANBUL WATER FORUM

3-5 May 2011

In 2009, Turkey successfully held the 5th World Water Forum in Istanbul on 16-22 March 2009. One of the most important outcomes of the 5th Forum was the Declaration "An Istanbul Perspective on Regional Water Challenges and Solutions". In the course of the implementation of this Declaration, the Turkish Government initiated the conduction of the 2nd Istanbul Water Conference on 3-5 May 2011 with the view of creating a platform for improving the coordination and collaboration between key international and local water stakeholders in and around Turkey. The target regions for the 2nd Istanbul Water Conference were Middle East, Central Asia, Eastern Europe, and Turkey itself.

The Forum opened on 3 May 2011: the Minister of Environment and Forestry of Turkey Prof. Veysel Eroğlu, Mayor of Istanbul Dr. Kadir Topbaş, Deputy Secretary General of the Directorate of State Hydraulic Works (DSI) Ismail Uğur, and Chair of the Forum Organizing Committee Prof. Ahmet Saatchi.

The 2nd Istanbul Water Conference agenda included six main topics (discussed within thematic sessions):

1. Regional Technical Cooperation on Water.
2. Water for Energy.
3. Agricultural Water Management.
4. Global Climate Change and Water.
5. Urban Water Management.
6. Water Resources Management and Water Culture.

Three high-level panels were also set up to synthesize sectional thematic discussions:

Integrated Water Resources Management: as one of the six panelists, Deputy Director of SIC ICWC Mr. Vadim Sokolov represented Central Asia. By exemplifying the experience of the IWRM implementation in the Fergana Valley, he presented the

options for solving priority social and economic problems of the region. The Panel's outcome document stated that maximization of economic benefit from water usage in certain sectors would be unacceptable without considering steady balance of social and environmental needs in every basin.

Water-Food-Energy Nexus: as one of the six panelists, Director General of the Tajikistan Research Institute for Hydraulic Engineering and Land Reclamation Prof. Yarash Pulatov represented Central Asia. In his report, Prof. Pulatov highlighted that along with the national priority of Tajikistan for building energetic security food security is important too. It was noted that the country's top leadership seeks to develop the process of negotiation with all the regional countries in order to agree upon win-win ways for future water development. During the discussion about the energy development ways, Prof. Pulatov mentioned that Tajikistan was realizing the program of building small-scale hydropower plants in some areas to address local energy problems, but small-scale hydropower plants would not be able to solve major energy production problems of the country within the national energy strategy.

Urban Water Services: representatives from Central Asia did not take part in this panel.

In addition, a series of associated events was conducted during the Forum: Water Policy and Women; Strategy for Adaptation to Climate Change in the Red Sea and Gulf of Aden; and so on. In addition, four closed target roundtable meetings were organized around the following subjects: internal problems of Turkey; problems of the Central Asian region; Eastern Europe problems; and Middle East problems.

The closed target roundtable meeting on Central Asia dealt with the topic "Agricultural Challenges with Focusing on Food Security: Regional and National Perspectives". The following experts invited by the Turkish party participated in the roundtable discussion: from Azerbaijan, Mammed Asadov and Aydar Djavadov (Land Reclamation and Water Management Joint-Stock Company); from Georgia, Alexander Mindorashvili (Ministry of Environment) and Tamar Khmaladze (Ministry of Agriculture); from Kazakhstan, Ekaterina Sakhvaeva (State Committee of Water Resources and Land Reclamation) and Ilya Domashov (Scientific Production Association BIOM); from Tajikistan, Prof. Yrash Pulatov (Tajikistan Research Institute for Hydraulic Engineering and Land Reclamation) and Ali Karaev (Scientific Production Association Vodokonsalt); from Turkmenistan, Oleg Guchgeldyev (independent Agricultural Economics Consultant); from Ukraine, Ganna Grinko and Lyudmila Kalitka (Ministry of Environment and Natural Resources); from Uzbekistan, invited expert (Mr. Vokhid Akhmadjanov from the Ministry of Agriculture and Water Resources) did not come to the Forum. The Consul of the Uzbekistan Embassy Mr. Islam Karimov was denied participation in the meeting, since he was not in the invitation list. Also, three regional experts took part in the roundtable meeting: Prof. Bart Schultz, President Honorary of ICID (UNESCO-IHE); Giovanni Muñoz (FAO); and Vadim Sokolov (SIC ICWC). From the Turkish party, the following specialists of the Central Asia Desk of the 5th Water Forum Secretariat participated in the meeting: Ms. Rezzan Hasanbeşeoğlu; Ms. Gonka Un; and Desk Head Mr. Caner Aktaş. Prof. Turan from the Istanbul University was the meeting moderator.

Inasmuch as the discussion subject, food security, involves the range of problems of equal priority for each country of our region, there was no point at issue during the discussion. All the speakers emphasized the existing challenges: population growth; climate change; low efficiency of irrigation water management; decline in the productivity of irrigated lands; negative impact of global processes on the world food market. The participants reached a full consensus about the need for government support to irrigated agriculture, the need to improve the legal framework, financial viability of farmers, and improve training and advisory services, as well as the need for new technologies, etc. Suggestions to develop regional cooperation and specialization in the matters of food security also found a common understanding and support. A brief discussion took place concerning the economic incentives, namely “water charging” or “water service fees” approaches.

For more information on the 2nd Istanbul Water Conference (in Turkish and English), please visit the Forum website: www.iusf.org.tr.

XI INTERNATIONAL SYMPOSIUM “CLEAN WATER OF RUSSIA”

The Symposium “Clean Water of Russia” was held in the Yekaterinburg city on May 18-20, 2011. It was organized by the Russian Federal Water Resources Agency and Russian Institute for Water Management in cooperation with the Administration of the Sverdlovsk region.

The event began with the exhibition “Clean Water of Russia”, where many exhibits that demonstrate the activities of firms and organizations aimed at the improvement of water supply and protection of water resources in the Russian Federation.

At the opening of the Symposium, WWC Board member Prof. V.A. Dukhovny welcomed all symposium participants with the WWC President Loïc Fauchon’s phrase: “The time of easy water is over! Now we have to struggle for both the possibility of thrifty water use and good quality of water sources which supply us with water”. It is nice that in the light of the orientation of the 6th WWF – Time for Actions – the ways to improve the Russian water sector and its watercourses as main water suppliers to the country’s population are demonstrated and discussed. It is essential to highlight the significance of not only the investment in water saving and sanitation but also establishment of new organizational forms of water management by means of public and public-private organizations that draw the water users’ initiative to water use management.

The draft Charter of Global Water Security recommended by the Tashkent Regional Conference for the presentation to the 6th WWF was introduced to the participants. The draft document was welcomed and regarded with understanding that water requires special ethics and rationality which always had been advocated by the people's traditions and all spiritual leaders of our nations.

Mr. Bart Fokkens, member of the preparatory European Campaign for the 6th WWF, told the participants about the activities of WWC and its commissions with respect to the preparation to the Forum.

There were three sections at the symposium: "Management, Use, and Protection of Water Resources in Dry Years", "Water Supply: New Water Treatment Technologies", "Industrial Water Supply and Wastewater Treatment".

The meetings were attended by the heads and deputy heads of Russian river basin water management organizations, as well as by a number of prominent Russian scientists. The great attention was given to the following reports: "Water shortage and its impact on water use security" (Prof. Alekseevsky, N.I., Moscow State University), "Planning water management measures in the basin and water management program development problems" (Mr. Merzlikitsky, Yu.B., Head of Department of the Russian Research Institute for Water Management), "Conceptual framework of planning water management measures in the EECCA countries" (Prof. Dukhovny, V.A., SIC ICWC, Uzbekistan), and others.

The Water Supply Section welcomed the preparation of the Russian Federation Law "On Water Supply and Sanitation" which provides for building of unified laws and regulations system that would regulate all aspects of the branch's activity. It includes a mechanism for optimizing the tariff regulation, promotion of investment inflow through a public-private partnership and concession agreements, and implementation of standards for effluents discharged into water bodies with applying the "polluter pays" principle.

RESOLUTION OF XI INTERNATIONAL SYMPOSIUM "CLEAN WATER OF RUSSIA"

Yekaterinburg city

18-20 May 2011

The "Clean Water of Russia" Symposium and exhibition were held in the Yekaterinburg city from 18 to 20 May 2011.

At the exhibition, forty firms and organizations presented their developments of water treatment and wastewater treatment technologies as well as control and measurement facilities. The Russian Federation was represented by ten regions and large-scale industrial centers. Foreign participants were also registered to take part in the exhibition. Over two thousand people attended the exhibition.

The Symposium was attended by more than 250 representatives of international and national organizations, including governmental, regional and municipal authorities, research and education institutions, production and technical enterprises, companies and firms engaged in the environment protection and natural resources use, public participations as well as water users from different regions of Russia (Moscow, Saint-Petersburg, Novosibirsk, Chelyabinsk, Kurgan, Tyumen, Rostov, Penza, Voronezh, Tomsk, Astrakhan, Chita, and Sverdlovsk Regions, Altai, Perm, Stavropol, and Primorye Territories, Khanty-Mansi and Yamal-Nenets Autonomous Areas, Bashkortostan and Buryatia Republics), former Soviet Union and other foreign countries (Byelorussia, Uzbekistan, the Netherlands, Czech Republic, Germany).

More than 110 presentations and reports were delivered at the Symposium; 80 ones of which were discussed at plenary sessions and roundtable meetings (sections). The themes of the roundtable meetings were as follows:

- Water resources management, use, and conservation under water shortage conditions;
- Planning of water management and water protection activities within river basin management;
- Water supply. New water treatment technologies. Drinking water quality.
- Industrial water supply. Wastewater treatment.

At the Symposium, they continued the practice of the conduction of special children's section, which includes summing up of previously conducted events (provincial stage of the Russian water project contest among upperclassmen, Clean Water lessons), and children and teen-agers' creative work exhibition "Water is a vital source of life".

For the first time the roundtable "The best current water management and water protection technologies" dealing with new approaches to the solving the problems related to the treatment of storm sewage from the areas of large towns and industrial enterprises was held within the Symposium.

In the course of the arranged technical excursion, the symposium and exhibition attendees became familiar with the up-to-date industrial storm water treatment system at the Berezovsk electrometallurgical works which ensures trouble-free operational recirculation and storm sewage sanitation.

Having discussed the delivered reports and thematic speeches, the symposium participants noted that rational use of water resources, maintenance of hydrologic balance at the regional and global levels, conservation and saving of water resources, improvement of water use system with for the purpose of reducing the quantity of fresh water use, modernization of water management infrastructure, implementation of

up-to-date water saving technologies in production cycle represent the issues that the life itself places on agenda at present and that require very close attention to and in-depth consideration.

Section “Water resources management, use, and conservation under water shortage conditions” considered the issues associated with the water resources management during low-flow period and research trends in that field. Eighteen reports were presented, six of which were key ones:

1. Shortage of water and its impact on water use safety;
2. Planning of the use of additional and alternative sources of water supply to large industrial hubs during low-flow periods.
3. Actions by the Basin Water Administration aimed to perform its functions during low-flow periods.
4. Specifics of the restoration of water bodies after low-flow periods.
5. Specifics of the water resources management and use under water shortage conditions in the Astrakhan region.
6. Effect of anomalous weather conditions on the water quality (study case of the Saratov water reservoir).

The section’s decision states as follows:

1. Water management institutions need to be improved. There is no a single water resources and water body management structure in the country. Management functions are distributed among different offices, which considerably impairs the management efficiency.
2. Reservoir water quality control, especially during the low-flow period, calls for the introduction of decision-making support system (DMSS) for modeling the processes running therein. It is necessary to disseminate the experience of Interagency Working Groups (IWG) on the control of water management system operation conditions for the optimization of reservoir operation during flood and low-flow periods.
3. Increased frequency and intensification of extreme phenomena call for special attention to the measures oriented to the adaptation of water management and water use to climate change. The reason for this is moral, social, and economic necessities. Failure to act may jeopardize the water management development and thus the social sphere and national economy.
4. Development of the governmental water management monitoring system is vital for water resources management: in particular, to provide with reliable information about the condition of water bodies when making managerial decisions, the hydrometeorological, hydrochemical, hydrological, and hydrobiological control stations should be combined. Building and organizational management of departmental monitoring network, with licenses given by the Russian Federal Service for Hydrometeorology and Environmental Monitoring to organizations, will allow increasing the volume of the information being collected, raising its accessibility and efficiency of the use for management. Riverbed evolution monitoring system must be developed.

5. Inconsistency of statistic information about the economic activity and imperfection of its contents make the development of forecasting water use in the basin difficult. Change of water resources caused by climatic changes is almost not forecasted because of the absent of procedural guidelines and relevant information. Nevertheless, lack of definiteness must not be the reason for inaction; twofold approach is recommended: immediate actions and further investigations.
6. Operation of water management systems in large towns without backup (alternative, standby) water supply sources is inadmissible. In the context of special urgency of this problem for the Yekaterinburg city, when forming backup drinking water supply sources it is necessary to take into account the capacity of the Obroshinsk deposit, which requires the completion of its exploration and construction of infiltration water withdrawal facilities.

Section “Planning water conservation and water management measures in river basin management” considered the issues of the legislative and methodological frameworks for planning water conservation and water management activities in river basins; implementation of unified approaches to the assessment of water body condition; setting of target indicators of river basin condition (including target water quality indicators); development of multipurpose river basin use and protection projects, their adoption and implementation, and practical application in planning; employment of mathematical modeling tools in the development of the plans of the actions aimed at the restoration of river basins and population protection from harmful water impact; approaches to the setting of regional water resources standards and forecasting of water use.

23 reports were delivered, 5 of which were key ones:

1. Conceptual framework of planning water management measures in Eastern Europe, Caucasus, and Central Asia countries (EECCA);
2. Process of planning water management measures in the basin and water management program development problems;
3. On methodological support to multipurpose river basin use and protection projects;
4. Issues related to the financial support to planned water management and water conservation measures;
5. Target water quality indicators as an instrument in the river basin management system.

The section’s decision states as follows:

1. Address the Ministry of Natural Resources and Environment of the Russian Federation with a request to:
 - Organize the works to prepare, approve, and apply in practice the following regulatory and guidance documents in the water conservation and water management measures planning:
 - State standard of basic terms and definitions used in the water industry.
 - Manual on the assessment of the environmental condition of the river basin.

- Guidelines for the specification of the target state of the river basin.
- Method of the assessment of water conservation and water management measures implementation effectiveness.
- Guidelines for the justification of the water conservation and water management measures financing sources.
- Regulations for the participation of territorial bodies in the development of the standards for acceptable impacts (SAI) and in schemes of multipurpose use and protection of water bodies (SMUPWB).
- Guidelines for the practical application of SAI standards.
- Unified forms for the presentation of SAI and SMUPWB development results.
- Guidelines for the development of the mechanism for effective implementation of design (planned) solutions of SMUPWB at the basin level.
- Develop and approve the SAI and SMUPWB coordination procedure, including state environmental impact assessment.
- Intensify the works related to the practical application of regional standards for water body quality in the water use rate setting and water conservation measure planning procedures.
- Conduct a research conference on the assessment and standardization of water body quality.

2. Roundtable participants noted inadmissible lags in the practical identification of water protection zone boundaries. The water protection zones in urban areas do not meet the legislative requirements. It is recommended to develop regulations for the toughening the requirements for the maintenance of water protection zones.

3. To ensure effective implementation of the mission of the Russian Federal Agency for Water Resources, it is necessary to build a state control mechanism according to the design principle of financing and carry out measures at non-departmental and non-functional levels (execution of water management and water conservation measures within a specific project).

4. Activate the works on the introduction of high-tech knowledge-intensive tools in the water resources management practice: surface and underground water hydrodynamics and quality models for solving practical tasks of water resources use and conservation.

5. Activate the works on the improvement of water resources management system personnel's skills in order to prepare specialists who are ready for using mathematic modeling tools.

6. Huge saving of material and economic resources can be achieved with integrated solution of water management problems on test fields with the purpose of continuous identification of general and specific regularities (science-based monitoring) and water resources quality change trends.

7. The current state of the environmental security of Russian water resources calls for undertaking urgent measures. To achieve sustainable environmental and economic development, social and environmental rehabilitation of water bodies and adjacent territories, integrated and regular ecological monitoring of representative water bodies by research institutions and centers is required; based on the results of which they would carry out complex analysis of the regional ecosystems' states, real-time forecast

of environmental situation, issue and implementation of the recommendations for on achieving environmental safety of water resources.

Adequate solution of these problems requires scrupulous monitoring of both water bodies themselves (takes as a whole with local and diffuse sources of pollution) and bottom sediments formed in water bodies. Working out and introduction of environmental standards is urgent. There were debates concerning maximum permissible concentration and regional standards:

- It is necessary to pay attention to the technical regulation in environmental security, development of environmental and economic water use mechanism that would ensure industry modernization and introduction of best available technologies (BAT).
- Establish common ecological space among different institutions for the monitoring of water bodies, bottom sediments, water protection zones, water management facilities, local and diffuse pollution sources; to this end, set up science-based monitoring network.
- Adopt uniform water bodies' environmental safety standards. (At present, the Russian Federal Consumer Rights Protection and Well-Being Surveillance Service has its own acceptability constants for hygienic standards and sanitary regulations & standards; State Fishery Committee has fishery standards (fishery maximum allowable concentration of agents); Russian Federal Service for Hydrometeorology and Environmental Monitoring. State water use supervision and control authorities prefer the standards of fishery maximum allowable concentration of agents despite the fact that the Water Code states the priority of the usage of water bodies for drinking and domestic water supply purposes).
- Use a uniform system of the quantitative chemical analysis of water and bottom sediment samples (environmentally harmonized with advanced worldwide one).

Section “Water supply. New water treatment technologies. Drinking water quality.” considered the issues associated with water supply, improvement of water use systems, modernization of water management infrastructure, introduction of promising techniques and ways of drinking water purification based on state-of-the-art achievements in the water treatment theory and practice. 16 reports were delivered at the section.

The section's decisions states the necessity of the following actions:

1. Widen the introduction of drinking water treatment innovation technologies with minimum usage of reagents (chlorine dioxide, ozone-sorption purification technology, aluminum oxychloride of different basicities, eco-solvent, etc.) and methods (ultrafiltration, nanofiltration, reverse osmosis, activated carbon and zeolite sorption, etc.). Environmentally friendly reagents must be used.
2. Advanced methods of laboratory inspection of water body, drinking and waste waters quality (organic carbon, electrical conductivity, etc.).
3. Speed up the introduction of up-to-date technologies for the enhancement of centralized surface domestic water supply sources (biological treatment of water bodies with using breakthrough technologies, etc.).

4. Use local post-treatment system to provide the population with good drinking water.
5. Save drinking water at all stages of its use by installing gauges, timely removal of leakage in water supply systems, replacement of pipelines, etc.).

Section “Industrial water supply. Waste water treatment.” considered the most effective engineering solutions in building industrial water supply and water disposal systems, issues related to the practical application of domestic innovation technologies of water treatment and wastewater purification by design institutions and enterprises. 90 representatives of design institutions and enterprises of the metallurgical industry of Russia and Ukraine took part in the section. 18 reports and presentations were delivered at the section.

Having heard and discussed the reports and presentations as well as speeches during the discussions, the workshop participants marked that the current situation in the water supply and water disposal system designing is characterized by the following:

- Absence of the national strategy for the water supply and water disposal sphere.
- Predominant use of foreign technologies and equipment, especially for large towns and large metallurgical works.
- Decline in the quality of research and design works, level of personnel skill, especially in the vocational education sphere.
- Lack of modern, high-tech equipment made in Russia on the market.

Certainly, the best available technologies (BAT) in the fundamental techniques of commodity production are essential for progress.

As for water resources conservation, the basic features that characterize BAT are as follows:

- Ensuring of circulating and closed water use cycle.
- Local neutralization of concentrated spent solutions of galvanic production without discharging into rinsing sewage flows.
- Application of technologies that destroy and extract ingredients that have contaminated sewage water in the process of production work.
- Application of the technologies of sewage water treatment without secondary pollution.
- Use of environmentally friendly reagents.

The assessment of the conformity of the water users’ water management and water conservation activities with the declared principles of the legislation should serve as the platform for the detection of reserves of irrationally organized water users.

The section’s decisions states the necessity of the following actions:

1. Develop and introduce the system of automated sewage water monitoring in terms of priority indicators with the view of improving the accuracy of enterprises’ reporting and responsibility for the performance of treatment plants.
2. Extend fundamental researches in order to solve complex managerial and engineering problems.

3. Prepare reference books on best available technologies in both the production technology and water resources conservation fields to ensure informational support for water users.
4. Rehabilitate the manufacturing capabilities in Russia to provide enterprises in all the branches of the national economy with up-to-date water treatment equipment.
5. Provide financial assistance to national producers of water treatment equipment.
6. Grant housing and community amenities organizations in urban and rural areas with permits to connect to water disposal systems provided they meet technical specifications and have settled the issues related to the storm water purification at individual or centralized treatment facilities.
7. In the course of the activity of the Interregional Association for the Implementation of Innovative Water Saving Technologies founded in the Ural Federal District, with the assistance of the Sverdlovsk Region Government, form a permanent working group composed of the representatives of authorities, science, and business for the purpose of coordination of the issues related to the installation of local waste treatment plants (LWTP) in the territory of the region.
8. In the regions of the Ural Federal District, conduct research workshops on wastewater treatment problems on a regular basis with the view of exchange of the experience in the practical implementation of modern wastewater treatment technologies in the Urals region.

Conclusion

The symposium participants proposed to organize an open permanent discussion forum on the website of the Russian Research Institute for Water Management for discussing topical issues associated with Russian water resources management, use, and conservation.

The symposium participants endorsed the initiative of the Network of Eastern Europe, Caucasus, and Central Asia Water Management Organizations regarding the adoption of the Global Water Security Charter at the 6th World Water Forum (March 2012, Marseille, France) and approved its draft version. The symposium participants supported the dissemination of the draft version text among water management organizations to discuss.

Having heard the address by the Executive Director of the International Network of Basin Organizations, Coordinator of the European Committee for the preparation of the 6th World Water Forum Mr. Jean-François Donzier (France) concerning the process of the preparation for the 6th World Water Forum, the symposium participants noted the necessity to intensify the activities Russian water management organizations and experts in this process, for this purpose it was proposed to request the Russian Federal Water Resources Agency to organize a Russian conference on the preparation for the 6th World Water Forum.

The reports presented and discussions held at the symposium have confirmed the topicality of the problems in the water management system, achievement of

sustainable water use with keeping ecosystems and protecting public safety and projects of the national economy from negative water impacts.

The results of the conducted Symposium and Exhibition indicate the remained interest of international and national organizations, management bodies, enterprises, companies, and firms for this regularly held event.

Considering that delivery of such an activity would promote the development of intersectoral, inter-basin, inter-state relations, extension of best practices, public information about the state of water resources, popularization of advanced achievements in water conservation, the symposium participants support the established tradition of regular (every other year) holding of the International Symposium and Exhibition “Clean Water of Russia” and suggest to hold the next Symposium in the Yekaterinburg city in 2013.

Conservation of water resources of Russia is our duty to the country and posterity!

MEETING OF THE EXECUTIVE DIRECTOR OF THE NETWORK OF EECCA WATER MANAGEMENT ORGANIZATIONS WITH THE LEADERS OF THE UKRAINE WATER SECTOR

On 25-26 May 2011, Prof. V.A. Dukhovny, visited the State Agency for Water Resources of Ukraine and met with the Agency Chairman Dr. V.A. Stashuk. He addressed the managerial staff of the Agency.

The Agency is doing a large amount of work aimed at the development of the Ukrainian water sector, by carrying out water and water relations management, operation of public water management systems and canals, including such unique as the North Crimean canal, Kakhovka irrigation system, Severskiy Donetsk-Donbass canal, and others. The Agency has 255 enterprises with the total staff of 32 thousand people, including 9 basin-wide and 16 regional water resources administrations, 21 provincial land reclamation and water management administrations, 25 hydrogeological expeditions, 5 irrigation institutes, etc.

Ukraine has 88 billion m³ of available water resources in average water year, 52 km³ of which present national resources. The Ukrainian rivers are represented by watercourses like Dnieper, Dniester, Southern Bug, Northern Donets, etc. 1137 water reservoirs with the total capacity of 55 billion m³ of water have been built.

The Agency has 39 water measuring laboratories at 495 sites where water quality monitoring is continuously carried out.

The Ukraine Government has approved the National Water Sector Development Program which is based on IWRM principles and includes a number of subprograms:

a) Support to land reclamation

In accordance with other subprograms, support and restoration by 2015 is to be ensured in order to restore all lost irrigated lands with areas of 2.2 million ha (to date 1.2 million ha are under irrigation) and reclaim land areas of 3.3 million ha. Currently, agrarian reconstruction is being carried out in the country, which will allow particular proprietors to have lands of up to 10 thousand ha as leasehold property. In this context, drip irrigation is being largely developed on an area that has now reached 54 thousand ha. The government pays for about half the costs by establishing a special one-percent tax on alcohol sales which is used for the special land reclamation fund and for subsidizing drip irrigation.

b) Securing centralized water supply to rural areas

There are 1323 rural settlements that use water transported from other areas under consideration, especially in the Lutsk and other western provinces. The subprogram on the construction of underground and local water conduits, water intakes, and water treatment plants is developed. Although funds allocated for these purposes are limited, the government is widely mobilizing its own funds and attracting donor investments to this effect.

c) Protection of rural settlements and agricultural lands from detrimental water impact

Under this subprogram, over 10 km of new protection dikes are constructed, 15-20 km of banks are protected, over 150 km of river bed are cleaned, tens of thousands of agricultural lands are protected on an annual basis.

d) Integrated flood abatement in the Dniester, Prut, Sereta, and Tisa river basins

This program provides of the construction of 2020 km of dams, 484 km of bank protection, and 1285 km of channel regulation by the year 2025. A special place within this job is given to automated information and measurement system "TISA" aimed at online forecasting, together with Hungarian specialists, of flood hydrographs in rivers; preparation of flood-control preparations and presentation to all concerned organizations. The system includes radio-relay communication between Uzhgorod (Ukraine) and Neredgaza (Hungary) which provides with two direct information canals; digital-speech communication for data transmission from automated measuring stations; the control panel located in Uzhgorod; and the automated hydrological and hydrometeorological data collection system.

One of the principal areas of the Agency's activity is collaboration with neighboring countries on transboundary rivers: with Russia (since 1992), Slovakia (since 1994), Moldova (since 1994), Poland (since 1996), Romania (since 1997), Hungary (since 1997), and Byelorussia (since 2001).

The Agency has established an excellent Training Center and Water Management Museum in the territory of the Bortnik Irrigation Systems Administration. The history of the Ukrainian water management and land reclamation development beginning from the late 19th century is represented in the Museum.

In the conclusion of the meeting, Prof. V.A. Dukhovny was awarded the Honorary Diploma of the Agency and Plaque of the Ukrainian Water Industry.

THE REGIONAL COORDINATOR'S WORK ON THE PREPARATION FOR THE SIXTH WORLD WATER FORUM

Marseille, 6-11 June 2011

On the invitation of the World Water Council (WWC), Prof. V.A. Dukhovny participated in the meeting of the Regional Commission for holding the Forum, meeting of the WWC members and session of WWC Board of Directors which were successively held in Marseille from 6 to 11 June.

The Regional Commission heard the reports of all regional coordinators about the works carried out for the preparation for the Forum.

The Regional campaign in the Americas (Coordinator Roberto Olivares) is successfully going on. It is conducted mainly through financing by countries themselves and includes sufficiently interesting events. For example, Coordinator organized the survey of over 500 parliamentarians from different states of the continent regarding what, in their opinion, were the main problems of water access in their countries. Then a meeting workshop was held concerning the issue of the enhancement of the parliamentarians' participation in ensuring of the right to water at different levels, as to what types of measures are specific and what types can be adopted under any condition. The large-scale work related to the involvement of city mayors in the activity aimed at the accession to the Istanbul Water Consensus is carried out. The work with Target groups determined under the direction of the Regional Coordinator has started.

Head Coordinator of the European Coordination Group Mr. Jean-François Donzier (France) reported about the execution of the preparatory works, held subregional meetings in Bulgaria, in Istanbul, organized exchange of views between the Target Groups. In total, 12 target groups were set up in which Central Asia representatives too are supposed to take part according to the agreements with the European Coordinator. In particular, the Network of EECCA Water Management Organizations, EC IFAS, and SIC ICWC take part in the Improvement of the Transboundary Cooperation in Europe Group; the Network of EECCA Water Management Organizations is involved in the Achieving Good Environmental Status in European Waters Group. The

representatives of Central Asia together with those of Russia and Caucasus will participate in the final meeting of the European Supervisory Committee in Nice (France) in December 2011. The Regional Coordinator seeks funds for the organization of relevant subregional events in Russia and Caucasus.

The Asian regional process has substantially fallen behind because of the earthquake in Japan; however, the first regional conference under the auspice of the Asia-Pacific Water Forum is going to be held in Bangkok in June. Ms. Noriko Yamaguchi demonstrated the well-elaborated long-term plan of target actions going long after the year 2012. The regional directions and relevant targets (6 positions) were as follows: Household Water Security; Economic, Food, and Water Security; Urban Water Security; Water and Environmental Security; Water Risk; IWRM. It's interesting that the Asian priorities even did not have to do with energy issues.

The report by Prof. V.A. Dukhovny prompted no question. Ms. E. Park, Leader of the Regional Commission, proceeding from the information from the South Korea Ambassador to Uzbekistan highlighted the high the level of organization and excellent holding of the Tashkent Conference; the European Coordinator, who was present at the Conference, backed her up, but also marked the difficulty to reach a consensus between countries in the issues related to transboundary water resources use without strong political support. The resulting document of the Conference was distributed among the Commission leaders as well as to the World Water Council and International Forum Committee Presidents.

The representatives of Africa have not yet started their main job.

In conclusion, future actions were discussed. The Regional Commission set the following tasks: submit a summary report of at most 500 words by 24 June 2011; substantiate target directions; discussions of conceptual notes in future must be carried out in the form of actions plans including steps of particular planned stages; collect all successful case studies (of existing and new solutions) and coordinate proposed goals with each other before October. After July, proceed to the collection, synthesis, and substantiation of the Solutions Platform and prepare an appropriate report on each goal.

On 8 June 2011, meeting of WWC members was held. About 100 people, WWC members, were invited, and the majority of Board members attended it.

Four reports were planned to be presented according to the program: by Ms. Helen Mountford, Deputy Director of the Organization for Economic Cooperation and Development (OECD); Mr. Thomas Stratenwerth, Head of Department of the Federal Environment Ministry of Germany; Ms. Yang Jiao, Deputy Minister of Water Resources of China, and finally Minister of Water Resources of Tajikistan Mr. Bobokalonov, R.B.

Ms. Helen Mountford, Deputy Director of OECD Environment Directorate, informed that OECD had prepared the report Environmental Outlook to 2030 and presented its "green strategy" to the Council of Finance Ministers of the OECD countries. In both documents, the authors proceed from the assumption that in 20 years 47 % of the world population will live under high water stress conditions and that the Millennium Goals as it pertains to water supply and sanitation cannot be achieved with existing

trends. Presupposing that water is a mechanism for the development of countries and particular areas, given there is lack of capital investment, such a situation causes worry and threatens with great losses. For example, for the last 10 years in the BRIC countries (Brasilia, Russia, India, and China) the number of people who faced water stress with different consequences has almost doubled. Underestimation of the water sector development takes place all around, which, in the final analysis, will lead to dramatic worsening of the overall sustainability of the OECD countries.

Ms. Helen Mountford recommended becoming acquainted with the report published on the website www.osd.water.helenmautford. The Council of Finance Ministers is supposed to discuss the report in Paris on 26-27 September. Furthermore, OECD has prepared a series of reviews of the world experience in water governance: Drinking Water Supply and Sanitations; Agricultural Water Management.

Mr. Thomas Stratenwerth, Head of Department of the Federal Environment Ministry, presented the program of the Bonn Conference 2011 to be held on 16-17 November 2011 as the preparation for the 6th WWF and named "The Water, Energy and Food Security Nexus: Solutions for the Green Economy". The Conference focuses on understanding the interdependence of these three areas and will be conducted under the auspices of the Chancellor of Germany Angela Merkel. It is expected that the Bonn Conference will outline the world community's target for reducing total water consumption for irrigation by 10 %. At the same time, water deficit between water consumption and resources expected to take place in 2030 on a global scale will come to 40 %. This threat is going to be voiced at the Conference along with the warning that water will be a shock factor for developing countries and countries in transition, that it will keep people poor and further threat to ecosystems will rise. The fact that the Conference intends maintaining the economic compromise between three security sectors is dangerous enough, although it is stated that the Conference will try to achieve interaction between energy, food, and environment on a more economically efficient basis. This is a very problematical postulate because growing electric power prices will always make water usage for energy production more efficient than for irrigation. At the same time, the Environment Ministry of Germany is fully aware that by 2050, according to their data, global food demand will increase by 70 % and it will be impossible to meet this requirement without irrigation.

The speech by the Deputy Minister of Water Resources of China Ms. Yang Jiao was very interesting. Along with the ongoing expansion of irrigated areas and building of large hydraulic structures for flow control and flood control with *simultaneous* generation of power, the Ministry finds it possible to equalize the water supply level throughout the country by runoff diversion as the main direction of the China water management development.

Speech by Mr. R.B. Bobokalonov at the meeting of the World Water Council members on 8 June 2011.

First Mr. R.B. Bobokalonov expressed gratitude for being invited and began his speech with big words that the world community is faced with the need to develop new mechanisms for water resources management and use. In this context, Tajikistan is an initiator of a number of water initiatives proceeding from the necessity of constructive decisions on efficient water resources use. The Conference “Water for Life” held last year is an example of such actions. The international community supported the Tajikistan President’s initiatives, including the one for declaring 2013 as the International Year of Water Cooperation. How does this matter stand in Central Asia?

More than half of the regional water resources, 64 km³, is formed in the territory of Tajikistan, of which we use less than 20 %. The rivers of our region are of international nature and the Agreement of 1992 laid the groundwork for cooperation in respect of those. The Interstate Commission for Water Coordination was founded, and International Fund for Saving the Aral Sea was established in 1993. that secured stable provision with water resources and conflict-free situation in the region. The essential condition consisted in that all the countries of the region must limit their requirements.

Under the conditions of growing water deficit, the existing institutes and arrangements cannot ensure reactions to current challenges. Water demand is rising because of the development of all the countries and growth of their population. At the same time, deglaciation is gathering pace. These trends alarm all the peoples in the region.

The issue of water and energetic resources use under the severe conditions of their shortage causes difficult living conditions in the Republic of Tajikistan. The main problem is weak cooperation and lack of will at the political level.

We fully agree with the principles of the international water law, but in our opinion it should provide for the solutions of the energetic problems in Central Asia which currently are left unconsidered. The forthcoming 6th WWF sets an important goal of the harmonization of the regional countries’ policies. Unfortunately, the conference held in Tashkent did not take into consideration the hydropower industry’s demands for water, therefore the Tajikistan and Kyrgyzstan representatives disputed the resolution offered. We support 12 main thematic directions of the Forum and believe that only in cooperation with other countries of the region we can find a proper solution consisting in combination of water and energetic issues.

In addition, at the WWC meeting the report by Kenneth Reid presented the results of the survey carried out among WWC members concerning the future activity of WWC. At present, 348 organizations are WWC members. The highest number of members was reached in 2008 – 386 organizations. The majority of the Council members represented by water management and associated enterprises (38 %); governmental and public enterprises account for 24 %; 23 % are professional bodies and academic institutes, and civil society organizations and WUAs make up 12 %. The results turned out very interesting. Most respondents expressed their discontent with the level of rank-and-file Council members’ awareness about the work of both the WWC Board of Governors and especially its Bureau. The WWC Bureau seems uninterested in being

involved in the distribution of its influence over WWC. Moreover, WWC was established as a center of thinking leaders of the global water movement in order that to make directed forecasting of water situation and, at the same time, bring this opportunity to the notice of active WWC members and organize through them appropriate activities worldwide. This work is not being carried out at all, which was the reason for the dissatisfaction of many participants. Nearly half of the respondents show interest in strengthening and improvement of the water policy at different water hierarchy levels: 37 % are for IWRM development; over 30 % are for the settlements of the issues related to river basin management, climate change, water quality, and capacity building.

60 % of those interviewed from among the Council members consider it necessary to strengthen the level of communication and participation of rank-and-file members in the WWC activity, and 87 % of those think that their potential is not used sufficiently. Opinions like the following are typical:

“Knowing the WWC role in the organization of the Forum, I nevertheless would like to see the enhancement of the WWC capacity in the issue of the Forum when working with its members on priority global directions”.

In the end, a survey among the participants was carried out with regard to expected outcomes of target directions of the World Water Forum.

Summarizing the results of the the WWC events, it is necessary to emphasize again the deficiency of our water-political activity, since being real leaders in water achievements and drawing interests to our works on a global scale, which was convincingly demonstrated by our Conference, we are inferior in many respects to our rivals and competitors in the establishment of political support to our country at the international level.

On June 9-10 2011, WWC Board of Governors meeting was held. The Board was presented a report about the participation of local organizations in the dialogue on the improvement of water supply conditions. On the proposal of Ms. M. Pageler, some cities and regions, Sao Paulo, Incheon, and Lake Victory, which had made significant progresses and adapted to changing conditions. The meeting of local organizations was conducted just before the Council meeting in Lyons on 30-31 may 2011. Its aim was to increase the number of the Istanbul Water Consensus signers and prepare proposals for the 6th Forum. The notes for the organizers of the event pointed that unfortunately despite the Regional Commission informed about that event, the request concerning the invitation of at least one representative from every country to the meeting of city mayors to be held in Lyons was denied by the Commission. The same situation was in relation to parliamentarians. An interesting report was made by the Japan representative Mr. Ione regarding the minimization of the natural calamities related risks. He made the chronology of the events that took place in 2010-2011. In 2010, the flood in Pakistan in August impacted the lives of 250 million people. On 21 September 2010, there was a flood in Korea, in January 2011 in Brazil, in January 2011 in South Africa, and in the same month in Australia. The tsunami in Japan claimed the lives of 27 thousand people! Overall damage was caused to more than 1.5 million enterprises!!!

The discussion of the Water Right issue was reduced to the rights for water for drinking and sanitary. A question was raised again: when we begin dealing with the rights for water for food production. Although Mr. L. Fauchon seemed to supported that proposal, but nothing more was done further.

The candidatures of the countries for hosting the 7th World Water Forum were discussed. Out of the seven previously offered candidates, three remained: South Korea (Incheon), Abu Dabi, and Scotland (Glasgow). A commission was set up to organize bidding among those three countries.

The report of the International Forum Committee on financing the 6th WWF caused hectic discussions. The French party assigned more than 8 million euros less than the amount committed under the contract with WWC, i.e. 30 million euros. Thus, WWC payments were paralyzed, and the Regional Process received 2/3 funds less. The prepared resolution with sharp criticism and providing no showings of the French party drew objections of some French colleagues. It was proposed to prepare a comparison between WWC-Ministry of Finance contract and the fact.

As a participant of the four preceding Forums, in his speech Prof. V.A. Dukhovny compared the preparatory works of all the Forums with the current one. The situation is such that the plan of the establishment of a special organization on principles of parity, International Forum Committee composed of representatives of WWC and France, as was proposed by the WWC Bureau, ended in a fiasco. Previously all the Forums were organized by the ministries which were entrusted by the relevant Government and WWC with holding a Forum. Those ministries or bodies through the efforts of their own personnel, without additional hire, used to organize a Forum: for instance, the Netherlands Water Partnership in Hague in 2000, Secretariat of the Ministry of Foreign Affairs of Japan in 2003, Mexican Water Agency in Mexico in 2006, and the Ministry of Environment and Forestry in Turkey in 2009.

Here the new staff composed of the representatives of different ministries and institutions of France as well as representatives of WWC Board of Governors, who have also other jobs, virtually failed to place the required work on broad footing. As compared to the Japan Water Forum, which was the best in terms of both the level of preparation campaign and holding, this Forum is considerably behindhand. Many issues have not been settled: still there is no a schedule of events; registration of the participants has not started yet; the venues of the events have not been clearly defined yet; the political process is by no means clear and in fact it is not yet dealt with. The Board prepared an address to the Government. It was proposed to postpone the Forum for a few months in order that to avoid failure.

Mr. Fauchon assured the participants that he and Mr. Ben Braga together with Mayor of Marseille would undertake required measures to eliminate such a discreditable situation with the French Government and inform the Board members.

CAPACITY BUILDING IN THE INTEGRATED WATER RESOURCES MANAGEMENT AND PLANNING IN CENTRAL ASIA

As is well-known, SIC ICWC of Central Asia together with the Institute for Water Education - UNESCO IHE - Delft, Netherlands implements the project «Capacity Building in Integrated Water Management and Planning in Central Asia». One of the project objectives is to develop the water training system in the five Central Asian countries.

In 2010-2011, a number of regional workshops for preparation of national trainers (the so-called training of trainers) was held with the support of leading experts of the foreign partner (Institute for Water Education) and using the capacity of SIC ICWC Central Asian. The workshops were focused on the following four directions:

- Block № 1. Integrated Water Resources Management (IWRM),
- Block № 2. Improvement of Irrigated Agriculture (IIA),
- Block № 3. International Water Law and Policy (IWLP),
- Block № 4. Regional Cooperation in Transboundary Rivers (RCTR).

The block leaders (regional trainers) - leading experts of SIC ICWC - have developed training programs, training modules, and the package of training stuff for each block.

The next step of project activity in part of training is holding of national training workshops in each of the five states in the region.

First series of national workshops was held in Uzbekistan during 12-21 September 2011. The workshops were organized by the Central Water Resources Administration (CWRA) of the Ministry of Agriculture and Water Resources (MAWR) of the Republic of Uzbekistan (RUz) with the support and assistance of SIC ICWC.

The topic of national workshops – «Organization of hydrometry, planning of water use, and improvement of WUA activities» fitted the subjects of several modules in the Block № 1 (IWRM) and the Block № 2 (IIA).

Taking into account regional characteristics and in order to reduce number of trainees covered in one workshop, the training was conducted in:

- Tashkent – 12-14 September 2011,
- Samarkand – 15-17 September 2011,
- Fergana – 19-21 September 2011.

The trainees (“target” audience) included middle and lower level specialists from territorial units of MAWR RUz, namely:

- heads and chief officers of water resources divisions at the Basin Irrigation System Administrations (BISA) and Irrigation System Administrations (ISA), hydrometry

specialists of ISA, representatives of farms, Water User Associations (WUA), and local units of water inspection.

Trainees from Tashkent, Syrdarya, Dzhizak, and Khorezm provinces and the Republic of Karakalpakstan received training in Tashkent.

Trainees from Samarkand, Kashkadarya, Bukhara, Navoy, and Surkhandarya provinces received training in Samarkand. Trainees from Andizhan, Fergana, and Namangan provinces got training in Fergana.

Thus, training covered the respective audience from all territorial (basin) units of CWRA MAWR RUz.

In conducting the national workshops in Uzbekistan, SIC ICWC Central Asia gave assistance to CWRA MAWR RUz in part of direct training - lectures, practical exercises - provision of training materials (hand-outs) - lectures, presentations, etc.

The Deputy Minister, Head of CWRA MAWR RUz Mr. Khamrayev Sh.R., as well as representative of MAWR in Andizhan province (referred to as VAKIL) Sultanov S. took part in the national workshop in Fergana.

The Head of CWRA MAWR RUz in his speech underlined the exceptional importance of training workshops for capacity building in the national water sector. Since the Fergana workshop was final in the series of the three national workshops, the head of CWRA virtually gave the assessment of both quality of national workshops and the training stuff, according to the workshop subject themes – water measurement, water use planning, and development of WUA and contractual relations.

The regional trainer – leader of the Block 1 (IWRM) – Mr. Mirzaev N.N. took part in the national workshop in Samarkand.

The regional trainers and leaders of the Block 1 (IWRM) - Mr. Mirzaev N.N., the Block 2 – Horst M.G., and the Block 3 – Rysbekov Yu.Kh., as well as the national trainer from CWRA MAWR RUz Mr. Akhmadjonov V. , who was trained during training of trainers (regional workshops), took part in the national workshop in Tashkent.

The national coordinator of IWRM-Fergana Project Mr. Umarov Kh.U. and invited lecturers, mainly from SIC ICWC, or leading experts of the projects implemented by SIC ICWC (such as IWRM-Fergana, etc.) participated in all workshops.

Lectures, practical exercises and academic hours (AH)

Lecture 1: «Water resources use in the Republic of Uzbekistan, performed reforms and adoption of market principles in the water sector» (1 AH).

The trainees were acquainted with the institutional structure of water resources management in Uzbekistan and the performed water reforms.

Lecture 2: «Law of the Republic of Uzbekistan about water and water use: last amendments and additions; improvement of legislation» (1 AH);

The trainees were presented the main amendments and additions in the national law 1993 about water and water use that were made in December 2009, among which are giving the status of non-governmental, non-profit organizations to WUA, establishing WUA primarily by using the hydrographic principle, etc.

Lecture 3: «WUA: status, rights and obligations, interaction with governments and administrations, with state water organizations and other physical and legal entities; WUA capacity building» (1 AH);

The lecture was dedicated to strengthening of contractual relations and contract discipline by both farmers and WUA and other contractors, including local authorities. In particular, such issues as achievement of WUA's financial sustainability and collection of service fees were discussed.

Lecture 4: «Current situation in water accounting at hydraulic structures» (1 AH);

Lecture 5: «Methods and ways of water measurements, calibration, and calculation of measurement error at gauging station and other measuring points» (2 AH);

Lecture 6: «Ways to improve water accounting and recommendations for hydrometry specialists of Basin Irrigation System Administrations (BISA) and of ISA» (2 AH)

Lectures 4-6 were key ones in context of the main topic of the workshop; they addressed both general and specific problems, including technical issues that followed directly from titles of the lectures.

Main conclusions from lectures 4-6:

- equipping of gauging stations with relevant devices (gauging rods, auxiliaries, etc.) is satisfactory at regional level. The error of flow rate measurement is within 5%;
- equipping of gauging stations at national level is also satisfactory. The error of flow rate measurement at these stations is within 5%;
- At local scale, water accounting at inter-farm level is satisfactory; however, it is poor at the on-farm level. Equipping of secondary and lower level canals with meters is 25 - 30%.
- Hydrometry professionals are still available in water-management organizations of the republic and their experience is important to transfer. This can be promoted by the system of special training and professional development;
- So far many experienced hydrometry specialists have young assistants, who still work only thanks to persuasion of their mentors and enthusiasm;
- The available stock of current meters is deteriorated and obsolete; it was not renewed for more than decades;

- Repairs and scheduled calibration of current meters are made irregularly and poorly that damages the meters.
- Hydrometry positions and departmental metrological services were given up in a number of organizations. This has negative effect on state of affairs in water accounting and on staffing with young specialists;
- There are no special normative documents in national language on calibration, certification, and verification of gauging stations located along main canals. These documents should be registered in the state registry of National Standards Agency, authorized for use, and disseminated among all territorial water-management organizations.
- There are no special MAWR-approved normative documents in national language on siting, type, and construction technology of standard water measuring facilities recommended for canals and to be operated by WUA.

Practical exercises indoor and in the field improved knowledge of hydrometry specialists from water-management organizations, especially regarding application of modern technologies for plotting of discharge-level curves, search of relationships between these parameters, etc. Capabilities of computer technologies were demonstrated using real data from BISA.

Lecture 7: «Planning of water use and application of management information systems for planning of water use in irrigated agriculture» (1 AH).

Lecture 8: «Methods and technique of water distribution in WUA's irrigation systems. Daily planning of water use in WUA» (1 AH).

Lecture 9: «Online coordination of water management among Main canal administration – WUA – water users. Adjustment of daily water distribution schedules in WUAs under conditions of water» (1 AH).

Lectures 7-9 were dedicated to the complex issue of water use planning under growing number of water users and consumers within specific area, as well as to various approaches in water distribution theory and practices, especially under conditions of finiteness of water source.

Lecture 10: «Institutional aspects of water conservation and water accounting in CAR, transition from hectare- to volume-based method of water accounting in WUA (case-study of IWRM-Fergana project) - problem based lecture (2 AH).

Lecture 11: The results of transition from hectare- to volume-based method of water accounting in WUA (incl. practical exercises) (1 AH).

Lectures 10-11 were problem-based and accordingly gave rise to heated discussion among the trainees, since they were divided into advocates of hectare-based (volume-based) accounting of water, which is widespread, and supporters of direct water

accounting, which is not organized adequately in WUAs and farms due to their poor equipping with water meters.

As a whole, the idea of lectures 10-11 implies gradual transition to volumetric method of water accounting, irrespective of degree of equipping of field delivery points (FDP) with water meters. Moreover, a need for improvement of equipping of farm and WUA FDPs is still on the agenda.

It is important to continue building gauging stations in FDP, first in places, where farms are able to provide good water accounting.

The following interrelated issues were discussed during the workshops as well:

- Place and amounts of service fees in WUA's budget,
- Penalties for above-limit diversions in WUA.
- Procedure for measuring volume, receiving-transferring water, and payment for hydrometry services,
- Causes of over-diversions by farms and establishment of facts, especially in case of hectare-based accounting of delivered water volume,
- Responsibility for maintenance of water accounting points if gauging stations are available,
- Some «monkey business» of both hydrometry specialists and those who receive water in misrepresenting the actually received water of farms and WUAs in reporting, and methods for identification of such cases in order to prevent and avoid them; etc.

In total, 14 AH of lectures were planned under the training program, including 1 AH for testing of learned material (see point 4 below).

Other training and assessment methods

Each workshop included the following training and assessment methods:

- Classroom-based testing of learned theoretical material on hydrometry in order to assess learning degree (questions and answers by trainees, correction by teacher) (1 AH).

The classroom-based testing was made by the key lecturer of the main workshop topic (water accounting) Mr. Masumov R., according to the scheme «lecturer-trainees»;

- General discussion, interactive dialogue on water use planning and water accounting in irrigated agriculture.

The discussion and dialogue addressed a wide circle of issues on the topic. All lecturers took part in the discussion, according to the scheme «lecturers-trainees»;

- Field visits, field exercises on hydrometry, testing of learned skills, summary.

Before field visits, special instruction was given by Umarov Kh.U., Masumov R. from SIC ICWC, as well as by the representative of BISA, on which area the water body was located.

Field exercises for training in discharge measurement under field conditions and consolidate the acquired skills were organized in the following sites:

- Tashkent workshop: head gauging station at the Kal'kaus canal of Chirchik-Akhangaran BISA - 14 September 2011,
- Samarkand workshop: water measuring points at two canals of Ok-Karadarya waterworks facility (Kurbanobod canal and CMK canal) – 17 September 2011,
- Fergana workshop: head gauging stations at two main canals of Besh-Olish waterworks facility – 21 September 2011.

Several autonomous (work) groups on water discharge measurement were set for the exercises. Upon completion of work, the results were assessed and differences in accounted water volumes were analyzed if they exceeded permissible measurement errors.

Lecturers and reporters:

1. Khamrayev Sh.R. – Deputy Minister, Head CWRA MAWR RUz.
2. Umarov Kh.U. (SIC ICWC Central Asia, national coordinator on Uzbekistan under IWRM-Fergana Project) – invited lecturer (all 3 workshops).
3. Masumov R. (SIC ICWC Central Asia, IWRM-Fergana Project) - invited (key) lecturer-trainer (all 3 workshops).
4. Alimdjanov A. (SIC ICWC Central Asia, IWRM-Fergana Project) - invited lecturer (all 3 workshops).
5. Irgashev I. (SIC ICWC Central Asia, IWRM-Fergana Project) - invited lecturer (all 3 workshops).
6. Mirzaev N. (SIC ICWC Central Asia, IWRM-Fergana Project) - regional trainer, leader of Block 1 (IWRM), invited lecturer (Tashkent, Samarkand).
7. Rysbekov Yu.Kh. (SIC ICWC Central Asia) - regional trainer, leader of Block 3 (IWLP), invited lecturer (Tashkent workshop).
8. Saymatov D. (Syrdarya-Sokh BISA, IWRM-Fergana Project) - invited lecturer (Fergana workshop).
9. Akhmadjonov V. (CWRA MAWR RUz), national trainer (Tashkent workshop)
10. Burkhonjonov B. (CWRA MAWR RUz), lecturer (Samarkand workshop).

Representatives of respective basin units of CWRA also spoke at the workshops. For example, the Head of Sokh-Syrdarya BISA Mr. Rakhmatullaev A. and representatives of Andizhan, Namangan, and Fergana provinces addressed the audience of the Fergana workshop. The deputy head of Zeravshan BISA Mr. Jumaev A. and representatives of respective provinces spoke at the Samarkand workshop.

Totally, more than 130 specialists, including lecturers and other participants took part in the three national workshops, of which:

- in Tashkent – 45,

- in Samarkand – 47,
- in Fergana – 39.

The following number of specialists got training and was awarded certificates (trained group):

- Tashkent (12-14 September 2011) – 34 specialists,
- Samarkand (15-17 September 2011) – 37 specialists,
- Fergana – (19-21 September 2011) – 28 specialists.

In total, 99 specialists got training at the national workshops.

Information about the national workshops held under the Joint UNESCO-IHE and SIC ICWC project:

During the national workshops, the participants were presented brief information about the joint UNESCO-IHE and SIC ICWC project “Capacity Building in the Integrated Water Resources Management and Planning in Central Asia”, its goals and main objectives, including in part of training by:

- Umarov Kh.U. (Samarkand and Fergana workshops),
- Rysbekov Yu.Kh. (Tashkent workshop).

The current situation in the area of interstate water relations in context of improvement of regional transboundary water cooperation was presented to the trainees of the all workshops in form of questions and answers (particularly, regarding Roghun HPP, Sarez lake, etc.).

The participants thanked the initiators of this joint workshop - the Institute for Water Education UNESCO-IHE and the SIC ICWC Central Asia - and underlined the importance of such training for capacity building of trainees.

Organizational arrangements for the national workshops were made by staff of the Training Center and other staff of SIC ICWC CA in collaboration with responsible representatives from CWRA MAWR RUz during August-early September. Commitment and all-round-support by the leaders of CWRA MAWR RUz and SIC ICWC led to successful implementation of this process.

The national workshops held in Uzbekistan showed that the body of regional and national trainers, as well as of lecturers prepared within the framework of the joint SIC ICWC and UNESCO-IHE project is able to conduct training independently at high professional level.

These workshops also showed that the well-thought-out program of some Blocks («IWRM», «IIA», «IWLP», and «RCTR»), especially their division into thematic modules allow not only covering specific questions as was the case in this instance but

also teach them in autonomous regime and with great benefit for the selected target audience.

As was mentioned above, the leadership of CWRA MAWR RUz and the heads of its territorial units gave high assessment to the workshops.

The officials of Central Water Resources Administration and its territorial units have stressed that besides an importance of such training workshops dedicated to various aspects of IWRM, it was necessary to develop a system of training in order to meet demands for special education at different water hierarchical levels.

It is suggested that the system of training as developed under the project may replace the earlier existing system of professional development and retraining in the water sector.

One may say with confidence that the national workshops held in Uzbekistan and the training approaches (used in training blocks and modules) developed by SIC ICWC together with their foreign partners provoked real interest of both the government represented by CWRA MAWR RUz and the trainees.

At present, organization of similar national workshops is underway in Kazakhstan, Kyrgyzstan, Tajikistan, and Turkmenistan.

Agreement in principle and interest in organization of national workshops was reached from the first persons of National water agencies in all mentioned four countries.

In particular, a member of ICWC Central Asia - the Chairman of the Committee for Water Resources at the Ministry of Agriculture of the Republic of Kazakhstan (CWR MA RK) has given his consent to organization of workshop in Kazakhstan.

The Chairman of CWR MA RK in respective letter to the Director of SIC ICWC appointed the Director of the Kazakh branch of SIC ICWC Mr. N.K.Kipshakbayev (national trainer), who was trained at regional workshops under the joint SIC ICWC and UNESCO-IHE project, responsible for organization of this workshop.

WATER QUALITY IN CENTRAL ASIA

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

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

The following reporters delivered their reports:

- Beglov I.F. (SIC ICWC, Uzbekistan) – Water and environmental knowledge portal in Central Asia - CAWater-Info
- Nazariy A.M. (SIC ICWC, Uzbekistan) – Analytical tools of CAREWIB
- Gapparov B.Kh. (SIC ICWC, Uzbekistan) – CAREWIB Information System (IS) on water and land resources in the Aral Sea basin

The following materials were distributed among the participants:

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

The development of regional information exchange has become one of the most important elements of water resources and ecosystem management improvement at the regional, national, and provincial levels. ICWC paid great attention to the use of many available tools in the region that help establishing exchange of information among different stakeholders and are suitable for different conditions and groups of actors. Thanks to the good will and support from all ICWC members, the portal and IS developed under the CAREWIB project are the unique information products having no analogues throughout the Central Asia.

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

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

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

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

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

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

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

As the main outcome of the workshop we may consider the involvement into information exchange of Kazhydromet, Kyrgyzhydromet, and Tajikhydromet that will provide information on water quality, yet beginning with the three pilot rivers and later on expanding the coverage, for the regional CAREWIB IS. Thus, capacities and capabilities of both CAREWIB IS and the CAWater-Info portal as a whole are expanding.

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

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

MARSEILLES PACT FOR BETTER MANAGEMENT OF NATIONAL AND TRANSBOUNDARY BASINS¹

Gathered in the city of Marseilles in March 2012, we, representatives of river, lake and aquifer basin organizations, from different parts of the world, subscribe to the present **PACT OF MARSEILLES FOR IWRM AT BASIN LEVEL** in view of the development of integrated water resources management at national, regional and transboundary level to meet the challenges of the planet.

PART I – Declaration and call for action of basin organizations

Through our commitment to this Pact, we recognize that:

It is becoming extremely urgent to introduce new forms of governance, such as those that were recommended on various occasions at Dublin(1991), Rio (1992), Paris (1998), The Hague (2000), Johannesburg (2002), Kyoto (2003), Mexico (2006) and Istanbul (2009);

It is suitable to reinforce cooperation between States sharing a common basin, through basin organizations, in view of reaching Millennium Development Goals and addressing global changes linked to population growth, changes in eating habits,

¹ Draft version

migrations and urbanization, economic development, climate change and its impact on water resources;

Concerted management at river, lake and aquifer basin level, national and transboundary, is a necessity to ensure peace and sustainable development, eradicate poverty, guarantee ecological balances; river, lake and aquifer basins are the relevant territory for the organization of integrated management of water resources, ecosystems, and all activities impacting on water;

Harmonizing policies and legislations and implementing regional programmes of common interest is a prerequisite to improving water resources management, at national, regional and transboundary level;

It is necessary to create or reinforce funds dedicated to financing actions in the water field,

It is useful to have and reinforce the federating framework of basin organizations at global and supra-regional level, in order to support bilateral and multilateral initiatives in their field of competences

Along with our commitment as representatives of Basin Organizations, we call on our national governments and international organizations to ratify the 1997 UN convention on transboundary basins management.

We call for our national governments and international institutions to:

Support a process of integrated water resources management based on basins in each country and region where water is shared between different States;

Elaborate, through a transparent and concerted process, management plans, Basin Master Plans, in order to define objectives to be achieved in the medium and long terms;

Draft action plans and programmes of measures addressing basins' economic, social and environmental priorities;

Implement the priority actions required in the water, sanitation, energy, health, agriculture and biodiversity sectors, in order to contribute to sustainable development and poverty alleviation.

In each basin and in collaboration with data producers and managers, organize harmonized and integrated information systems for observation, collection and follow-up of reliable, representative and accessible data and information:

Value the role of regional cooperation institutions in harmonizing water policies and legislations, and in elaborating and implementing action plans in the water sector and in other fields linked to water,

Mobilise financing resources to carry out these governance reforms and implement action programs developed,

Value water and ensure economical use of this resource by encouraging the use of unconventional resources (reuse of treated wastewater) and artificial recharge for sustainable development.

PART II – Commitments of Basin Organizations

Recognizing the urgent need of developing strategies, management plans, efficient programmes of measures, and performance indicators allowing a sound assessment of public policies, we, representatives of basin organizations, signatories of the **PACT OF MARSEILLES FOR IWRM AT BASIN LEVEL**, express our political will to address the challenges, from now on to the extent of our prerogatives;

We are fully committed to act for improving water governance, facilitate the creation of basin organizations where they do not exist, reinforce existing ones, and help decision makers to orientate policies toward sustainable water management .

This commitment is made in the hope that national governments and international organizations acknowledge the essential role of basin organizations in sustainably managing water resources and implementing sectoral priority adaptation measures and launch the necessary political and institutional reforms.

In order to fulfill our commitment, we will take the necessary actions to:

Develop a sustainable, integrated, participatory approach of water management in our basin

Launch the following actions in our region or in support to other regions on the basis of the guidelines mentioned in the annex:

- diagnostic of the existing governance and proposals for reforms, including the creation of basin organizations, targeting in particular the challenges linked to climate changes and the potential threats faced by the basin resources at medium and long terms
- assessment of the situation and elaboration of action plans for strengthening data and information management and enhancement at the national and basin levels
- analyzing the situation at basin level before elaborating the basin strategy and defining objectives for the joint development of management plans

- establishing multi-year action plans and assessment frameworks based on appropriate performance indicators
- facilitating the introduction of a dialogue between all the recognized stakeholders at the national or transboundary basin level, to develop a common vision in order to define the priorities of the basin, which will be at the very foundations of the actions plans to be implemented in the water sectors and in other fields impacting on water;
- identifying innovative financing mechanisms for sustainable good governance and the implementation of action plans.
- developing international cooperation actions with other basin organisations
- strengthening and ensuring the application of legislative framework for the proper management of water resources;

We are also fully committed to report, on the occasion of the next World Water Forum in 2015, our actions and to share the progresses made by our basin organizations in the achievements of the actions stated above.

ANNEX: Guidelines for actions

(to be adapted to the local context)

Governments will make a diagnostic / situation report of the distribution of responsibilities and institutional functions in water management in order to clarify the needs (which functions for each basin organization, which gaps, how to avoid duplication) in view of creating or strengthening basin organizations;

Governments of riparian States create an international commission, and provide it with a clear mandate, with dedicated financing system and human resources;

At transboundary basin level and in cooperation with the stakeholders, carry out an analysis on the consequences of demography, land use and economic perspectives, in order to measure the resulting pressure on water resources in the basin and to forecast water availability;

Identify hindrances to integrated management within the basin area, including sectoral pressures

Collect data and information allowing forecasts linked with global changes, in particular climate change, in order to establish, at the transboundary basin level and at sub-basin level,

likely scenarios and their realistic impacts on the hydrology / hydrogeology of the basin (available quantity and quality versus required quantity and quality);

-

Assess the necessary capacity (in terms of human, technical, institutional and financial resources) of existing transboundary basin organizations to establish water scenarios linked to climate changes and other global changes; define options to build these capacities;

At the transboundary basin level, carry out a study on water vulnerability to pollution and water-related disasters;

Assess, improve and implement legal frameworks and reinforce the institutional capacity of basin organization and their departments

Organize the distribution of responsibilities between institutions with regard to the production, management and enhancement of the data required for the management of water resources and water uses.

Organize exchanges with other basin organizations from other part of the world.

Targets

Within the framework of their jurisdiction and on a voluntary basis, governments will implement one or more of the following measures, adapting them to the local, national and regional situation.

Examples of targets:

Introduction of a legal framework allowing the creation of basin organizations at national level by XX

Establish management plans by XX

Create national water information systems in each riparian State of the basin by XX

By XX, provide the basin organization with a mandate to create and manage a water information system at the transboundary basin level

...

Measures

In order to reach the above targets, the following measures could be considered:

Improve planning and development of the territory in order to limit and control the impacts of ongoing changes on flood, river and sea level rise risks in the basin;

Introduce legal provisions for the citizens' participation in the decision-making process of water management at basin level;

Develop and implement programmes of measure regarding flood warning, monitoring and protection, improvement of drainage systems, drought, response to water-related disasters;

Develop and implement action plans and programmes of measures taking into account extreme events and new conditions;

Involve women and young people in risk reduction and water management through basin commission and any other structures in charge of the management and maintenance of water resources;

Promote, through basin organizations, educational and training exchanges, transfers of technology, know-how and good practices in order to ensure sustainable water management, economic development and poverty alleviation.

Implement international cooperation actions with other basin organizations.

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