Interstate Water Coordination Commission of Central Asia	BULLETIN № 2 (34)	August 2003

CONTENT

JOINT STATEMENT OF HEADS OF STATE OF THE REPUBLIC OF KAZAKHSTAN, KYRGYZ REPUBLIC, REPUBLIC OF TAJIKISTAN AND THE REPUBLIC OF UZBEKISTAN

On July 5-6, 2003 in Almaty meeting of Heads of State "Central-Asian Cooperation" (CAC) was held.

Presidents of Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan,

- have being discussed questions of multilateral regional cooperation within CAC framework, situation in the region and around it, other topical international issues;
- coming from existing practice of open constructive dialogue, achieved level of mutual understanding and mutual confidence;
- basing on common aspiration to develop multilateral cooperation on principle of real equality, mutual assistance, respect to each other interests and traditional friendship and good neighborhood between peoples of Central Asia;
- confirming aspiration to further regional cooperation broadening over all spectrum of interstate relations in order to ensure peace, stability and security in the region;
- paying special attention to deepening of interaction in combat with international terrorism, political and religious extremism, illegal drug traffic, illegal migration and transboundary organized criminality;
- recognizing importance of further economic interaction deepening , full utilization of natural and economic potential of countries-members, development transport communications in Central Asia;
- considering results of CAC activity from the date of its transformation,

state the following:

I

Heads of state consider CAC as important institute of regional interaction, significant element of effective stability system contributing to efforts of international community on resistance to treats and challenges of the modern world.

CAC formed on base of CAEC became more democratic and flexible; range of questions under consideration became wider. Along with economic questions open and confident dialogue on all key issues of the region is carried out.

In 2002 four president summits were held where topical issues of regional cooperation and international policy were discussed.

Openness and readiness to constructive dialogue with other countries and international organizations became CAC unshakable principle.

Heads of state highly appreciated meeting of parliament representatives being held in Tashkent on November 18 where questions of parliamentarism establishing and strengthening in the region, inter-parliament cooperation, new forms of interstate interaction aimed at peace and stability strengthening in the region were discussed. Heads of state underlined topicality of inter-parliament cooperation – establishing conference of parliament members from CAC countries.

Considering process of legal base inventory and cessation of CJSA (CABS&R) charged their governments to complete this work to the end of 2003.

Heads of state noted importance of soonest solution of issues related to interstate borders demarcation.

II

Development of multifold commercial-economic cooperation is high priority for CAC.

In this connection, heads of state noted importance and utility of business-forums being held on November 28-29, 2002 and May 6, 2003 in Tashkent and Osh.

Meetings of businessmen and entrepreneurs confirmed once more topicality of joint plans working out and realization, legislation harmonization, easing commercial rules, strengthening direct contacts between enterprises and businessmen, investments attraction to the economy of CA countries.

Heads of state charged their governments to undertake necessary measures on practical realization of agreements achieved during business-forums.

Heads of state underline importance of favorable conditions creation for trade and investments, cooperation in banking and financial sphere.

Heads of state charged their governments to speed up development of agreements on establishing international water-power, transport and food consortiums.

In this connection, annual EBRR meeting in Tashkent in May 2003 and annual meeting of the countries-members of Islamic Development Bank this September in Tashkent where all heads of state were presented are very important for attraction of foreign investments to the region especially in water-power and communication sector.

Heads of state decided to appeal with to international financial institutions including the World Bank, ADB, EBRR, Islamic Development Bank for assistance in developing concept of water-power, communication and food consortiums.

With regard for anchylosis nature of the region communication infrastructure development and access to the seas and world market including Aktau port are most important.

Heads of state noted that Central-Asian region having huge transit potential must be a part of international transport corridors and agreed to charge their governments to strength this direction.

III

Heads of state consider important wide interaction of CAC countries in resistance to international terrorism, political and religious extremism, illegal drug traffic, illegal migration and transboundary organized criminality;

In this connection, heads of state underlined importance of heads of security meeting being held on August 20-22, 2002 in Tashkent and charged them to carry out such meetings regularly.

Heads of state especially noted that strengthening peace and stability in Afghanistan, establishing good neighboring relations with this country meet key interests of CA states. Joint efforts in Afghanistan economy and infrastructure rehabilitation will much contribute to regional; security and stability.

Coming from above, heads of state supported efforts of Kh.Karzai in post-war rehabilitation of the country and noted importance of its involvement in process of regional cooperation of Central Asia.

IV

Heads of state consider widening and deepening cooperation in cultural-humanitarian sphere as an important factor of friendship and good neighboring relations between countries in the region.

Summit participants stayed for widening cultural, educational and scientific links between CAC countries.

Mutual TV-translation on the territories of another countries is recognized as one of the key directions in this sphere.

With this purpose, meeting of all television companies leaders in the second half of 2003 is foreseen in order to decide on quotas of TV-programs exchange.

V

Heads of state underlined that constructive negotiations in atmosphere of openness and mutual understanding contributed significantly to further development of multilateral and mutually beneficial cooperation between countries of Central Asia.

Summit participants noted effective CAC activity during period of Uzbekistan chairmanship.

Heads of state expressed their gratitude for warm and kindly welcome by President of Kazakhstan N.Nazarbayev on hospitable Kazakh land.

President of the Republic of Kazakhstan	N.Nazarbayev
President of the Kyrgyz Republic	A. Акayev
President of the Republic of Tajikistan	E. Rahmonov
President of the Republic of Uzbekistan	I. Karimov

IFAS BOARD MEETING

On April 13, 2003 in Dushanbe IFAS Board meeting was held consisting of:

Plenipotentiary representative of the Government of the Republic of Kazakhstan, Vice-Minister of Agriculture Kurishbayev Akhilbek Kazhigulovich;

Extraordinary and Plenipotentiary Ambassador of the Kyrgyz Republic in the Republic of Tajikistan, plenipotentiary representative of the Kyrgyz Republic Niazov Miroslav Zhumabekovich;

Deputy Prime Minister of the Republic of Tajikistan, IFAS Board member Koimdodov Kozidavlat Koimdodovich;

Deputy Minister of Water Resources of Turkmenistan, plenipotentiary representative of Turkmenistan Altiev Tekebai Altievich.

Meeting agenda was as follow:

1. About realization of the heads of state decisions dated October 6, 2002.
2. About measures devoted to IFAS 10-th anniversary.
3. About EC IFAS activity since March 2002 till March 2003.
4. About realization of the heads of states' statement within Dushanbe Declaration on UN special commission establishing for coordination of international organizations and donors activity in the Aral sea issues solution.

EC IFAS information about realization of the heads of state decisions dated October 6, 2002 is accepted. Period for PBAM-2 approval has been extended by IFAS President till July 1, 2003. EC IFAS together with ICWC and SDC is charged to ensure its development, coordination and submission for approval. Special attention should be paid to practical measures.

Participants appealed with request to the governments of the countries-founders to decide on funding for fulfillment of the heads of state decision "About EC IFAS organizational activity".

Participants have accepted EC IFAS information on preparatory work to ICWC 10-th anniversary. EC IFAS, its branches, ICWC and SDC are trusted to take measures on fulfillment of "Program of measures on ICWC 10-th anniversary" approved by president E.Rahmonov.

Decision has been made to appeal with request to the governments of the countries-founders and international organizations to support jubilee events.

At this meeting Organizing Committee has been approved to make preparatory work for ICWC 10-th anniversary and Dushanbe International Fresh Water Forum. Organizing Committee is charged to prepare ICWC 10-th jubilee and ensure participation of all countries in Dushanbe International Fresh Water Forum being held on August 29-31, 2003.

Meeting participants endorsed EC IFAS and its branches activity since Marh 2002 till March 2003. EC IFAS is charged to continue work on the heads of state decision fulfillment according to plan of IFAS Board activity.

Information of EC IFAS Chairman on establishing UN commission responsible for international organizations and donors activity coordination is accepted.

EC IFAS is charged to continue work with concerned organizations in this aspect.

In connection with UN Institute of Peace letter to the President of the Republic of Tajikistan E.Rahmonov dated 24.02.2003 EC IFAS is charged together with Institute of Peace to organize regional forum in order to find out potential of organizations responsible for the Aral sea basin issues solution for UN status receiving.

For regional forum conduction participants appealed to the governments of Central Asia to appoint four official representatives including directors of EC IFAS branches to participate in working group activity.

Final draft of the regional forum materials is planned to consider on IFAS Board meeting at the end of 2003.

Another questions are also discussed.

36-TH MEETING OF INTERSTATE WATER COORDINATION COMMISSION (ICWC) OF PERUBLIC OF KAZAKHSTAN, KYRGYZ REPUBLIC, REPUBLIC OF TAJIKISTAN, TURKMEISTAN AND REPUBLIC OF UZBEKISTAN

On May 6-7, 2003 in Almaty (Kazakhstan) regular ICWC meeting was held. In meeting took part: A.D.Ryabtsev – Chairman Committee of Water Resources, Kazakhstan; Zh.B.Bekbolotov – General Director Water Department MAWR, Kyrgyzstan; A.A.Nazirov – Minister of Land Reclamation and Water Resources, Tajikistan; T.A.Altiev – Deputy Minister of Water Resources, Turkmenistan; Kh.K.Gapparov – representative of MAWR, Uzbekistan; N.Kipshakbaev – Director SIC ICWC Kazakh branch; V.A.Dukhovny – Director SIC ICWC; Yu.H.Hudaibergenov – Head BVO "Amudarya"; M.Kh.Khzmidov – Head BVO "Syrdarya"; O.S.Makarov – Director CMC ICWC; G.A.Negmatov – Head ICWC Secretariat; N.K.Nasirov – Director SIC ICWC Tajik branch; R.K.Ikramov – Director SPA SANIIRI; N.Rahmatov – Deputy Head BVO "Syrdarya"; A.Aldarov – Deputy Head BVO "Syrdarya"; A.Sh.Dzhoolobaev – Director SIC ICWC Kyrgyz branch.

Meeting agenda included following questions:

1. Specification of reservoir cascade operation regime and water intake limits in AmuDarya and SirDarya basin during growing season 2003.
2. BVO "Syrdarya" activity improvement.
3. Fulfillment of heads of state decision dated October 6, 2002 (Dushanbe) "About main directions of concrete actions on ecological and social-economic situation improvement in the Aral sea basin for 2003-2010» (PBAM-2)» in water-related aspect.
4. Results of ICWC members participation and water organizations representatives in the Third World Water Forum.
5. Realization of GEF project sub-component A-1 "Water resources and salt management at regional and national level".
6. Principles of water use under agricultural restructuring in each state.
7. Agenda and place of next 37-th ICWC meeting.

Having exchanged opinions ICWC members approved specified water intake limits and reservoir cascade operation regime for growing period 2003.

Participants noted that BVO "Syrdarya" activity in reservoir cascade regime, water intake limits maintenance, automatic control and water account is satisfactory. It was recommended to strengthen even water distribution over canals and water intakes in accordance with approved limits; within 3 years to complete automation of major water intakes; to provide water-related bodies with information about deviations from agreed water intake and releases regime.

Participants appeal to ICWC members for assistance to BVO "SyrDarya" in funding rehabilitation work and simplified state border crossing for BVO employees.

Progress in fulfillment of the heads of state decision dated October 6, 2002 (Dushnbe) was considered and decision has been made.

Information about results of ICWC members and water-related organizations' representatives participation in the Third World Water Forum. Attention of world commu-

nity to the Aral sea basin problems was noted. Participants endorsed Statement of Aral sea basin delegations prepared with active participation of the countries' representatives.

Protocol decision on continuation of the GEF project sub-component A-1 "water resources and salt management at interstate and national level" has been made.

Participants marked that agriculture reforming require revise both management organizational structure and water use principles. It was decided to study experience of pilot projects in the region and prepare proposals on their duplication.

Decision has been made to carry out next 37-th ICWC meeting in Turkmenistan in August-September 2003.

ABOUT PARTICIPATION OF ICWC MEMBERS AND WATER-RELATED ORGANIZATIONS' REPRESENTATIVES OF CENTRAL ASIA IN THIRD WORLD WATER FORUM

Since March 16 till march 23 in three cities located within lake Biwa and river Jodo basin – Kyoto, Osaka and Shiga (Japan) – Third World Water Forum was held.

Forum was organized by World Water Council and Government of Japan with participation of near 12000 residents of Japan and 8000 guests from 170 countries all over the world.

Great preparatory job was done all over the world, in which SIC ICWC took part on behalf of Central-Asian region. Special web-site with information about Forum, press-releases, virtual water conferences and "Water voice" database, preliminary discussions in many international and national organizations has been established.

Forum was opened by Chairman of Preparatory Committee R.Hashimoto and President of World Water Council M.Abu-Zeid. Greetings were spoken by Crown-Prince of Japan Naruhito, Prince of Morocco Mulei Rashid and Prince Wilhelm Alexander Oransky. President of France J.Chirac made presentation by video-translation because his visit was cancelled due to events in Iraq.

After opening ceremony World Water Prize of King Hassan was awarded. It was given by Morocco Prince Mulei Rashid to Dr.Abu-Zeid (Egypt) and J.Kelman (Brasil) for "contribution to water resources management and development".

Forum Secretariat carried out special meeting to make conclusions on "Water voice". SIC ICWC Director prof.V.Dukhovny registered as "Water Voice" messenger was included in list of 20 best messengers and awarded with special prize. Prize was rewarded by Chairman of National preparatory committee former prime minister of Japan Mr.R.Hashimoto.

During six days since March 16 till March 22 forum participants had opportunity to discuss issues at 351 sessions united in 33 themes and 5 regional days. Themes included range of sessions united basing on common features: water and climate; water supply; sanitation and water pollution; water and environment; IWRM; water, agriculture and food; water and poverty eradication; dams and sustainable development. Sessions also were grouped basing on "geographic" principle into regional days: Africa, Asia and Pacific, America, Middle East and Mediterranean; Europe.

On March 22-23 Ministerial Conference was held. Discussion was divided into 5 directions: safe drinking water and sanitation; water for food and development; prevention of water pollution and ecosystems maintaining; combat against p[overty and risk management; water resources management and profit distribution. In result, Ministerial Declaration has been accepted under title "Portfolio of water actions".

Thanks to sponsorship of the Japan Government and ADB more than 30 representatives from Central-Asian region took part in the Forum: ministers and deputy ministers of agriculture, water resources and environment, representatives of governmental and non-governmental organizations, regional water organizations – ICWC, EC IFAS, SDC.

ICWC organized exhibition "Central Asia on the way to water partnership" and actively participated in many events of the Forum.

Day of Asia opening ceremony of March 18 leaded by Tajikistan President Emomali Rahmonov deeply impressed all participants. President showed base of starting col-

laboration between states of the region, how it is developing and how the world community take part in order to assist Central-Asian countries in this collaboration. Under President initiative, Fresh Water Day to be held in Dushanbe in September 2003.

Within the Day of Asia special session was carried out fully devoted to the Aral sea basin.

Session «Collaboration in joint water resources use in Central Asia: past experience and future problems» was organized by ICWC in cooperation with ADB and UN University in Japan.

In session opening Vice Prime Minister of the Kyrgyz Republic B.Mambetov, Director General of East and Central Asia Department M.Tisnim, Deputy Minister of Agriculture and Water Resources Zh.Bekbolotov, Rector of UN University in Japan H.van Ginkel took part.

Key speakers were the follows:

I.Kobori, senior adviser (UN University); S. Aslov, Chairman EC IFAS (IFAS activity in the Aral sea basin); A. Jalalov, First Deputy Minister of Agriculture and Water Resources of the Republic of Uzbekistan (Rational water resources use under market economy in Central Asia); H.Tsusui, professor Kinki University (Japanese scientists involvement in the Aral sea issues solution); prof.J.Bogardi, UNESCO (NESCO role in the Aral sea issues solution).

Session work was organized in form of three discussion panels:

1. Past experience and future possibilities of the regional cooperation in water resources management in Central Asia; Chairman – A.Hazirov, Minister of Land Reclamation and Water Resources of the Republic of Tajikistan.

Key speakers:

A. Ryabtsev, Chairman Committee of Water Resources of the Republic of Kazakhstan: “10-year experience in joint water resources management in the Aral sea basin”; B.Mambetov, Vice Prime Minister of the Kyrgyz Republic: “Improvement of the regional cooperation in joint water resources management in the Aral sea basin: needs and alternatives”; Gey La Moigne, international expert in water resources: “Donors involvement in in the Aral sea problems: future objectives and opportunities”; M. Bromhed, manager of water resources sector (World Bank): “Strategic directions of PBAM and the World Bank activity”».

2. Integrated water resources management in the Aral sea basin context; Chairman – B.Koshmatov, First Deputy Minister of Agriculture and Water Resources of the Kyrgyz Republic:

Key speakers:

V.Dukhovny, Director SIC ICWC: “Resent experience and problems of IWRM in the Aral sea basin”; D.McKinney (Texas University): “IWRM in contest of basin water management”.

3. Ecological issues in the Aral sea basin; Chairman - A. Jalalov, First Deputy Minister of Agriculture and Water Resources of the Republic of Uzbekistan.

Key speakers:

U.Shokirov, Minister of Environment of the Republic of Tajikistan: “Ecological problems in the Aral sea basin and role of various water users in their solution; N.Ishida, (Kyoto Unversity), researcher – “Aspects of recent ecological changes in the Aral se basin”; O. Ataniazova, Director SPA«Present» (Karakalpakstan).

In result of discussions and presentations final statement of the heads of delegations has been accepted.

Main sessions conclusions are as follows:

- necessity to create political climate in the region in interstate and national aspect establishing conditions for wide awareness in water conservation and integrated water management at the basin, national and local level;

- public awareness about water importance for life, nature and society; strengthen educational activity;

- strengthening information provision about water use and management can improve water manageability.

- donors contribution to the Aral sea problem will continue and perfected.

At the same time, in spite of big reserves in water cooperation, many foreign participants noted that cooperation within framework of IFAS and ICWC are rather successful and unique in the world practice.

Members of delegations from the Central-Asian countries took part also in other Forum meetings organized within WWC, GWP, INBO, special session "Water for peaceful process" under auspice of UNESCO and "Green Cross".

At plenary session Andrash Shaloshi-Nagi (Head of UNESCO Water Department) and Michael Gorbachev ("Green Cross" Co-President) made presentations. Main idea of session was proclaimed – it is necessary to undertake all possible practical actions to prevent both global and national water crisis. This can be achieved only be effective management of water distribution and use in all spheres of life and nature.

At the session two seminars were held under common UNESCO auspice "From total conflict to potential cooperation (PC-CP)":

"Water-related conflicts origination";

"Tools for conflict resolution and prevention".

Main context was that any conflict between upstream and downstream in transboundary basins can be resolved in peaceful way. Main argument is that until now there were no wars because of water.

UNESCO collection "From potential conflict to cooperation potential" presentation took place with SIC ICWC paper included. Collection was circulated on CD, in the second half of 2003 it will be issued as separate book.

Resolution was accepted where role of UN convention "About non-navigation use of international watercourses", 1997 as major tool for conflict resolution.

Main conclusion from all discussions is that there is enough water in the world for mankind to survive if it will solve main water-related issues. Firstly, if hydroegoism would be overcome; secondly, if water conservation, rational use and productivity increase policy would be implemented. If potential water productivity in all sectors would be used as water use criteria. Finally, if environmental requirements would be taken as highest priority.

If water management crisis but not water crisis would be overcome because mankind suffers from water deficit due to insufficient attention to water management and special mechanism absence.

All these "if" should be transformed into certain action plan. It worthy note that WWC, one of main Forum organizers has prepared action plan but, unfortunately, not all this plan provisions were accepted by Forum. Some spirits originated connected both

with lack of funding and hydroegoism manifestation as well as deficiency of international and national legal base.

Possibility of public-private partnership establishing was seriously discussed. This partnership can help in private and community investments, which can show the way out of this situation, particularly in France. But this partnership can be implemented under strict state regulation, which does not permit to create monopoly of private companies in the water market.

In this respect, example of Japan is excellent: rural communities (mura) like our mahallya are well developed and actively participate in water management, irrigation and water protection and contributing funds and loans. On other hand, Swiss experience is also very interesting and can be involved. In Switzerland there is private sector based on contract under control of public and community organizations and state regulation. Without this privatization can lead to more suffering that can not admitted.

Serious debates were carried out on the subject whether water is a good or not and how to use this principle in water-related organizations funding. Special commission under Michel Camdessus leadership proposed own version of combine solution but this project was not approved and proposal development will be continued and presented at next WWC meeting in October.

At final Forum session, which has accepted Ministerial Declaration and other documents it was underlined that water is driving force of sustainable development including ecological integration, poverty alleviation and health guarantee. Forum was completed on just on this positive optimistic accent. Participants will continue to work in their countries and regions developing campaigns for effective water use at threshold of coming water scarcity.

WATER USEPRINCIPLES UNDER AGRICULTURAL ENTERPRISES RESTRUCTURING

In the states of the region certain experience is accumulated on water use perfection under reforming in agriculture. Especially rich experience is accumulated in Kyrgyz Republic and Kazakhstan. Tajikistan and Uzbekistan gradually develop this experience in their conditions. Key role in decision-making on water management and water use perfection is given to newly established and existing public organizations: WUAs and Water Councils (canals/systems) though wide public involvement, first of all, water users. Local authorities have possibility to participate in this process excluding former administrative pressure on water-related organizations within their territory because this structure is built on hydrographic principle.

Water resources management based on hydrographic principle permits ensure equitable account of interests of all water users categories (drinking, industrial, rural water supply, irrigation, environment, etc.). Hydrographic principle requires account of all sources including surface, ground and return waters.

All above provisions are tested in practice within interstate project "Integrated water resources management in Ferghana valley". Close project cooperation with oblast water-related organizations within Ferghana valley (Andizhan, Ferghana, Osh and Sogd oblasts) allowed reveal range of basic principles in water use, which should be introduced in practice wider.

Equitable and objective water allocation mechanism is necessary. In this connection, is suggested to assess water requirements on biological needs using common calculation methodology based on hydromodule zoning, climatic conditions, irrigation technique and other indictors. Establishing water intake limits on base of proportionality principle that is equal quota cut relatively to biological need with regard to sources of irrigation.

Water distribution is performed in accordance with established and agreed limits. On transboundary sources water distribution is done on base of interstate agreements (bilateral or multilateral) with clear mechanism of control over agreement observance. Water discipline infringement is punished.

Water use is done by each consumer coming from principle of economic optimum, e.g. maximum income per water unit. State and water users should stimulate water conservation.

Agreed access to water use information for all concerned parties is necessary. Clear system of water account (hydrometry) both on sources and water intakes of all levels is needed.

Structures supplying water services should report to water users – service recipients. Water users have to have opportunity to look after decision-makers. Clear differentiation of rights and obligations between governing (water committee) and executive (board/administration) bodies at all levels of hierarchy.

State should ensure support (political and financial) to water sector development. Water users (WUA) should take min part of expenditures to maintain on-farm infrastructure.

Water delivery services have to be paid by water users (partially or fully). Mechanism of tariff and incentives establishing is needed. As experience of Kazakhstan, Kyrgyzstan and Tajikistan, there are some problems in this area.

One of priority principles is providing minimum water use negative impact on environment. Realization of principle "polluter pays" is necessary.

WATER: ACTION PLAN OF «BIG EIGHT»[1]

Since water is meaningful factor, its scarcity can threat to mankind security. International community must double its efforts in this sector. It is necessary to promote effective management and create organizational potential in order countries-recipients carry out necessary water policy. Simultaneously, it is necessary to use financial resources more effectively in order to achieve goals of Millennium Declaration and fulfill World Summit plan on water supply and sanitation. Existing trend of ecological degradation must be changed through natural resources balanced governance and protection.

We have to take more active part in achieving these goals by international community basing on consensus reached in Monterrey and results of the Third World Water Forum and Ministerial Conference in Japan in March 2003.

On this solid base we will undertake following measures individually or collectively taking into account importance of effective water management in Africa in order to support New partnership for Africa development approved by the plan of "Big Eight".

1. Support effective governance

1.1. We must help firstly to those countries, which take political commitment to pay special attention to providing access to safe drinking water and sanitation facilities as a part of their sustainable development strategy including poverty eradication:

- develop comprehensive plans of integrated water management and rational water use;
- establish organizational structure, which will be stable, transparent and based on law corresponding to man basic needs and ecosystems protection and supporting local power and necessary repayment;
- assign clear tasks and develop and assess of fulfillment indicators is necessary.

1.2.We will support countries-partners in capacity building to help them in fulfillment of following objectives:

- develop legal, governing, organizational and technical structure;
- strengthen and facilitate educational activity in water resources management or create educational organizations if necessary.

1.3. It is necessary to strengthen our attempts to:

- provide support to IWRM and water productivity increase;
- support improved management and development of shared river basins;
- promote river basin cooperation all over the world with emphasis on Africa river basins.

[1] G8 – Sommet Evian Summit 2003 – Water – A G8 Action Plan (Summit documents).

1.4. We suggest to use advanced methods of water and sanitation services including role of water users, state and private sector in joint partnership.

2. Use of all financial resources

According to consensus achieved in Monterrey and WSSD plan and taking into account different needs of urban and rural population, we have to:

2.1. Give highest priority in official aid allocation to reasonable proposals on water supply and sanitation in developing countries-partners. They can become catalyst of financial flows mobilization.

2.2. Help to mobilize internal resources to finance water infrastructure though local markets and financial organizations development:

- creating working capital at the national and local level based on national currency;
- establishing corresponding mechanisms of risk mitigation;
- providing technical assistance to develop effective local financial markets and municipal government potential in order to prepare and implement financially viable projects;
- providing target subsidies for the poorest communities, which can't repayment their debts.

2.3. Support international financial organizations (IFI) in water priority assignment.

2.4. Facilitate repayment by "help based on results" method in order to guarantee access to services those who can't do it.

2.5. Promote partnership between public and private sector (PPP) is necessary or appropriate:

- stimulate public-private investments and facilitate local currency promotion;
- facilitate international commercial capital investments and loans with risk guarantee system application;
- facilitate operation procedures harmonization;
- helping national and international bidding.

2.6. Give voluntary aid to water and sanitation projects including such financing mechanisms as concession financing compatible with international rules, project financing, micro- and mezo-project financing, investment return.

2.7. Facilitate financing sustainable irrigation methods.

2.8. Improve donor coordination and cooperation in different initiatives.

3. Infrastructure establishing through local authorities and communities strengthening

WE will do our best to support countries-partners in water and sanitation infrastructure development using following means:

3.1. Assisting creation of local systems of water resources management in rural area and sanitation facilities in the cities through effective use of state resources and supporting PPP if necessary.

3.2. Promoting participatory approach involving civil society in water supply, sanitation and hygiene.

3.3. Encouraging adapted technologies application at household level on base of self-sufficiency to ensure poor population strata access to safe drinking water and sanitation.

3.4. Strengthening skills and knowledge among water sector participants, especially local governments and women in communities.

3.5. Supporting capacity building for each cooperation project particularly in form of "education based on own experience".

3.6. Strengthening South-South cooperation.

4. Expansion of monitoring, assessment and research

4.1. In collaboration with all water users we will encourage establishing mechanisms of information and monitoring joint use with existing UN and other systems as well as web-site network established at Ministerial Conference of Third World Water Forum.

4.2. We will support potential strengthening in water monitoring in countries-partners in order to complement existing attempts.

4.3. We will support cooperation mechanisms in water cycle study and will expend attempts in this area.

5. Strengthening international organizations involvement

5.1. We underline that UNO must take key role in water sector. We stress attention on coordination importance within UN system and between this system and Breton Wood organizations, regional development banks and various water users.

5.2. We apply to the World Bank together with another IFI to study and recommend necessary measures on the fulfillment proposals of the World expert council on water infrastructure funding:

- use of their tools of financing in more flexible way in order to allocate loans directly to state bodies if necessary;
- provision of guarantees and insurance to mitigate risk;
- solution of risk compensation issue during local and foreign currency exchange.

APPEAL OF INTERNATIONAL ORGANIZATIONS TO LEADERS OF "BIG EIGHT" CONCERNING FUNDS ALLOCATION TO SUPPORT COOOPERATION IN TRANSBOUNDARY WATER MANAGEMENT FOR DEVELOPMENT, SECURITY AND PEACE

Transboundary water resources and security

Sustainable water resources management plays important role in goals of millennium achievement, ecosystems protection, social and political stability all over the world. Water is both possible reason for tension and mighty potential source of cooperation. Many long disputes concerning water are not yet resolved. Demand for limited fresh water resources increases risk of future conflicts.

Sustainable management of 236 transboundary rivers and lakes and more than 100 aquifers supplying with water more than a half of world population is a big problem and strategically important in short-term and long-term perspective. Only in Africa there are 59 transboundary river basins constituting 80% of available surface water resources. Their management is decisive for poverty eradication.

Sustainable transboundary water resources management foresees: (a) distribution among nations benefit more from regional economic integration than from water claims; (b) balance of competing water uses, especially downstream and upstream with involvement of all concerned parties in interest of sustainable development at the local and national level.

(c) stress on poverty reduction, public and women participation – to provide equal access to water for all; (d) understanding needs of fresh ecosystems in order to protect resources and mitigate natural risks; (e) watercourses protection during wars and conflicts and post-conflict water resources rehabilitation; (k) deepening our knowledge about conflict reasons and possible political reaction to prevent conflicts caused by competition for resources between various water uses and them and ecological issues like pollution; (l) capacity building in integrated water resources management (IWRM).

International water law and support of water cooperation on international river basins and aquifers are insufficient to solve these issues.

Most states could not fulfill their obligations on cooperation in shared water management not including this goal in World Summit-2002 conclusion or WWF-3 Ministerial Declaration-2003. There is need for strong political will and concrete actions as it was stated in previous declarations: Rio (1992), Hague (2000) and Bonn (2001).

Integrated international water resources management and its performance

Global fresh water resources must be distributed among individuals, economic branches and independent nations with regard for ecological sustainability. IWRM implementation requires political will and long-term financial commitment.

Process includes: (a) development and acceptance of new national water laws on IWRM and basin management strengthening; (b) establishing national and international basin organizations; (c) acceptance of international conventions, treaties and declarations

concerning fresh water management; (d) monitoring introduction, information exchange and relevant database formation; (e) national and regional work plan of water resources development; (k) creation of reasonable financing systems based on common principles and solidarity.

Law on transboundary river basins and transboundary basin organizations – improving management

Establishing transboundary basin organizations was successful in many river bsins at international and sub-national level like Rhine, Geneva and Great Lakes, Sent-Lourence, Senegal and Mekong or Murrey-Darling but many transboundary basin organizations have not satisfactory authority, potential and resources. Most international basins have not interstate basin organizations at all.

Need in basin organizations establishing and strengthening meets recommendations of the world community on development of basin management common vision.

Leading principles and recommendations

Strong political will and concerted actions taking into consideration cultural diversity are needed in order to eradicate poverty and support ecosystems with strtess on the following directions:

Benefit distribution: Discussion about transboundary cooperation should be based on understanding of IWRM advantages and interdependence at river, lake or aquifer level for all states involved in this process. Re-distribution of these joint benefits at national level requires water users participation and should be linked with poverty eradication issues.

Ecology: Importance of ecosystem integrity should be included in interstate and basin agreements. Sound and functioning ecosystems are viably important for safe water supply. Moreover, river and lake biodiversity is viably important element of food security in many regions of the world. Loyal objectives will mean nothing if investments to river rehabilitation are neglected.

Public participation and capacity building: Meaning and importance of water users participation in decision-making process should be increased. All water users must be supported in active participation in water strategy, agreements and organizations development. Expanding understanding and educational strategies including mediator training are need in order people and leaders understand better how to cope with joint resources distribution.

International and national legislations should become mighty tool of transboundary conflict prevention, environment management and protection. Efforts should be doubled in order to achieve agreements on effective integrated management at basin level in each international river basin. Additional measures are necessary to specify and strengthen water supply systems during military conflicts and terrorist attacks.

Assistance and mediation: There is necessity to establish intermediary structure on water issues in order to resolve disputes through cooperation with basin administration, governmental bodies and other concerned persons.

Financial support: International aid can support cooperation in international river basins funding and making it easier link between capitals and basin water users. In many regions of developing world there is no infrastructure even for simple data exchange with neighboring countries: international financial commitment is viably important and must be increased. Financing mechanism must be adapted to support activity connected with jointly used water resources at international level.

If 50 transboundary rivers, lakes and aquifers are taken as water bodies of high priority in terms of international security and each of them needs 2mln.$US during 10 years for establishing permanent, stable and reliable mechanism of cooperation, **total sum of investment will amount to 1bln.$US.**

International organizations appeal to the world leaders of "Big Eight" to finance long-term process of water resources management restructuring

Global Water partnership, Green Cross International, International Union of Nature Protection, World Water Council, Wild Life Fund, Program of Water Solidarity, International Network of Basin Organizations and International Water Secretariat appeal to the world leaders in Evian G8 Summit with request to allocate 1bln.$US for nearest 10 years to finance interstate cooperation in this strategic issue.

This realistic figure is less than 1/1000 thousands billions necessary to achieve goals of Millennium during 10 years set up on Summit of Millennium in Johannesburg.

This commitment is precondition for success in this global issue solution.

INTERNATIONAL CONFERENCE ON OB-IRTISH BASIN ISSUES

Conference was held in Ust'-Kamenogorsk on June 18-21, 2003. Goal of the conference is to discuss problems and measures on ecological and water-related situation improvement in the basin, establish long-term collaboration between non-governmental, scientific and state organizations working in river management and protection in Russia and Kazakhstan and to develop plan of joint actions on surface and gropund water ecological state improvement.

More than 40 papers and statements from 12 cities of Kazakhstan, Russia, Kyrgyzstan and Ukraine including large cities like Novosibirsk, Tomsk, Barnaul, Moscow, Almaty.

Themes of papers reflected all spectrum of topical issues in water resources use in Ob'-Irtish basin, its ecological state evaluation and forecast as well as international and inter-sector cooperation experience in ecological situation improvement in river basin. Main issues and shortcomings were revealed, which must be addressed to achieve water rational use and this largest in the world basin rehabilitation and protection.

ABOUT CIRMAN-ARAL PROJECT IMPLEMENTATION

On June 23-28, 2003 in SIC ICWC meeting of the project "Agricultural crops irrigation management to combat desertification induced by irrigation in the Aral sea basin" (CIRMAN-ARAL) participants was held implemented within Copernicus program with EU financial support. Project executors; Lisbon Agrarian University (ISA) and SIC ICWC.

Following questions were discussed:

1. Characteristic of furrow irrigation in Ferghana valley

1.1. Comparison of field data. Analysis was carried out using graphical comparison of required factors. Parties came to conclusion that furrows compaction creates conditions for running up time reduction improving moistening evenness.

This can lead to surface release increase. That's why it is necessary to manage irrigation well to increase its efficiency. Significant difference was noted during the first irrigation and difference absence in another irrigations for the same compacted furrows. Conclusion was made that infiltration is higher under irrigation in each furrow that demonstrate water conservation potential under alternate irrigation. Intermittent irrigation impact on soil suction properties was found during the first irrigation. Total running up time under intermittent irrigation is 20-25% from this time under continuous irrigation. For consequent irrigation difference in running up time is not found. This indicates high potential of intermittent irrigation for irrigation efficiency increase during the first irrigation (running up time reduction) and during consequent irrigations due to reduction of losses for surface release.

1.2. Irrigation parametrization with model SRFRINV. Program of infiltration and roughness parameters optimization has been tested. Its application requires to study proc-

ess of some program parameters by “method of tests and errors” for specific conditions of Ferghana valley. This task will take several weeks.

1.3. Basic characteristics of furrow irrigation. Joint attempt to classify furrow irrigation has been made for first time. Main factors of furrow irrigation design and management were considered and characterized both within WUA and all Ferghana valley. It will allow to assess better on-farm irrigation improvement. Data gathering will allow to build different scenarios on base of SADREGA model.

1.4. Analysis of data for Osh and Khodjent oblasts. List of tasks and data in assistance to teams from these oblasts will be prepared for field data analysis and according to DSS database requirements.

2. DSS for irrigation improvement at field level

SADREGA model adapted to conditions of Central Asia has been presented. English version of this program in Windows will be completed this year. Database preparation is continued. Detailed list of all data will be completed by ISA and submitted to SIC ICWC. SADREGA MODEL and DSS system for furrow irrigation have been prepared in Portuguese and will be completed this year. SADREGA model coordination with delivery model using specific output files will be completed at the same terms.

3. Irrigation schedule preparation using ISAREG model

Detailed explanations were given on file management input in ISAREG model. Special discussion of ground water contribution took place with acceptable results. ISA team will send. new adjusted software version.

4. Progress in GISAREG model use in DSS support

GISAREG model was transferred to SIC ICWC team and tested. Progress in its use should be reached on WUA area because it is unit of water delivery system. For this purpose Azizbek-1 area was selected because is representative for Ferghana valley and includes experimental area of the project where there is good knowledge about water management. Based on these data on-farm canals networks are classified and models will be tested after addition of water delivery block to the model. Set of test fles for data exchange between models was prepared.

SEDAM model for DSS was presented on example of Yellow river basin. Decision on SEDAM model use for Ferghana valley conditions and its inclusion in DSS system will be made by project coordinator. There is some data deficiency for this WUA area, which is not included in the Copernicus project and concerning water delivery along secondary canals. First will be taken from mps and secondary – from questionnaire filled in by WUA staff.

5. Cotton irrigation data

Detailed list of cotton irrigation has been prepared. All data are taken for 2 fields for 2001. Additional data will be received in 2003.

MINUTES ICWC TRAINING CENTRE, MCGILL UNIVERSITY AND MOUNT ROYAL COLLEGE WORKSHOP ON "DRAINAGE AND IRRIGATED AGRICULTURE PROBLEMS IN ARID ZONES"

Sponsored by:
Canadian International Development Agency (CIDA),
United States Agency of International Development (USAID) within the Central Asia Regional Training Program (START/AED)

Tashkent April 25, 2003

Organization of the scheduled workshop on "Drainage and Irrigated Agriculture problems in arid zones" was conditioned by the increasing necessity for dissemination of available practical and scientific-research knowledge, which had been accumulated in five Central Asian countries during the period of their economic transition to market relations in water and agricultural sectors, which in turn was aggravated with the severe impact of drought period for the past few years and necessity to implement advanced water saving technologies and develop recommendations on rehabilitation of drainage systems.

The program and topics of the workshop that had gone through the approval process by the ICWC and USAID were oriented at creating suitable conditions for exchange of advantageous experiences and ideas for solving the problems of drainage systems operation and irrigated agriculture between the specialists practitioners and scientists – employees of the high and middle levels of water management organizations from Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Among the participants of the workshop were representatives of the ameliorative departments of water and agricultural organizations (see Attachment 1 for full list of participants). Activities of the workshop were covered by mass media.

During of 5 days, from 21st to 25th of April 2003 the workshop participants listened to and discussed the materials prepared in advance by lecturers. Participants also made theirs own presentations on issues of current condition of the drainage systems and issues of advanced irrigated agriculture. The agenda of the training was structured within the framework of the 5 modules (Attachment 2):

- General issues of amelioration irrigated agriculture;
- Amelioration regimes and increasing land productivity;
- Current problems of drainage system exploitation;
- Water consumption, water saving technologies and increasing water productivity;
- Programming/Modeling in irrigated agriculture management.

The total number of presented papers in the workshop constituted 17. Above mentioned papers and presentations were distributed to the participants on the first day of the workshop for preparation to participate in thematic discussion sessions.

In the opening session of the workshop participated and addressed the participants on the issues relevant to the theme of the workshop –Hakim Ishanov Deputy director of water management department, Ministry of Agriculture and Water management of the Republic of Uzbekistan, Alexander Kalashnikov Representative of USAID, Jason Compy Director of START/AED in Uzbekistan, Prof. V. Dukhovny Director of SIC ICWC, Prof., Nariman Kipshakbaev Honorary Member of the ICWC, Director of Kazakh branch of SIC ICWC, Mirfayzi Mirhodjiev Head of Monitoring and improvement of melioration of irrigated lands, Ministry of Agriculture and Water management of the Republic of Uzbekistan.

Participants noted high level of training materials and papers of the SIC ICWC, and also a wide range of proposed topics and diversity of water management activities including implementing integrated water resources management based on:

- Water delivery and water conveyance in irrigation and drainage;
- Interaction of various kinds of drainage (open, subsurface, horizontal, vertical and combined);
- Integration of using and managing various kinds of waters (surface, underground, return)

Proceeding from above stated positions, the necessity was underlined of managing large-scale water conveyance routes, collectors as well as intake water bodies (wetlands and lakes) by basin water organizations (BWO) and national (or territorial) local amelioration authorities, whereas, regulating drainage networks exploitation is the responsibility of water management organization, including WUA.

Participants stated that in the near future the problem will arise of drainage systems outage under the existing attitude to the systems, which were build many decades years ago. Even more so, due to lack of financial resources cleaning works of drainage and irrigation facilities are not carried out. Experimental-production plots are abandoned. Actually, all the park of ameliorative machines and mechanisms (including drain rods and pumps) have become obsolete. By the end of 1980 and beginning of the 1990s maximal capacity of the construction industry was as follows:

- 11 thousand tons of polyethylene and polyvinyl chloride drainage pipes;
- 2000 km of ceramic drainage pipes;
- 6 mln.m^3 of graver-sand filter;
- 100 and more drain-installing machines;
- 2500 km cleaning capacity of drain-cleaning machines.

In this period, about 600 vertical drainages were installed every year.

Nowadays, the capacity of ameliorative park has dropped by ten times, production of pipes for drainage by 100 times. If, in the past cleaning works of inter-farm collectors and on-farm collectors were conducted 1 time per 3 years and 1 time per year respectively, nowadays they have decreased by 2.5-3 times. All above stated technical and exploitation drawbacks have become very dangerous for future productivity of lands.

It is well known that without adequate state support it is impossible to operate & maintain drainage systems. Participants suggested necessity of implementing state investment pro-

grams for provision of drainage measures, since for last ten years, according to various assessments, area of salt-affected lands has already increased up to 600-800 thou.ha. in the region. Dangerous niduses of salinization still exist there, where sustainable desalination had been reached through drainage systems application (Mahtaaral zone in Kazakhstan, western parts of the Hunger Steppe in Uzbekistan). At the same time, there are many cases, when attraction of local authorities' attention (for example in Bukhara province in Uzbekistan) makes available maintaining drainage networks in comparatively good condition. Thus, public participation in Management & Maintenance of collector-drainage systems is becoming increasingly actual in terms of necessity to enhance attention to management issues as applied not only to water but also to salts on the part of entire society and concurrently with the purpose of development and implementation of measures on involving wide range of participants and "stakeholders" into drainage activities.

In their presentations and information the participants stated that worsening of drainages and collectors performance has been caused by negligence of malfunctions and, in some cases by consciously discharge of irrigation water to collectors. Therefore, public participation will enable organizing control over maintenance of networks. Public participation will ensure contribution to improving technical condition of drainage and not obligatory through drainage means but through direct activity in flush-out of wells, cleaning observing wells and repairing outlet facilities, securing vertical drainages from destruction and despoilment.

Participants noted the this training promoted better understanding of existing problems, allowed participants systemizing their own knowledge and also widening their scope of interests. The usefulness was also noted of the information that was presented by the lecturers as to development of concrete measures to improve irrigation systems. Data and information, gained during the workshop discussions, related to the daily activities of water specialists, increased the comprehension of the national specific features for establishing the WUAs in each of the countries, development of water tariffs, hydro-metrology and management structures. It was stated the this training gave the opportunity to better understand the financial-economic situation in water sector of the region, technical capabilities of water infrastructure and general situation in the field of land reclamation, and the features of planning for each method of irrigation, assessment of water use effectiveness in irrigated agriculture and working out the solutions.

Participants noted the necessity of active promoting among water users the principal ideas of economical usage of water resources and a more wider and gradual implementation of water saving techniques, especially in irrigated agriculture.

Participants of the workshop noted that there are not sufficient stimulating levers for supporting private farmers in O&M of drainage and irrigation systems and facilities.

The discussions brought to light to fact that whereas transition to market relations in economies of different countries of Central Asia evolves non-uniformly, there are still problems common for the whole region: restructuring of agriculture, WUA creation, water resources deficit, obsolete irrigation and drainage systems, land and water quality deterioration due to salinity.

Participants of the training put forward a series of recommendations and proposals aimed at reconstruction and maintenance of drainage systems and effective improvement of irrigated agriculture in Central Asia.
Among the recommendations suggested by the participants there are the following:
At the regional level

- carry out joint O&M of drainage systems located between bordering provinces of the Central Asia states with the aim of compensating expenses on drainage and amelioration of lands flooded by adjacent provinces of the neighbor state;
- develop out of mechanisms of joint drainage systems O&M;
- prepare a proposal on drainage systems reconstruction and improvement of ameliorative condition of lands and present it to donor organizations;
- create regional networks of information and experience exchange on new technologies application in amelioration;

At the national level:

- allocate of adequate financing for sustainable operation of drainage systems and ensuring melioration of lands, at least for sustaining existing structure of lands;
- develop mechanism of preferential crediting farmers' activity in drainage and amelioration;
- reorganize pilot-production plots;
- provide farmers with information on drainage systems technical condition located on land used by them, with aim of involving farmers in the process of amelioration;
- ensure regularity of draining (creating - in case of firm soil – temporary drainage within the irrigated plot);
- promote training and professional development of new specialists to provide necessary personnel for O&M of irrigation-drainage systems;
- organize regular cleaning of inter-farm and on-farm canals as well as collectors, their maintenance in order to prevent further deterioration of existing drainage systems' technical condition;
- elaborate necessary support measures to be provided by the State, which are necessary to maintain drainage systems and inter-farm collectors

At the local level:

- reassess existing drainage systems;
- elaborate recommendations on rehabilitation of drainage systems according to local soil-ameliorative situation;
- expand application zones of well-amplifiers in according to lithological structure of soils-ground, as a low cost method of draining.

Participants unanimously supported the idea of conducting the proposed international scientific-practical conference on «Strategy for sustainable irrigated agriculture with minimum investment in drainage» and they offered 12 zones through whole region for detailed observation:
Kazakhstan – South-Kazakhstan province
Kyrgyzstan - Chu and Batkent provinces

Tajikistan – Sogd and Hatlon provinces
Turkmenistan – Dashauz
Uzbekistan – The Hunger and Karshi steppes, Bukhara, Ferghana and Khorezm provinces and Karakalpakstan.

Participants approved the following Program of drainage and amelioration development:

1. Program goals:
   - assessment of existing situation and analysis of tendencies;
   - assessment of needs in additional drainages;
   - assessment of needs in improving irrigated agriculture;
   - assessment of efficiency of operation activities;
   - selection of priorities: in investments, in improvement.

2. Assessment of exiting situation:
   At the basin level:
   - discharges of collector-drainage waters and their dynamics by years: related to water use;
   - dynamics of discharge flow mineralization;
   - impact of this discharge on mineralization of the river water;
   - trends in the processes;
   - accumulation of salt in planning zones in dynamics by years.

   At the local level
   - assessment of former and current drainage projects;
   - assessment of their implementation degree;
   - indicators reflecting how drainage measures correspond with design parameters in terms of time and volume;
   - condition of drainage, operational capability in terms of time, frequency of failures, causes;
   - organizing repair-operation service, intensity of conducting repairing works (now and in the past);
   - need for improving (rehabilitation and development) drainage;
   - need for capital repairs;
   - need for flushing-out of drainage;
   - need for cleaning collectors;

3. Assessment of ameliorative conditions:
   - trends in salinization and ameliorative condition;
   - increase (decrease) in salt-affected areas with high level ground waters;
   - causes influencing deficiency of flush-out;
   - lateral waterlogging;
   - using mineralized waters for irrigation.

4. Assessment of condition of water receiving bodies:
   - collectors, inflowing to rivers;
   - collectors , inflowing to closed depressions;

- sustainability of water receiving capacity;
- measures, necessary for their improvement.

5. Assessment of collector-drainage flow impact on social-economical indicators of the region, zone, province:
   - social consequences;
   - degree of ameliorative adverse condition impact on migration of the population;
   - ecological impacts of ameliorative adverse condition;
   - degree of the impact exerted on yield and productivity.

The attention was paid at the necessity of further improvement of crop cultivation technology as it applies to irrigated lands. The key lines of these activities should be:

- Certification of irrigated plots based on a large-scale soil-melioration mapping to register land use farming pattern, condition of the plot's surface, its boundary condition and other factors determining its productivity and yield capacity;
- Establishment of land certification consulting service;
- Complex of measures (of ameliorative and agronomical nature) ensuring uniformity of the irrigated plot as an entity - subject to agro-ameliorative measures, expediency of which was identified in the course of certification.

It was emphasized that up-to-date automation equipment (computers, transducers) and software for monitoring the whole process of soil fertility changes and agricultural production in general make such like technological schemes not only vital, but also real and essential for achieving the overall objective - to identify and utilize reserves of irrigated field as the basis for high and sustainable productivity of irrigated agriculture.

The following activities were proposed for implementation as economic instruments of water saving promotion:

- Incentives for water saving when amounts of water taken by users are less than those, which are permitted by most strict norms of water use, – in such forms as award fees at the rate of the state's expenses for water resources formation, immunity from taxation or additional economic incentives. These incentives should stimulate intensification of agricultural production and application of new technologies of crops culturing, e.g. using plastic film cover or under mulch;
- Wage plus-bonus system for operational activities carried out by water management authorities stipulating remuneration for water saving.

Participants of the workshop express their comprehension of peculiarities as to current changes in the region of geopolitical, economic and social nature. In this connection, the need is underlined for new approaches to overall and collective participation of stakeholders at all levels of water use hierarchy (from a field to the basin) in water resources management, for more wide involvement of farmers, Water Users Associations into operation and maintenance of irrigation systems.

The training participants reiterate the necessity of proceeding to develop close cooperation with ICWC Training Centre, and its branches in Osh (Kyrgyzstan), Dushanbe (Tajikistan), and underlined expediency of promoting TC branches establishment Kzyl Orda (Kazakhstan) and in the downstream zone of the Amudarya river. The necessity was underlined of implementing into practice up-to-date information technologies and requests were put forward to facilitate the process of mastering advanced methods of water resources management. The participants consider that such process can be promoted through continuation of TC course on computer training. Simultaneously, a number of participants asked for support in organizing provision with appropriate technical equipment for all structures of water resources management.

PARTICIPANTS EXPRESS THEIR GRATITUDE TO CIDA, USAID-START/AED, MCGILL UNIVERSITY, AND ICWC TRAINING CENTRE STAFF, ALL LECTURERS AND MODERATORS, SIC ICWC, AS WELL AS TO BWO "SYRDARYA" WHO ENSURED PROPER PERFORMANCE OF THE WORKSHOP, AND ADVANCE THEIR OPINION THAT FURTHER TRAINING OF THIS KIND SHOULD BE CONDUCTED

Minutes of the workshop on Capacity building for Aral Sea Basin Drainage Strategy Capacity building IPTRID workshop

Tashkent June 28, 2003

Initial workshop of IPTRID Project towards strategy of sustainable irrigated agriculture with feasible investment in drainage, the Aral Sea Basin, Central Asia

From 26 to 28 June 2003 there was held workshop on Capacity building for Aral Sea Basin Drainage Strategy in Training Centre of Interstate Commission for water Coordination (ICWC). The workshop purpose was to assess of current situation of drainage development on the basis of papers prepared by participants and preparation to workshop that is scheduled to November of this year. The program and topics that had gone trough the approval process by the SIC (Scientific Information Center) ICWC, IPTRID FAO (International Programme for Technology and Research in Irrigation and Drainage, Food Agriculture Organization of the United nations) and HR Wallingford were oriented at creating suitable conditions for exchange of advantageous experiences on solving problems related to O&M and development of drainage systems between the scientists and the specialists practioners of the high and middle levels of hydrogeology reclamation services, water management organizations from Kazakhstan, Kyrgyz Republic, Tajikistan and Uzbekistan.(attachment 1).

During the 3 days, the workshop participants listened to and discussed and made own reports on current condition of drainage systems and reclamation state in their zone of responsibility.
As to the workshop agenda there were presented 21 papers. Papers of the workshop participants were submitted in electronic and paper version. Papers of the lecturers were distributed among participants for preparation to participate in thematic discussion sessions.
In the opening session of the workshop participated and addressed the participants on the issues relevant to the theme of the workshop: Prof. Victor Dukhovny - Director of SIC ICWC, Harry Denecke – Regional Manager Asia IPRID FAO, Geoff Pearce – Senior researcher, HR Wallingford, UK; Coordinator of OASIS program coordinator, Donald Brown – Director of ITAD Water, UK; Mirfayzi Mirhodjiev - Chief of Department of monitoring and advancing of land reclamation, Ministry of agriculture and Water management of the Republic of Uzbekistan.

During the workshop sessions participants noted that in the near future the problem will arise of drainage systems outage, which were built many period years under existing attitude to the systems. Even more so, due to lack of financial resources cleaning works of drainage

and irrigation facilities are not carried out. Experimental-production plots are abandoned. Actually, all the park of ameliorative machines and mechanisms (including drain rods and pumps) has become obsolete.

The workshop participants have noted that nowadays republics have not sufficient financial resources for full-scale rehabilitation of drainage systems. Proceeding from this it is necessary to select priority directions of drainage rehabilitation for promoting sustain agriculture under feasible investment. For selecting priority directions here should be held assessment of situation.

The workshop participants unanimously supported the idea of conducting the proposed international scientific-practical conference on "Towards strategy of sustainable irrigated agriculture with feasible investment in drainage, the Aral Sea Basin, Central Asia".
The workshop participants have presented 13 reports on following zones:
Kazakhstan – Kzylorda and South Kazakhstan oblast
Kyrgyz Republic – Kyrgyz Republic and Batken oblast
Tajikistan – Sogd, Kulyab and Khatlon oblast
Uzbekistan – Hunger steppe and Karshi steppe, Buhara, Feghana, Khorezm oblasts and Karakalpacstan.

The workshop participants have prepared total summaries on theirs republics after the reports on zones.
In the workshop also was discussed program on assessment of current situation in Central Asia. The program consists from the following activities:
- Assessment of existing situation and analysis of trends;
- Assessment of needs in additional drainage;
- Assessment of needs in drainage improvement;
- Assessment of operation measures efficiency;
- Prioritization of measures.

Also, in this program following issues should have reflection:
- Sustainability of different types of drainage;
- Low cost O&M methods;
- Organizational forms of drainage system management;
- Improvement of collector-drainage outflow use;

Also the workshop participants have discussed the order of program on assessment and modeling of drainage systems. This order is follows:
In the first step:
- To determine criteria of ameliorative favor;
- To determine criteria of drainage workability.

In the second step:
- Assessment of existing data and collecting nessary data for analysis and modeling;
- Selecting of planning zones;
- Scenarios of probable situation development and scope of work on possible management;

- Modeling: assessment of consequences caused by different measures, actions, policy in planning zone and river;
- Prioritization of measures;
- Action plan for 3 scenarios**.**

The workshop participants noted that this training promoted better understanding of existing problems, allowed participants systemizing their own knowledge and also noted widening their scope of interests. The usefulness was also noted of the information that was presented by the lecturers as to development of concrete measures to improve drainage systems.

Participants of the workshop noted that there are not sufficient stimulating levers for supporting private farmers in O&M of drainage systems and facilities.

The interactive dialogues were held under facilitating of Don Brown. As the result of the interactive dialogues the workshop participants have indicated a number of problems that require promptly activities to solve or alleviate them. Among this problems were follows:

- Financing of construction and operation of drainage systems;
- Organizational structures of CDN operation;
- Non-active coverage of ameliorative problems in Mass media;
- Administrative dividing of irrigation systems;
- Lack of technical facilities in operation;
- Insufficient monitoring;

During the workshop participants of the workshop put forward a series of recommendations and proposals aimed at alleviating or solving of existing problems according to kind of them:

- Determining of sources of financing of CDN O&M;
- Establishing of WUAs with transferring of operating functions;
- Keeping up crop irrigation regime;
- Using of modern monitoring means;
- Attracting of donors, holding of workshops and educating courses;
- Dividing of hydrographical borders of irrigation systems;
- Creating of regional network for exchange of information and modern technologies application in reclamation;
- Educating and pre-qualification of young specialists on irrigation & drainage systems;
- Timely provision of agricultural measures;

The workshop participants expressed desire and approval of participating in the events in the framework of the aimed project.

Also there was held questioning of participants on drainage systems development and land ameliorative state improvement. Questioning was held trough filling in of the before prepared special list of questionnaire. Results reflected in the attachment 4.

The training participants reiterate the necessity of proceeding to develop close cooperation with ICWC Training Centre, and its branches in Osh (Kyrgyzstan), Dushanbe (Tajikistan),

Urgench(Uzbekistan) and underlined expediency of promoting TC branches establishment Kzyl Orda (Kazakhstan). The necessity was underlined of implementing into practice up-to-date information technologies and requests were put forward to facilitate the process of mastering advanced methods of water resources management.

Participants express their gratitude to DFID, CIDA, IPTRID FAO, HR Wallingford, ITAD Water McGill University, and ICWC Training Centre staff, all lecturers and moderators, SIC ICWC, as well as to BWO “Syrdarya” who ensured proper performance of the work-shop, and advance their opinion that further training of this kind should be conducted.

PRIVATE SECTOR PARTICIPATION IN WATER SUPPLY ORGANIZATION

Free market in competitive environment with several similar companies is precondition for successful private sector participation. This leads to good quality improvement and price decrease.

World experience in public services illustrates this evidently:

- telecommunication sector privatization with emerging mobile communication, which allowed create parallel networks with several competing operators, improved communication quality and reduced prices. Network services remains behind in many countries and it will be successful in case of several operators having equal access to fixed networks;

-in power sector energy separation of producers from distributive grids led to price reduction and production differentiation. Consumers in developed countries can choose between cheap thermal and more expensive renewable one. Precondition is equal access to grids under public control.

- in water sector situation is quite different. First of all, water is not a matter of luxury like telecommunication or electricity; it is basic need for survival. Secondly, water systems are monopolistic in their nature and parallel networks can't be constructed. Like communication and separated like electricity.

Great Britain was first country where full privatization of water sector has been done. Results of this are far from promising; many municipalities suffer from high prices and low service quality. France used different approach using management contract model for public-private partnership. But this system also couldn't avoid monopolization by private operators like Great Britain.

Experience of developing countries and countries with transient economy is much disputable. Beside positive examples, when sustainable water management is achieved, there is negative experience of consumers, investors and operators. In good managed municipalities private investors and operators often can't reach expected repayment and even bear big losses. In weaker municipalities with inadequate regulation ecological and social goals usually are not achieved.

How to move ahead?

Swiss key principles of water policy are decentralization and subsidizing e.g. responsible for water management at possible lower level, democratic approach on participatory base and public participation and private sector involvement where there are conditions for competition. We consider water as key element of sustainable development and as common good. Good water management is precondition for equitable access to fresh water resources and their management.

There is multitude of satisfactory solutions in water services area. In most developed countries water remains in ownership and privatization is seldom phenomena. In Central Asia public sector involvement, users participation and partnership have to be recognized priority. World experience shows that public services can be reformed in a way, which allows to increase efficiency and to keep equitability in sustainable water management. Preconditions for private sector involvement in water supply systems under public-private partnership conditions are as follows: establishing appropriate organiza-

tional, legal and regulating structure, strong public control and high public perception, commitment to poverty eradication and following ecological standards.

In particular, in Central Asia there is wide field for activity where private sector can contribute to water-related situation and where competition is possible, which will be supported. It includes involvement of consulting and engineering services, sub-contractors and needed good producers. But business environment in some countries is so unfavorable that private sector is hardly developing even in traditional fields. .

Swiss water policy in Central Asia is based on water users participation in rural water supply and irrigation management including institutional and structural support, in-frastructure rehabilitation and modernization, local water-related industry support.

In urban water supply Switzerland continues to support private sector involvement on contractual basis in management and services simultaneously facilitating development of strong regulating structure, supporting social and ecological standards under strict monitoring and control over private operators activity.

IPTRID– NEW APPROACH[2]

Создание организационного потенциала для устойчивого управления водой в сельском хозяйстве

Olivar KOgels[3]

In June 2002 when I took position of IPTRID program manager, it was necessary to provide funding for future program and approach IPTRID strategy to donors' policy re-formulating IPTRID objectives and services.

In June 2002 during IPTRID meetings and ICID Conference in Montreal new strategic directions were defined. ICID Consulting Group, Managerial Committee and Advising Committee have supported IPTRID decision concerning new strategy development. In result of discussions, conclusion was made that IPTRID must have poverty reduction as high priority in its activity. Another conclusion was that program should expand its scale and not concentrate only on technologies development and research promotion.

Most members of various committees agreed that IPTRID must pay attention to aspects of institutional development, education and training, experience exchange and strengthening public-private partnership. Thus, IPTRID can shift to capacity building. Thirdly, it was concluded that IPTRID must consider water use and management in agriculture in wider scale and encompass such oblasts as non-irrigated lands drainage, flood risk reduction, water accumulation and water resources management. Because of that, we propose that "capacity building for sustainable water management in agriculture" become our new slogan. It is clear that this will include research promotion, technology transfer and research base strengthening only under extended demand-driven approach.

On this base consultations with different donors and partners to re-formulate IPTRID objectives, tasks and results.

IPTRID objectives

IPTRID objectives can be re-formulated as follow: *"poverty reduction and food security strengthen protecting environment"*.

More than one billion poor people with income less than 1$/day lives in arid climate zone. Their income can be ensured only through irrigation, water conservation and harvesting. Nevertheless, wrong irrigation increase risk of land degradation and salinization whereas weak drainage and over-irrigation destroy annually 1.5mln.ha of land. .

As to food security all over the world, irrigated farming importance is evident because 40% of global agricultural production is created on base of irrigated farming. But it is evident that productivity per water unit must be increased.

IPTRID task

Irrigation, drainage, salt management, flood control, water harvesting and water resources management require knowledge and experience of farmers, farmer associations, private and public services suppliers and governmental organizations. More effective ex-

[2] GRID, IPTRID Network magazine, Issue 20, March 2003.
[3] Program manager, IPTRID Secretariat.

isting technologies and research results dissemination, introduction, presentation and management is necessary. This requires capacity building at different level for more effective water management in agriculture. We suggest to re-formulate IPTRID task as follow: *"to help developing countries and countries with transient economy in capacity building for sustainable water management in agriculture"*. Therefore, IPTRID orientation can change from "strengthening research and base of knowledge development" to wider notion "capacity building" (where capacity building is defined as set of efforts on knowledge development). In order to achieve this objective IPTRID Secretariat will mobilize different experience from partner organizations' network.

IPTRID services and results

IPTRID Secretariat and world network of "centers of excellence" will provide consultations and technical assistance to the countries with transient economy and development institutions. These services and results will include:

- strategy and program formulation,
- assistance in capacity building projects preparation and implementation;
- information provision and awareness raising.

We expect that under new approach IPTRID activity will become more demand-driven and will meet needs of the countries and priorities based on participatory principle.

First of all, we will concentrate our efforts on issue of water management in agriculture in countries and regions and then we will formulate decision at strategic level.

Goal
Reduce poverty and strengthen food security protecting environment

↓

Objective
To help developing countries in capacity building for sustainable water management in agriculture

↓

Outputs		
Strategy and program formulation	Assistance in project preparation and implementation	Information provision and awareness
Need assessment	Reports identification	IPTRID information systems
Workshops	Reports formulation	Publications
Strategy and programs	Assistance in implementation	Supporting documents

↓

Projects on capacity building implemented by partners

Correct diagnosis both in organizational and technical aspect concerning irrigation and drainage as well as other aspects of water management in agriculture of developing countries will be major task of IPTRID Secretariat and its partner organizations.

Our aspiration is that spectrum of delivered professional services to developing countries allow them “reduce a gap” and reach more sustainable water management in agriculture.

THE PROBLEM OF PURIFYING THE NURA RIVER FROM MERCURY – PROSPECTIVE SOLUTION

Ryabtsev A.D.[4]

Central Kazakhstan is wide known of its heavy natural resources. This is an industrial and political center of the state. Therefore, everything, which is related to prospective development of the region, generates active interest both of the government and the public.

Meanwhile, against the increasing political and economic load vulnerability of the nature and instability of ecological balance become more evident.

First, this concerns the Nura river and its basin being both of great economic and most of all historical and cultural importance. Suffice it to say that the river is a source of water for the unique Korgalzhi lake system.

For a long period of time the Nura river was contaminated by mercury sediments formed as a result of synthetic rubber production by Karaganda plant. Production technique made use of mercuric sulfate. However, sewage disposal facilities to purify sewage water from mercury were not constructed on the plant. This resulted in huge disposal of sewage into the main collector of the plant which had outflow to the Nura river downstream the Samarkand reservoir.

The first steps in sewage purification was started in 1950 and 1954. In the process of purification sewage was directed to purifying tank, where it was chlorinated and silted by means of biofilters. The tank sludge accumulated in the tanks was deposited to sludge bed. Next purification development steps were completed in 1966. Until 1969, silt of poor quality had been discharged into a relief sink called as Zhaour bog, which was not drained. In 1969, sludge beds were constructed within an area of JSC "Karbid". Mercurous sludge also was accumulated in old ash-disposal areas located on the banks of Nura river.

When production was abandoned, disposal of mercurouus sludge was stopped. However research showed that large amounts of mercury remained in the river channel and flood-plain. Moreover, due to lack of funds bankrupt company "Karbid" failed to implement necessary measures to detrimental waste disposal. As a result, given a range of factors, such as catastrophic condition of buildings, lack of appropriate monitoring and funds for preventive measures the plant territories have become the potential source of secondary environmental pollution in towns Temirtou, Karagandy and neighboring areas.

Thus, purifying the Nura river from mercury has become the high priority problem which threatens population and the environment of such a big region.

To solve the problem the government of Kazakhstan has used a grant of the World Bank of Reconstruction and Development for preparation of a project on Environmental Rehabilitation and Management in Nura-Ishim basin. The Committee for Water Resources at the Ministry of Agriculture of Kazakhstan in responsible for implementation of the project.

Activities under the grant involve development of Feasibility Study on purification of the Nura river (including flood-plain, river channel, Intumak reservoir, sludge bed of

[4] Chairman of the Committee of Water Resources at MAR RK.

JSC "Karbid" and adjacent contaminated areas) from mercury. The objective of the Feasibility Study is to create conditions for safe water consumption by purifying the Nura river from mercury, implementing effective measures to improve water quality and optimize water use. Current and future social, ecological, technical and economic conditions of the region, as well as the results of previously conducted research, including INCO-Copernicus' data on mercury concentrations and stock in flood-plain soils, water and bottom sediments, data of hydrometric, geological, and sanitary services of the Republic of Kazakhstan were used during development of the Feasibility Study. To obtain more accurate information during spring tide of 2002, additional sampling was performed of water from the Nura river and Intumak reservoir and of soil on area of company "Karbid" and neighboring contaminated areas. The analysis results also will be used during the process of FS development.

The project involves development of a computer model of water management in lakes, reservoirs, rivers and underground basins within the Nura and Ishim river basins. Elements of current and future water balances will be considered in the model. The model will serve as a basis for forecasting water development, use and conservation in order to develop timely and efficient management decisions with identified priorities for capital investments and environmental measures.

International experience will be taken into account while trying to solve the problem of purifying the Nura river from mercury. In particular, Japan has such experience, when in sixties in city Minamata a plant similar to JSC "Karbid" started to contaminate Minamata Bay, thus injuring population in adjacent fisherman's settlements. Chemical plant disposed mercurous sewages to the bay from 1932 to 1968. Besides contamination of water and bottom sediments, metallated mercury accumulated in fish and mollusks. This caused toxic decease of central nervous system of the people who ate fishery products for a long period of time. In 1973, Japanese Environmental Agency developed preliminary norms of allowable mercurous pollution of bottom sediments. Base on these norm, it was required to excavate 1500000 m^3 of sediments. The process of excavation was finished in 1987. Check studies of samples in 1988 proved that the objectives of the project on contaminated sediments removal were achieved. The results of current monitoring show no further increase of mercury concentrations in water or in fish. The total cost of the project approximated 40-42 million US$.

At present Minamat Bay is pollution-free. The Government of Japan has formed the National Institute of Minamat for continuing research on mercurous pollution and for improving treatment technologies. This institute is considered as a leading one in the world.

The Government of Kazakhstan is going to request technical assistance from the Government of Japan to support development and implementation of the long-term mercurous pollution monitoring program, which will involve experts from the Institute of Minamat. Involvement of the latter will guarantee that Temirtou will apply the best international practices in cleaning mercurous sediments.

Project implementation could ensure safe water use in Nura river and regulation of inflow to Korgalzhi lakes, will produce recommendations on alternative options of river water use for drinking and agricultural purposes. One of the best laboratories for monitoring of mercury and other contaminants will be established in the region. Contaminated soil and other matters will be disposed to specially designed structures created on the basis of advanced technologies. Public agencies responsible for conservation, monitoring

and management of natural resources will be equipped with computer systems so that to enable timely monitoring and regulation of nature use.

Additional information on project development one can reach on the following addresses: Astana, Mozhaiskogo str., 28-a, Committee for Water Resources, Ministry of Agriculture of the Republic of Kazakhstan (8-317-2- 35-67-70); Karaganda, 40 liet Kazakhstana str., 11-a, Nura-Sarysu Basin Water Management Organization at the Committee for Water Resources (8-321-2-41-13-03).

CENTRAL ASIA[5]

The countries of Central Asia face water scarcity. Two rivers, the Amu Darya and Syr Darya, serve as the principal sources of water, especially for the downstream countries of Uzbekistan, Turkmenistan, and (southern) Kazakhstan, which have largely desert climates.

Irrigation has been practiced in Central Asia for millennia, but the irrigated area almost doubled between 1950 and 1980, diverting large amounts of water from the rivers and reducing the water flow into the Aral Sea by about 80 percent.

About 35 million people depend in one way or another on irrigated agriculture. But the effects of irrigation on the Aral Sea, whose surface area has declined by more than 50 percent over the past 40 years, have meant economic losses for the 3.5 million people living near the sea—from declining fisheries, loss of wetlands, and the health effects of blowing salt and highly saline shallow groundwater.

The countries of Central Asia face a unique set of challenges in developing and maintaining an appropriate stock of water infrastructure. For the most part the problem is that there is more infrastructure than can be maintained. In irrigated areas the World Bank has thus worked with borrowers in applying immediate "band aids" to critical infrastructure, but also on medium-term strategies for "triage"—to determine which infrastructure (both supply and drainage) can and should be maintained, and which abandoned.

Recent analysis suggests that rehabilitating systems, along with managing demand, could reduce crop water requirements by more than 30 percent. It also shows that most serviced areas can be irrigated economically, even if users pay the operation and maintenance costs for water and drainage infrastructure. But water prices can be increased only when water delivery is reliable and when farmers can receive a fair market price for what they produce. Agriculture is now effectively taxed, with price and trade restrictions on several important commodities. So the key is to see water pricing reforms as part of a larger package of institutional reforms and infrastructure investments, with attention to sequencing, prioritization, and mechanisms for effecting transitions.

Urban water and sanitation utilities also face unique infrastructure challenges, inherited from the former Soviet Union. Domestic water supplies were heavily subsidized, and per capita use was extraordinarily high (typically around 400 liters per capita a day) and wasteful. As a result, both water supply and wastewater treatment plants were often overbuilt. As water use (and sewage production) has fallen to about 100 liters per capita a day, large overcapacity in treatment has emerged, and major pieces of infrastructure need to be mothballed or even abandoned.

For dams, the primary challenge is again to maintain the existing stock at a safe and serviceable level. The World Bank has been working and will continue to work with countries to ensure the safety of dams, including that on Lake Sarez in Tajikistan, now the highest dam in the world. Another challenge is monitoring and disseminating data on

[5] The World Bank. The Water Resources Sector Strategy: An Overview February 2003.

river flows, precipitation, and temperature. With the decline in public funding in the past decade, hydrometeorological equipment has become outmoded and data systems are no longer reliable. Existing data series suggest that Central Asia will be affected by climate change, with temperatures, precipitation, and net evapotranspiration rising and extreme weather events becoming more frequent.

So the challenges of managing and developing water resources in Central Asia are daunting, and the solutions do not lie in the water sector alone. Instead, progress, as slow and difficult as it will be, will require concerted, integrated action across a wide range of areas—water-related sectors but also social sectors, governance, and macroeconomic and fiscal policy. To be an effective partner, the World Bank must use both analytic and investment tools. And it must foster internal and external partnerships, to promote consistency in the actions of multiple partners.

Reflecting all this, the World Bank's work in Central Asia includes:

• Work on a regional water strategy, building on the World Bank's Water Resources Sector Strategy and regional experience.

• Subregional analytic and advisory work in Central Asia focusing on the energy-water nexus, water and salt strategies, water and wastewater strategies in industrial areas, and the social, economic, and environmental feasibility of rehabilitating irrigation.

• Gradually increased lending for the rehabilitation of irrigation and drainage infrastructure, while staying within the Central Asian countries' macroeconomic and borrowing constraints.

• Support for restoring wetlands, grasslands, and fisheries in the delta areas.

• Continuing work to mitigate the effect of the Aral Sea environmental catastrophe by improving living conditions and reducing poverty for the millions living near the sea.

• Support to water user associations for managing on-farm irrigation and drainage infrastructure and to efforts to strengthen the financial management of water delivery institutions and increase its transparency.

• Lending for improved soil and water conservation and watershed protection in rainfed agricultural areas, rangelands, and forested areas.

• Continued assistance to address the legacy of water pollution from mining and industrial wastes.

• Assistance in restructuring water utilities in major urban areas, to improve service and move toward financial viability.

• The use of advisory and investment tools to facilitate benefit sharing on international rivers.

The World Bank's ongoing and planned work in Central Asia both supports and feeds into the main themes of the Water Resources Sector Strategy. In Central Asia, as elsewhere, the challenge is to use both management and infrastructure instruments, with the second largely confined to developing and implementing a strategy for maintaining an appropriate stock of infrastructure.

The task, in the economy and in water management, is not just to identify where to go, but to identify a set of policies and actions that can help manage the very difficult transition in Central Asian countries.

WATER - SOURCE OF LIFE AND LIVING ECONOMIES[6]

Alisher Taksanov

***TASHKENT** (TCA). It is necessary to reform the water use system in Central Asia and make water use efficient. That was the main idea of the discussion on the topic, "Water: source of life and living economies," held on May 5 during the Annual EBRD Meeting in Tashkent.*

Central Asian countries are intensively developing cotton and rice growing, the major water consuming branches, said Djoomart Otorbayev, Kyrgyzstan's Deputy Prime Minister on Economic Development, Trade and Foreign Investments. "Today more than half of the water that rolls down from the mountains to lowlands filters into the ground and does not reach consumers," said Otorbayev. "This causes many economic and political problems, turning the water factor into a destructive aspect of regional cooperation. The countries of Central Asia have failed to create a real regional approach to using water resources, which causes new threats to stability that are as large and destructive as radical Islam."

The tension between the countries arises concerning the use of water from Amudarya and Syrdarya rivers. International organizations are trying to help in solving these problems, but so far no one of their initiatives has been implemented. Kyrgyzstan is using water resources mostly for electricity generation, especially in wintertime. The work of Kyrgyz hydroelectric power plants leads to flooding the lowlands and a lack of irrigation water in neighboring countries in summer season. The problems with water cause political problems between the Central Asian countries.

According to the Kyrgyz Deputy Premier, Kyrgyzstan suggests establishing an international consortium to construct the Kambarata hydroelectric power plant on Kyrgyzstan's Naryn River, which would allow accumulating more than 4 billion cubic meters of water and assisting Uzbek agriculture development.

Rim Giniyatullin, chief of the International Fund to Save the Aral Sea (Uzbekistan), said that the problem of the shrinking Aral Sea has turned into a fashionable declarative campaign used to achieve political goals. "The water conflict between the countries has become obvious," thinks Giniyatullin. "USAID, the World Bank, and other institutions are participating in its solution, there are many projects, but there are no results. Granted assistance remains somewhere in Tashkent and Bishkek, but there is nothing in the very epicenter of the Aral crisis with more than three million people. International donor assistance is obviously inefficient in the form it comes today."

Adrian Ruthenberg of the Asian Development Bank thinks private investments can solve the problem of efficient water use. In his opinion, to make the private sector invest in the water economy, Central Asian countries must extend mutual trade. Customs, licensing and trade barriers are not the way to strengthen the private sector that may become the leading player in solving water use problems. The state must encourage the partnership with the private sector for solving this problem, said Ruthenberg.

Independent consultant Jurg Krahenbuhl of Brugger und Partner AG criticized the privatization in Central Asia's water sector. He thinks it is impossible to create a competi-

[6] The Times of Central Asia, No. 20(219), May 15, 2003.

tive environment in the water sector, unlike the energy and telecommunication spheres. Water is not a luxury like a cellular phone, but a source of life, thinks Krahenbuhl. Water objects are monopolies in which competition is impossible. Incorrect water management at the municipal level causes economic inefficiency of the water sector, said the expert. In his opinion, the state must decentralize and subsidize this sector and solve the problem at the regional and private levels. The partnership between the state, regions and the private sector is the key aspect in the water use strategy. Water use must be paid in the entire Central Asian region, thinks Krahenbuhl.

Privatization in the water sector has not been a success everywhere, although there have been some positive results in the Czech Republic, Poland, Latin America and Africa, said Jean-Francois Talbot, executive director of Saur International Europe. Failures occur where privatization is brought in from above and the private sector is unable to regulate the problems. According to the expert, 95% of Central Asia's population uses water belonging to the state, so a rapid privatization in this sector may lead to social and economic problems. Much time and efforts are needed to solve the water use problems, but the price for water must not be raised sharply. In Germany and Great Britain the state subsidizes 40% of water cost, so why people in developing countries should pay 100% of water cost, asked Talbot. He thinks that the private sector must be invited for repairing water facilities, but large water facilities must be constructed only through investments of the state and international donors.

The efficient management of water resources is a way to democracy, thinks Raymond Jost, General Secretary of the International Secretariat for Water. It is necessary to ensure a person's right for water. Today more than 60% of the Fergana Valley residents face a water deficit. With an average monthly income of US $50 per family, it is difficult to talk about privatization and private water use, said Raymond Jost.

The participants in the discussion came to the conclusion that the Central Asian countries need mutual understanding and must work hard to solve the water use problems. They were shown a documentary film about the first experience of public sector involvement in solving the water problems in Uzbekistan.

NEW EUROPEAN COMMISSION'S STRATEGY IN CENTRAL ASIA[7]

Yelena Skorodumova

Bishkek (TCA). A meeting of the European Commission's representatives from Brussels and Almaty and the TACIS Programme's National Coordinators from all Central Asian states was held in Bishkek. The participants discussed new approaches to cooperation between Central Asian states and the European Commission.

Pierre Legoen, Coordinator of the project «European Cooperation for the support of Central Asian Region», says that the European Commission allocated 150 million Euros for implementing new three-years program in the countries of Central Asia. After terrorist attack of 11 September, most Central Asian countries have started to cooperate closely with the European Union. New European Commission's strategy in Central Asia is directed towards the provision of stability and safety, the support of sustainable eco-

[7] The Times of Central Asia February 6, 2003, Vol.5, No 6 (205).

nomic growth, the improvement of trade conditions and the investment and the elimination of poverty.

EU's projects in Central Asia will promote the development of transport and power networks (TRACECA, INOGATE), water and natural resources, rural area (with focus on the poor), as well as liven up the work in the area of justice and legal setting.

«There is an range of research works and reports that contain a lot of helpful advices and recommendations for the region, - said Brian Toll, a representative of EU in Almaty. – However, now we do not need the advices but concrete results».

Over last 10 years the European Union rendered assistance to Central Asian countries in an amount of 944,4 million Euros. Besides technical assistance within the framework of TACIS Programme, the European Commission provides humanitarian aid through micro-financing loans and grants and supports the national budgets through the Food Security Program.

KAZAKHSTAN INVESTS CONSTRUCTION OF POWER STATIONS IN KYRGYZSTAN[8]

Astana (TCA). As press-cutting service of the Prime Minister of Kazakhstan Imangali Tasmagambetov reported, after his meeting with the Regional Director of the World Bank Dennis de Trime the Government of Kazakhstan was willing to finance construction of two Kambarata hydropower stations on the Naryn River in Kyrgyzstan. Establishment of Water-Power Consortium with the support of the World Bank was also discussed during the meeting.

Construction of Kambarata hydropower stations in Kyrgyzstan was stopped almost 30 years ago. Now these stations are of need for satisfying the increasing demand of Kyrgyzstan and the whole Central Asian region (including Kazakhstan) for electric power and water.

Kazakhstan will finance the project provided that it is involved in the management of these stations.

THE ARAL SEA RESEARCH PROJECT REVIEW[9]

Tashkent (Centralasiadaily.com). From 4 to 8 April in Bukhara, 19 Aral Sea research projects were reviewed and assessed. This event was hosted by INTAS being an independent International Association established by the European Commission, country-participants and other countries that try to help and develop the scientific potential of new independent states (NIS) by means of the scientific cooperation between West and East. This event also was sponsored by the French National Research Center (CNRS) and German Research Society (DFG).

The aim of this event was to review preliminary results of these projects, inform other scientists about on-going research and promote exchange of views and ideas. 19 projects cover such areas as chemistry, natural sciences and environment.

[8] The Times of Central Asia February 6, 2003, Vol.5, No 6 (205).
[9] The Times of Central Asia February 6, 2003, Vol.5, No 6 (205).

INTERNATIONAL WATER RESOURCES ASSOCIATION NEWS (IWRA[10])

The Future of Water Education: From Delft to Hanoi at the Speed of Light

The UNESCO-IHE Institute for Water Education gears up to help tackle the world's future water challenges through the Global Development Learning Network. Offering distance education is a new focus of the Institute in Delft, The Netherlands. "Innovative technology will help solve the water problems that the world currently faces," said spokesperson Atem Ramsundersingh at a test demonstration of the new studio that forms part of the World Bank's Global Development Learning Network (GDLN) initiative.

UNESCO-IHE has high expectations regarding GDLN. In 2003, the first year of operation, the institute plans to provide distance learning courses to at least 300 students world-wide. Currently, more than 50 GDLN studios, on locations all over the world, are used by some 20,000 participants. The UNESCO-IHE's GDLN studio was officially opened on Friday, April 11 th , in a session with partners in Egypt, Ghana, Uganda, Sri Lanka, Paris, and Washington, D.C. Subjects for courses that will be provided through the GDLN facility are: Integrated Water Resources Management, Flood Management and Control, Public Private Partnerships, Community Participation, Drinking Water Supply, Groundwater Modeling, River Engineering, Natural Treatment of Urban Wastewater, Cleaner Production Technologies, and Hydro-informatics. These courses are of a generic nature and have a global focus.

Pacific Institute Launches Water and Climate Bibliography

How will climate changes affect freshwater resources? In an effort to aid those studying this question and related issues, the Pacific Institute has created the Water and Climate Bibliography – a searchable, online database containing over 3,000 references to books, articles, and other scholarly works. "Climate change and water resources are closely connected. A large and growing scientific literature on these issues exists, but a comprehensive electronic compilation has not been available, until now," said Peter H. Gleick, President of the Pacific Institute. "We hope this new tool will help those studying these critical problems improve our knowledge and forge effective, real-world solutions." The project, funded by grants from the Dialogue on Water and Climate, the California Energy Commission, and the California Department of Water Resources, will also be available in a CD-ROM version. Researchers are encouraged to submit new citations for consideration using the online form, accessible from the main bibliography page. The bibliography is available online at: http://www.pacinst.org/re-sources/.

Sustaining Water Ecosystems

[10] IWRA *update,* April 2003, Vol. 16, No 2.

The Global Environment Facility (GEF) recently announced it was contributing another $400 million to address critical global water problems over the next four years, which brought its total investment for water issues to more than $1.37 billion by 2007. “Degradation of our land and water presents an enormously complex challenge,” said Mohamed T. El-Ashry, CEO and Chairman of the Global Environment Facility. “GEF’s contribution will fund projects in developing countries that seek to sustain our planet’s water ecosystems while yielding national, regional, and global benefits.” GEF works with 139 countries on projects to strengthen the integrated management of land and water resources that are so critical to ecosystem health, poverty reduction, and sustainable development. A total of $974 million committed by GEF over the past 12 years has leveraged $2.1 billion in co-financing from other sources for water-related projects. GEF is the official financing “engine” for the international agreements on bio-diversity, climate change, and persistent organic pollutants, while supporting efforts to control land degradation and improve international waters. Keeping the Promise on Water, a new publication by the GEF, emphasizes the need for increased cooperation among countries to sustainably manage our planet’s water ecosystems. Other recommendations include the need for integrated management of land and water resources, as well as the protection of aquatic biodiversity for sustainable use. The publication is available on the GEF Web site, www.gefweb.org.

Source: The World Bank Group.

INVITATION TO COOPERATE

Developing countries more and more face the barest necessity in increasing the efficiency of water use in irrigated agriculture. Excessive water use in irrigation and drainage losses is wide spread. Considerable water saving can be achieved when applying integrated approach to irrigation and drainage management. The methods of regulated drainage directed towards the water saving in semi-arid zones while keeping long-term productivity of crops and soil fertility were developed and tested within the framework of given project.

Integrated irrigation and drainage system aimed at water saving – «regulated drainage»[11]

Regulated drainage means that on-farm water management includes also drainage flow management. The farmers, by using weir or locking mechanism, regulate water volumes that outflow from the plot through the drainage system. The drainage is possible only in case when it is needed to lower groundwater table (to avoid plant damage) or to remove salts through leaching.

The project has shown that regulated drainage can give considerable benefits both for farmer (increased crop yield) and for community (water saving). The main benefits are:

- considerable water saving both at field and basin level;
- increased crop yield;
- regulation of soil water by changing flow velocity keeps required content of nitrates and phosphates and does not allow for soil deterioration;
- reduced outflow of nitrates and phosphates into downstream water bodies, thus preventing accelerated development of algae in the water bodies and diminishing environmental damage;
- conservation of wetlands and water-dependent zones.

Regulated drainage is particularly beneficial in those areas where farmers suffer from water shortage that limits crop yields or where increase in water supply gives farmers the direct benefits. From the view of basin's water balance, such benefits can be derived in cases where rice share prevails in crop rotation and where water of poor quality is used for irrigation under water reuse.

In cases where water is quite enough and does no restrict agricultural production, benefits from regulated drainage are small. Though there will be a saving due to reduction of labor costs, water supply costs and fertilizer application, in most cases this will not be an adequate incentive for farmers to invest in regulated drainage development. Financial incentive will be need so that to make farmers apply those methods in practice.

Given method becomes really attractive for farmers living in such regions where an increase in crop yield can be achieved (i.e. periodical water shortage threatens crop production) and where water saving gives the farmers the direct benefit (i.e. allows them to grow additional crops or to shift to more profitable cropping patterns).

[11] **Water,** May 2003, Issue 16.

The main project results

Field tests of the regulated drainage with upland crops cultivation.

The field tests of regulated drainage were conducted in experimental station in the delta of the Nile (Egypt) during two seasons. A weir was developed to regulate drainage flow, while in non-controlled plot conventional irrigation and drainage management methods were applied. Drainage flow from the regulated drainage plot was reduced greatly without damaging plants. This indicates to a possibility of reducing considerably water for irrigation.

Developed forecasting tools for assessing water saving, water conservation, and crop yields under regulated drainage.

Simulation model "CD-WaSim" was developed which enables formulation of methodological approaches to application of regulated drainage with cultivation of various crops under different conditions. "CD-WaSim" model was tested using date from the field tests in Egypt. Its experimental operation in several examples shows that great amount of water can be saved (about 20-40 % of rotational irrigation).

Application guide.

A guide was developed on integrated irrigation and drainage manafements, including regulated drainage procedures. This guide is intended for those who deals with planning and management of water resources on irrigated (or rainfed) lands in developing countries and wants to estimate benefits from regulated drainage and its requirements. List of potential users of the guide includes:

- advice services (to consult farmers on regulated drainage);
- irrigation and drainage professionals (who designs regulated drainage systems); as well as
- research institutes and institutions of higher education (where the guide and associated software can be of use as an tutorial).

Potential application worldwide.

The following regions were identified as potentially suitable for application of regulated drainage: North Africa (Algeri, Egypt); Middle East (Israel, Syria, Iraq, Bahrain); India (Punjab, Harayana, Rajastan); Asia (Pakistan, North China, Central Asian States).

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INTERNATIONAL WORKSHOP ANNOUNCEMENT

5th International Hydraulic Symposium

12-17 September 2004, Madrid, Spain

Main themes:
A. Restoration of river basins and wetlands.
B. Natural flows for river conservation.
C. Biotope simulation and assessment.
D. Fish migration.
E. Relations between water organisms and hydraulic conditions. Water quality.
F. GIS and DIT in ecohydraulics.
G. Estuaries and lateral ecosystems.

Abstracts are submitted until 15 November 2003 at the below address:

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Additional information:
www.tilesa.es/ecohydraulics

5th International Conference on Sustainable Technological Development and Municipal Water Strategies NOVATECH 2004

6-10 June 2004, Lyons, France

Basic themes:
1. Alternative technologies for storm water utilization.
2. Specific technologies for treating urban storm flows.
3. Strategies for sustainable development and management of urban storm flows.
4. Tools for analysis and management of urban water cycle.

17th International Ice Symposium

21-25 June 2004, Saint Petersburg, Russia

Basic themes:

1. Ice mechanics.
2. Ice on rivers, lakes, reservoirs and seas.
3. Ice-water-atmosphere interaction.
4. Ice ecology and ice-formation control.
5. Navigation on the ice-covered surfaces.
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