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**Collection of good practices on the sustainable management
of water and water-related ecosystems**

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Sustainable management of water and water-related ecosystems

Sustainable management of water and greening the economy

Collection of good practices on the sustainable management of water and water-related ecosystems*

Summary

The Conference will address the following two themes: sustainable management of water and water-related ecosystems, and greening the economy: mainstreaming the environment into economic development.

In accordance with the Reform Plan of the “Environment for Europe” (EfE) process, the secretariat of the United Nations Economic Commission for Europe (UNECE) in partnership with relevant EfE partners have prepared official substantive documents on the two themes to facilitate discussions at the Seventh EfE Ministerial Conference.

In the process of preparation of the official substantive document on the sustainable management of water and water-related ecosystems (ECE/ASTANA.CONF/2011/3) countries and other stakeholders were invited to submit good practice examples for possible inclusion into the document in order to illustrate its arguments. A number of organizations and countries submitted one or several good practice examples. Due to document length limitations not all of them could be included into the official substantive document. Therefore, the present informal paper contains all good practice examples submitted to the UNECE secretariat by end of July 2011, including the full version of those that were incorporated in the official substantive document.

The present collection of good practice examples on the topic “sustainable management of water and water-related ecosystems” aims at illustrating how the recommendations of the official documents can be and have been implemented in some cases. This paper is thus complementing and should be read together with the official substantive document as well as the “Astana Water Action” (ECE/ASTANA.CONF/2011/5), an outcome of the Conference. The good practice examples are unedited and are presented in the way they were submitted by their authors.

* This document and the good practice examples contained therein have not been formally edited.

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I. Sustainable management of water and water-related ecosystems

A. Which policies proved to be effective to value and protect water-related ecosystems, including payment for ecosystem services? What are the main obstacles and gaps?

1. Restoration of the Aral Sea

Submitted by: The Executive Committee of the International Fund for Saving the Aral Sea

The Republic of Kazakhstan fully recognising the importance of the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) has ratified it (No.94-II from 23 October 2000, Law of the Republic of Kazakhstan). In accordance with the Article 2 (d) of the Convention where,

2. The Parties shall, in particular, take all appropriate measures:

(d)... "To ensure conservation and, where necessary, restoration of ecosystems"

We would like to illustrate one example of how the disappearing sea can be returned to life. Such a unique fate of the Aral Sea is gradually being revived thanks to the implementation of the project "Regulation of the course of Syrdarya river and the preservation of the northern part of the Aral Sea (RRSSAM)" initiated by the President of the Republic of Kazakhstan. Within the last nine years 2 billion USD were spent on the different projects and programs in the Aral Sea basin, coming mainly from the national budgets and loans (98 %) of the Central Asian States. One good practice of successful implementation of idea and thriving solution on saving part of the Aral Sea is the project – Northern Aral Sea, completed in the Kazakhstani part of the Sea. In accordance with this project, in 2002 bifurcation (divergence) of the delta of Syrdarya river was stopped. As a result of the Kok-Aral dam construction it has become possible to prevent the drying out and preserve part of the Northern Aral Sea at the volume level of 27-28 km³. Kazakhstan took decision on an annual renewal of this part of the Sea and prevention of its drying out. This decision is being strictly implemented.

After implementation of the first phase of the Project - Syrdarya Control and Northern Aral Sea the following results are observed:

- Volume of the Aral Sea is kept persistent at the constant level of 27.5 km³ within the last 8 years.
- Commercial species of fish made a strong comeback (7 species)
- Water salinity reduced 5 times
- Fish catches increased 10-12 times
- Local population return to the places of traditional residence

Moreover, as a result of the project "Regulation of the course of Syrdarya river and the preservation of the northern part of the Aral Sea (RRSSAM-1)" bandwidth of the Syrdarya river which is below Kyzylorda hydroscheme increased from 400 to 760 m³/s, the course of the river stabilized, allowing the flooding threat reduction to Kyzylorda city and its adjacent areas. The reduction of flooding threat to human settlements and irrigation facilities is also observed. Kazaly and Kyzylorda waterworks as well as water supply of irrigated lands suspended under the waterworks are improved. According to

the Shardara data during the winter months hydroelectric power generation increased more than 2 times. The stability of Shardara and Arnasai dams restored.

In order to ensure the further revival of the Small Aral Sea (SAS) it was decided to increase the volume of SAS and build the second cascade of the Sea which will fill this part of the Aral Sea in its existed historical borders. Implementation of this project will increase the Small Aral Sea one and half times and provide significant improvement of the ecological and socio-economic situation in the region. The area of the salt desert of the dried bottom of the Aral Sea covered by the fresh water from the Syrdarya river will increase up to 1000km². Increase of the water surface will give return of the sea to the shores of Aral'sk, the former port and fishing town. This will contribute to the growth of employment, economic revival, development of the relevant infrastructure benefiting not only the fishing industry, but also for the tourism purposes.

Thus, successful implementation of these projects will allow the improvement of integrated water resources management and significantly reduce the environmental crisis at the lower reaches and delta of the Syrdarya river.

2. The Kolubara basin

Submitted by Sweden

A Cooperation Programme between Swedish Environment Protection Agency (EPA) and the Directorate for Water (DfW), within the Ministry of Agriculture, Forestry and Water Management in Serbia, was signed in 2006. The project was the first Swedish EPA cooperation project with Serbia. The project started on 1 July 2007 and ended on 30 June 2010. Swedish EPA's assessment is that the project has achieved the project objective and many of the expected results.

The project has achieved its project objective: Strengthened capacity of Serbian national and regional water administrators in integrated water management according to the principles of the EU Water Framework Directive (WFD), through the development of a pilot Integrated River Basin Management Plan (RBMP) for the Kolubara river basin. Integrated water management, based on the principles in the EU WFD, has been demonstrated through the development of the pilot RBMP. The project group has jointly developed the plan, based on the knowledge gained through project trainings and seminars (besides also using existing knowledge from other projects). Gaps in available data and tools have been identified.

The expected results were:

1. A well trained group of Serbian water administrators in water management exists.

Participants of the project group have received numerous trainings. By the practical "learning-by-doing" approach, the participants have used their knowledge and gained more experience, through the work with developing the plan. This group is now familiar with the process of developing such plans and which improvements that are required. Serbia will now (without Swedish assistance) spread the knowledge and experience gained by the project group, to other personnel in the relevant institutions. All RBMPs in Serbia should be finished by 2012.

2. Serbian tools for implementation of integrated water management exist.

The project has demonstrated tools necessary for the elaboration of RBMP's. It has not been possible to develop all tools needed, due to lack of data and time. The plan is therefore based on the available information about the Kolubara river basin, but gaps in data and methods have been identified. Tools for economic analysis were especially missed by Serbia; there is a lack of skilled employees.

3. Legislative demands of EU water linked directives are transparent for the participants in the project.

Due to the late adoption of a new Water Law (May 2010), these issues have not been tapped into by the project.

4. A needs assessment for a water monitoring programme for the Kolubara river basin is developed.

A monitoring programme was developed within an EU-financed Twinning project carried out with German assistance. The future monitoring programme is described in the RBMP.

5. Consequences of introducing the principles of EU Water Framework Directive are demonstrated through the production of a pilot RBMP for the Kolubara river basin.

The project has produced the plan, see earlier comments.

6. The project has demonstrated the need and ways for consultation, communication and involvement of stakeholders and public in development of the RBMP.

The former Serbian legislation did not include such requirements, but during the course of the project, public participation activities with involvement of different stakeholders have been carried out. Such requirements are now included in the new Water Law.

Besides these planned results, the project has also yielded some positive side-effects. In this project, the Serbian side has highlighted the good coordination and cooperation between the competent authorities. This was possible through the establishment of the project group, which included representatives of all competent authorities and institutes needed for the preparation of a RBMP.

During 2008, the project attracted positive attention in neighbouring Bosnia-Herzegovina and a group of six water administrators has thereafter participated in some of the project activities (at the country's own expense). The participants expressed an interest of a similar project in Bosnia-Herzegovina.

3. Implementation of Integrated Water Resources Management in Switzerland

Submitted by IHP-Help Centre for Water Law, Policy and Science

Switzerland / Rhône: Switzerland's highly decentralised decision-making process makes it very difficult to achieve the levels of institutional and sectoral coordination needed for the implementation of Integrated Water Resources Management (IWRM). Decisions with respect to the management of water resources, and enforcement thereof, are taken at the cantonal and communal levels, and this results in fragmentation, lack of consistency and, potentially, inter-user conflict (seen for example during the 2003 heatwave). This effectively means that decisions are taken below the level that is appropriate, highlighting the fact that water management is not necessarily optimised if decisions are taken at the local level. This compromises the country's capacity to adapt its water, land and natural resource management strategies in relation to global change.

4. Successful models in Central Asia

Submitted by WWF Central Asian Programme

4. a) Biodiversity preservation and integrated river basin development in the Syrdarya river valley of Kazakhstan:

Since 2007 with the support of Ministry of Foreign Affairs/WWF Norway, WWF Central Asian programme is implementing project “Biodiversity preservation and integrated river basin development in the Syrdaria river valley of Kazakhstan”.

The project aims to provide a basis for the integrated river basin management, nature protection and ecosystems restoration in the Syrdaria river valley, through development, adaptation to local conditions and model testing of initiatives addressing the needs identified in the previously developed ECONET scheme and recommendations (GEF-UNEP-WWF project completed in 2003-2006).

The project includes development of new protected areas as core-zones of ECONET, development of different forms of sustainable land use in areas identified as important ecological corridors and buffer zones, and close cooperation with local communities and NGOs in order to achieve sustainable use of ecosystems and new opportunities for development.

Syrdaria is one of the two major rivers of Central Asia which had suffered from an important anthropogenic impact, resulting in well-known Aral Sea disaster. But it was less influenced by draw-off discharge, clearing of riparian forests for fields, and has a lower population density than similar threatened river systems in Central Asia (Amudarya in particular), so it provides an opportunity to become a model for sustainable management and socio-economical development of river basins in the region and for flagship species conservation and restoration.

Until recently no protected areas existed in the river valley, in spite of the great biological values. Some years ago a Karatausskii strict nature reserve (zapovednik) was established and some specially protected zones in the grasslands’ areas – but there were no Protected areas (PAs) in the river valley, although protection of riparian forests is critical, among others for the water balance of the river.

Intermediate project results already have an important positive impact on the sustainability of water management in the middle reaches of Syrdaria. Some particular results of the project are the following:

- Based on the decisions/ recommendations of a regional workshop, practical reconstruction of irrigation systems in the floodplain agricultural lands was completed (a model territory of the settlement Nurtas), as well as improvement of the water-supply on the grazing lands of a model territory in the foothills of Karatau mountains.
- The system of water transfer via Arys-Turkestaniskii canal was improved (the official decision on the regime of water use/management) in favor of biodiversity conservation needs;
- Two special decisions of the Syrdaria Basin council were an important step forward in integrating nature conservation issues in the water management plans.
- Conservation and restoration of the riparian floodplain forests was initiated (territories of Turkestaniskii forestry and local community Nurtas) – e.g. areas, where natural forests (native species of trees) are now planted;
- The project initiated practical establishment of a system of protected areas of different status in the project territory (ECONET cluster) with core areas (existing Karatausskii zapovednik and new suggested Turkestaniskii national nature park with a number of clusters) and a system of sanctuaries and territories of sustainable nature resources management (ecological corridors and buffer zones). Initial documents for establishment of the major core protected areas were prepared by the projects and passed all official procedures of evaluation/adoption/official approval. As a result
 - o the first PA in the riparian forests (Turkestaniskii sanctuary) of Syrdaria was established;

- three km buffer zone around Karatausskii zapovednik was established;
- according to the application of the Committee of Hunting , Forestry and Protected areas addressed WWF project to develop proposals and background documents for protecting major part of riparian forests of the middle reaches of Syrdaria (more than 50 000 ha, instead of initially planed NP cluster 5 000 ha).
- The following practical establishment of the system of PAs of the project territory is included in the official Governmental plans: State Governmental sectoral programme “ Jasyl Damu” for 2010-2014 (approved by governmental decree № 925 -10.09.2010) – chapter of PAs establishment - includes the following positions:
 - p.67 – establishment of Turkestanskii national park
 - p.68 - establishment of Kyzylkumskii sanctuary
 - p. 73 – establishment of a number of PAs of different status in Syrdaria river valley
- Local communities are involved in sustainable forms of use of nature resources – important component of Econet development. Implementation of the model projects (13) of the Small grant programme is ongoing , including fish farms, green houses for medical plants, school forestry’s – plantations of especially valuable species of trees for natural forests restoration; ecotourism development, etc. Six of the projects are additionally funded by the projects’ implementing partners; methodological support is provided, monitoring ongoing – testing and evaluation of intermediate results of the projects conducted. Special trainings allow locals to learn the best Management Practices (BMPs) and to see practical results of their model implementation.

Some examples:

Model implementation/testing of (BMPs) in sheep-breeding is ongoing on a model territory (partner organization/co-funding attracted). Intermediate evaluation of the project has shown, that special regime of irrigation allowed to collect alfalfa twice during the season – 70 centner per ha, 420 tons total – which successfully supports the livestock of the farmer for the year. The results of BMP model implementation allowed to decrease grazing pressure on the grasslands in the surroundings of Karatausskii zapovednik (now – its buffer zone).

Replication of successful models is on-going, more and more communities – local NGOs etc. are involved in various activities, corresponding to the concept of ECONET development.

4b) Integrated river basin management and nature protection in the Tigrovaja Basin of Tajikistan Amudarya river basin

Since 2007 with the support of MFA/WWF Norway, WWF Central Asian programme is implementing project Integrated river basin management and nature protection in the Tigrovaja Balka of Tajikistan Amudarya river basin.

The project aims to contribute to halting the degradation and extinction of the floodplain forests in the upper reaches of Amudarya – one of the two major rivers of Central Asia which compose the Aral Sea basin. The floodplain riparian forests of this area are unique biodiversity complexes, conserving water in this extremely arid zone and preventing land erosion but to a great extent they have been replaced by agriculture (especially cotton) as river valleys are the most fertile lands in the sandy desert zone. Only 10% of the previous riparian forests still exist in Amudarya – the rest are replaced by fields. Majority of remaining forests are represented by narrow stripes along the river and suffer from overgrazing and hydrological disruption caused by dams and irrigation systems.

The project aims to establish a long-term plan and to ensure practical implementation of the restoration of the threatened floodplain habitats and sustainable water management as an important step towards the restoration of natural ecological processes in the watershed of Amudarya. The project area includes unique massive of riparian forests in the upper reaches of Amudaria- Tigrovaja Balka Zapovednik - the most important reserve in Tajikistan in terms of total area and representation of ecosystems and rare species. It should be mentioned that the last Turanian tiger was seen in the Tigrovaja Balka Zapovednik in 1958. The virtual jungles of tugai in Tigrovaja Balka are the largest and most intact in the region- between the Vakhsh and Pyandzh Rivers. The irrigation systems currently used in the surroundings of the reserve (as well as in the other similar areas of the region) not only divert water for farmlands but inhibit its flow to the floodplain forests, which are suffering degradation as a result. Regulation of river flows by dam construction is interrupting cyclical processes in the tugai-ecosystem (which require periodic flooding), leading to desiccation and elimination of the forest. A system of existing water streams (previous natural branches of the river, connecting lakes of the reserve) was overgrown because of absence of floods – thus lakes were getting dry (by the beginning of the project level of water was up to 2 – 2.5 m less than optimal).

By the initiative of the project, cooperation established between the Ministry of nature conservation and Ministry of melioration and water management. An official decision on water supply to the main stream of Kumsangir canal received and possibility to use part of this water for the needs of ecosystems approved.

A joint group of specialists was established and a special survey conducted in order to identify optimal ways to provide fresh water from the Kumsangir canal to the ecosystems;

A system of natural water streams was cleared, some reconstructions of irrigation system in the surrounding was conducted. A number of sluices were built on the bypass canal. It allows to regulate water supply to the lake system, to avoid arriving of polluted waters, and to avoid water losses – so that fresh water is regularly provided to the ecosystems. In spite of a small difference in the level of Northern and Southern parts of the reserve (4m difference of level on the 30 km distance) natural water flow in the canals is insured

Completing this work allowed to normalize water supply of the system of lakes of the riparian forests of Tigrovaja balka. According to the results of monitoring in Tigrovaja balka water level / quality of water (salinity) is in the optimal stage – it coincides the historical level with regular floodings – before building of Nurek hydropower station! (Even the southern lakes of the reserve -dry since 30 years ago- are fulfilled to an optimal level). Increased number of birds' species – increased concentration of waterfowls in winter prove important improvement of ecological conditions in the reserve. Returning of crawfish in some of the lakes and water streams of the reserve prove absence of pollution, good aeration of water and low level of salinity.

Local communities are involved in sustainable forms of use of nature resources – important component of Econet development. Implementation of the model projects (7) of the Small grant programme is ongoing – focusing on implementation of BMPs in irrigation / sustainable use of nature resources, biogas production for local needs, etc.

Some examples:

1a)-30% energy saving by use of biogas instead of usual energy sources; 7 farmers replicate the experience;

(1b) model drop-irrigation system – 0.1 ha – 1.3 times vegetable gather growth; 60% less water needed, 45% less fertilizers.

(2)special irrigation 0.5 ha - 1,5 times vegetable gather growth; 70% less water needed, 70% less fertilizers – the model included in the GTZ grant for wide replication in 2011-2012;

(3) biogas production for agricultural needs -35% energy saving , 1.5 times growth of productivity of lemons; 5 cases of replication;

(4) special irrigation system – 4 ha of pomegranate, almond plantations: 30% water saving, 20% energy saving (yield will be relevant 2 years later).

In Tajikistan successful models allowed to raise motivation of farmers – replication of successful models is on-going.

5. Pilot project “Development of Action Plan of the Ili-Balkhash Basin”¹

Submitted by Kazakhstan

Ili-Balkhash river basin (IBB) covers water collection river territories feeding Balkhash lake. It includes entire or partial territories of four administrative regions (oblasts) of Kazakhstan: Almatinskaya, East Kazakhstan, Karagandinskaya and Zhambylskaya; the largest city of Kazakhstan, i.e. Almaty, as well as north-western part of Xinjan-Uigur autonomous district of the People’s Republic of China and small part of Kyrgyzstan.

In line with this, the official sources use the name of Balkhash-Alakol basin (BAB). This territory, unlike the geographic IBB, is defined based on water resource management conditions. BAB includes, in addition to geographic IBB, Alakol-Sassykkol lake system and excludes water collection territory of XUAD in China. In the official statistics, reports, and other documents, used in this work, there are data on BAB.

The purpose of the Plan is the development of target indicators and key directions of action for the protection of Lake Balkhash, with an emphasis on internal resources. Most of measures of this Plan can be implemented within 5 years.

Reduction in the water flow volume into the Lake Balkhash due to the excessive intake in China, as well as climate change, can be compensated by interrelated measures on refilling the lake with water by saving water and reducing water loss, by the introduction of new technologies and by creating a more efficient management system.

As a result of implementing the Plan, the Balkhash Lake, as a national asset, will not disappear from surface of the planet, unlike the Aral Sea did. The population living in the basin will be ensured to have more stable (long-term, safe and environment-friendly) activities. The state will in turn strengthen its ecologic and food safety and will make a significant contribution to achieving global development goals and environmental sustainability.

B. *What policies proved to be effective in addressing human health issues related to water quality and quantity? What are the main obstacles and gaps?*

6. Investments in waste water for low-income small communities

Submitted by Global Water Partnership

Since December 2009, GWP Armenia and its partner JINJ have been seriously engaged in household wastewater treatment problems. As a result of a long-time lobbying with support of Communities Association of Armenia, a pilot community was identified that badly needed wastewater treatment. Funds from the UNDP/GEF Small Grant Program were granted in 2010. One of the reasons why the funds were committed is the fact that a proposal took into account the full project cycle from the technical design, operation of the facilities, to stakeholders’ involvement and role of local community in maintenance.

¹ Due to the length of the original good practice example submitted, only an excerpt is included here.

The project aims to address agricultural lands degradation and underground water pollution issue caused by continuous contamination of community farmlands by municipal wastewater in Parakar community (with 10,000 population) of Armavir region. Parakar community's input in this project is 66% of the total project budget, of which 64.7% is monetary, and 35.3% is in-kind. The community population is involved in the training sessions on sustainable land management.

Lessons learnt

There are not many possibilities to invest in water infrastructure in small villages where the return of investments is unsecured. An initiative of Armenian NGOs together with an engineering company brought an innovative approach into financing: operating and maintenance organization will provide stability and continuity of the plant operation at the expense of wastewater treatment fees collected from population, as well as the fees for using the treated wastewater for irrigation purposes.

Source:

http://sgp.undp.org/web/projects/15644/rehabilitation_of_agricultural_lands_through_application_of_biological_ponds_for_domestic_wastewater.html

7. Improvement of water supply and sanitation in Uzbekistan

Submitted by Uzbekistan

Considering that wastewater discharged from sewage treatment facilities of utility enterprises are one of the major water pollutants, Resolution #11 of the Cabinet of Ministers of the Republic of Uzbekistan dated 3 February 2010 "On additional measures for improvement of environment-protection activities in the system of utility services" was adopted in order to ensure environmental improvement. This Resolution envisages payment by industrial enterprises for excessive over-standard discharge of pollutants into the municipal sewerage system. It will stimulate the enterprises to construct new local treatment facilities or reconstruct the existing ones.

In order to develop the water supply system and improve the quality of drinking water, a "Scheme for regional and local water supply and sewerage systems in cities, towns, urban settlements and regional centers in the Republic of Uzbekistan based on specified parameters for the period until 2010" was developed and implemented in 1995. In addition, a Resolution of the Cabinet of Ministers of the Republic of Uzbekistan #278 "On measures for further improvement of drinking water and natural gas supply to rural settlements" was adopted in 1999.

As a result of the performance of these resolutions, water supply improved in several regions of the republic, owing to the launch of a water supply system with water abstraction from Zarafshan fresh groundwater deposit. The quality of drinking water supplied to the population in the Republic of Karakalpakstan and Khorezm region improved owing to the construction of regional water pipelines with water abstraction from Tuyamuyun reservoir.

At present, a "Strategy for integrated development and modernization of water supply and sewerage systems in the Republic of Uzbekistan for the period until 2020" is being developed according to the Ordinance #217-f of the Cabinet of Ministers of the Republic of Uzbekistan dated 12 May 2009. This Strategy envisages a program for improvement of water supply sector management, development of a strategy for sector improvement, including a mechanism for state-private partnership, development of a road map and an integrated investment plan, and formation of a unified structure for water supply sector management within the framework of a Grant Agreement between the Republic of Uzbekistan and the Asian Development Bank.

In 2010, a Resolution of the President of the Republic of Uzbekistan "On acceleration of infrastructure development, transport and municipal construction in 2011-2015" was

adopted. This strategy is aimed to stabilize the operation of water-supply enterprises in the republic, including inter-regional water pipelines, and reduce costs by adoption of energy-saving technologies and saving of energy resources.

8. Water Protection zones in the Czech Republic

Submitted by the Czech Republic

According to the Czech legislation the water authority identifies protection zones for protection and wholesomeness of surface and ground water resources convenient for drinking water abstraction of more than 10 000 m³ per year. The first level of protection is obligatory for close proximity of abstraction facility. The second one should be stated by the water authority so that the wholesomeness of water resource is not injured by anthropogenic activities. Limits for quality of such water resources are legislatively stated.

Nearly 93% of inhabitants of the Czech Republic are supplied by drinking water from public water supply systems. The requirements for drinking water quality from public water supply systems and its regular control are embedded in the Czech legislation. Its basic principles represent transposition of the EU Directive 98/83/EC on the Quality of Water Intended for Human Consumption, objective of which is to protect human health from adverse effects of any water contamination by ensuring its wholesomeness and purity. The requirements and range of quality standards contained in the Czech legislation are even wider and in some cases stricter in comparison with the Directive.

The legislation does not cover consumption from small water resources as are private wells. The use of such resources is up to the responsibility of individual legal or natural persons. During the last 12 years information campaign for small water resources and wells owners has proceeded to embrace this problem. The booklet "The Well as a Source of Drinking Water" has been issued in two editions and it is available also on Internet. Moreover, a large edition of leaflet "Own Well: Advantage and Risk" has been distributed by health institutions into all communities not equipped by the public water supply systems. The National Institute of Public Health has public phone line and e-mail intended to inform interested persons regarding private wells and connected risks.

Quality of bathing water is also important for public health. The Czech Republic as an EU member state implements the Directive 76/160/EEC Concerning the Quality of Bathing Water. Transposition of the new Directive 2006/7/EC Concerning the Management of Bathing Water Quality and Repealing the Directive 76/160/EEC is in progress. The purpose of the EU regulations is to preserve, protect and improve quality of elements of surface water where competent authority expects a large number of people to bathe, to protect human health. The Czech legislation concerning bathing water goes beyond the EU regulations and stipulates obligations to monitor and classify bathing water not only in a wide open space, but also in an artificial swimming-pools and saunas. It also establishes clear and lucid system of bathing water quality classification and relating health risks placed on Internet and communicated to public by different authorities and institutions.

9. Finland's water policy is based on long-term target setting and extensive cooperation

Submitted by Finland

Finland is among the few countries in the world fortunate enough to have sufficient clean water for drinking and other uses. However, this has not always been the case. In the 1960s, municipal and industrial wastewater loads caused deterioration in the quality of the water bodies in Finland, so at that time, about one-quarter of Finnish people lived

next to a degraded water body. In Finland water bodies are highly vulnerable to human pressures.

Active protection of waters was initiated in Finland in the 1970s. Municipal and industrial wastewater loads have decreased to a fraction of what they once were. The use of modern technology has enabled the reduction of phosphorus and oxygen-consuming substances in municipal loads by 95 per cent, and nitrogen has been reduced by 55 per cent. In water-intensive industries – such as the pulp and paper industry – water use and the volume of wastewater produced have also decreased considerably. Decreases in water use also generate energy savings. Because of reductions in point source discharges, the water quality has improved in many water bodies which were earlier badly polluted.

Water protection has been based on long-term target setting and proactive strategies. Four national water protection programmes have been introduced since the early 1970s. The programmes adopted by the Government specify quantitative water protection targets for priority sectors. Progress towards reaching these targets has been regularly monitored. When revising the targets, the following have been taken into account: the recent scientific research, progress achieved and obstacles still to be overcome. Water management involves wide-ranging cooperation with many stakeholders, both at the national and regional level to ensure the commitment of different partners to work towards the targets.

Since 2000 the EU Water Framework Directive has provided a framework for river basin management planning. It sets a timetable for actions, with 2015 as a target date for achieving a good water quality status for all water bodies.

The Government of Finland adopted river basin management plans for seven regions in 2009. The river basin management plans were prepared in regional environment centres, through extensive cooperation between various stakeholders and interest groups.

Measures to improve water protection are needed in all sectors that discharge loads to waters and that alter water bodies. The most important challenge is to reduce nutrient pollution, particularly from agricultural sources. Actions to restore water bodies will be initiated to achieve good ecological status of water bodies and to promote the recovery and viability of populations of migratory fish species.

According to the river basin management plans, good water quality status can be maintained or reached by 2015 in over 90% of the lake area under review, and in approximately 70% of total river length. Improving the state of coastal waters will be slower, but the goal is still to achieve good water quality status by the year 2027 at the latest. With some exceptions, it is estimated that the status of all groundwater resources will be good by 2015.

10. Target activities 2011 for Water Supply and Sanitation Systems in the Republic of Azerbaijan

Submitted by Azerzu Joint Stock Company

A start was given to the following set of integrated actions aiming to avoid damage to public health and prevent contamination of Caspian Sea:

1. Sewer tunnels with a total length of about 30 km will be constructed in order to collect the wastewater from Baku and surrounding settlements and thus to ensure cleanliness of Baku bay as a whole. This will allow to collect and convey to existing Waste Water Treatment Plants a daily wastewater volume of 300 thousand m³ discharged across Baku bay. Pursuant to the Load Agreements signed with South Korean and Saudi Arabia, two wastewater treatment plants, each with capacity of 60,000 m³/day, will be installed to avoid contamination alongside the beaches on the coast of the Caspian Sea. At the same time, a sewerage network of about 120 km length will be installed in the settlements

around Baku. Upon completion of these works, water quality in the Caspian Sea beaches alongside Absheron Peninsula will meet the requirements of hygienic standards.

2. Work has started on reconstruction of water supply and sewerage systems in 61 towns of the Republic of Azerbaijan. For this purpose, loan agreements with total sum of 1.3 billion USD were signed with World Bank, Asian Development Bank and Japan International Cooperation Agency. At present, work proceeds on construction of water supply and sewerage facilities in 10 rayon centers. Construction of wastewater treatment plant is foreseen in each rayon center.

11. Examples of environmental sanitation, allowing to keep groundwater from contamination

Submitted by Eco-Forum Kazakhstan

Millions of years of animal waste and human beings on Earth were uniformly distributed on the surface, and participated in the global circuit. They fertilize the land and contributed to the growth of plants. Only in the last several millennia rapid urbanization has led to the fact that huge quantities of organic human wastes are concentrated in sewage systems and cesspools, contaminating groundwater and the environment. They fell out of a natural circulation, and pose a threat to our health. In Kazakhstan, 95% rural and much of the urban population having access to street pit latrines, a network which covers the private sector in all settlements in increments of 20-30 meters. As a result, the groundwater nitrate and get bacteria from cesspools. In the village Karamendy Kostanai region of sample water in wells and boreholes show from two hundred to five hundred milligrams of nitrate per liter. With such a concentration a few litres of drinking water contain a lethal dose of nitrate. In Kazakhstan, with a population of 16 million people (0.2% of the population) annually into the environment from human waste (8 million 800 thousand tons) falls more than 250 tons of nitrate and 60 tonnes of phosphorus. That's enough to make unfit for drinking 4% of the world's fresh water. And at the same time, if used properly it can provide a highly effective environmentally friendly fertilizer for 320 thousand hectares of agricultural land. Of particular concern is the fact that in Kazakhstan, the media hardly mentioned the danger of nitrate, whereas, for example, in Munich (Germany), scientists have sounded the alarm when the concentration of nitrate in groundwater concentration reached 10.11 mg per liter. Had taken all measures to reduce nitrate pollution, which currently do not exceed 7 mg / liter.

At the same time in the world today successfully developing the concept of "ecological sanitation", based on years of theoretical and practical experience in Sweden, Germany, the Netherlands and other European countries, as well as Japan and China. This concept has been going on for several years been developing successfully in Africa and included in government programs of several States. Environmental sanitation based on the following fundamental principles:

pollution prevention instead of spending more resources to clean up and struggle with the consequences;

- sanitizatsiya urine and faeces (freedom from pathogens);
- use of recycled human waste as fertilizer for agricultural environmental goals.

In Kazakhstan, this concept also has already received expression in the form of five school dry toilets in the villages of Kostanai and South Kazakhstan oblasts, and dozens of outbuildings dry toilets constructed under the program «Empowerment and local action», carried out by an international organization "Women in Europe for a Common Future» (WECF) with financial support from the Government of the Kingdom of the Netherlands. Some practical experience in operating dry toilets, confirming their comfort and the infectious safety. Kazakhstan's first dry toilet was manufactured and installed in a camp-camping "Darbaza" near the cordon of the same name Aksu Zhabagly State Nature

Reserve in 2008. The Toilet is a collapsible metal construction with a canvas awning. Two chamber base is made of metal corners and iron. As a separator is used the plastic bowl from China. The powder is a mixture of sawdust from wood ashes. Collection of urine is carried out in tridsatilitrovye plastic jerry cans. The first school dry toilet was built in s.Urkash Kamystinskogo district Kostanay region. The toilet is attached to the building of schools, which has two bathrooms. The men's toilet is equipped with a urinal. Under each room there are two chamber storage for faeces, each of which has a sealed opening to the outside for recess content. To collect urine from concrete rings two buried emkosti.V toilets have been built which are also used as separators in China. A number of dry latrines are built in s.Karamendy Naurzum district Kostanay region, Taraz: Swedish installed toilet facilities for the firm Separett, g.Lenger Tolebi district SKO, as well as in a number of villages of this district. In South Kazakhstan was also constructed double dry toilets in primary school s.Tonkeris in a primary school with. Baldybrek, as well as the eight-dry toilet in a boarding school for deaf and hard of hearing in g.Lenger. All toilets are based on double chamber principle. In the school toilets and sat Tonkeris Baldybrek first used bowls made of concrete marble Zhambyl entrepreneurs on technology SISTROM

Conclusions:

1. Covering a solid network of settlements in Kazakhstan pit latrines, as well as modern toilets flush lead to pollution of valuable water resources, nitrates and pathogens.
2. In recent decades, the idea of ecological sanitation has been widely disseminated not only in developed countries in Europe, Asia and America, but also in developing countries in Africa and other continents. Swedish, Finnish, Norwegian, Chinese entrepreneurs are quickly master the market for equipment and accessories for dry and composting toilets.
3. Kazakhstan, despite the deplorable situation in this area lags far behind in this respect from many developing countries in Africa, where environmental sanitation program is actively supported at the state level.
4. To remedy the situation it is necessary:
 - Treat waste as a valuable human resource for the greening of agriculture and strongly encourage their use as fertilizers.
 - To explore the experience of construction of dry latrines and use it primarily in the construction of rural schools and kindergartens and in the recovery of destroyed housing after the man-made or natural disasters.
 - Enter the relevant rules and to recommend the project for organizations to use in their design principles of ecological sanitation.
 - Strictly prohibit the construction of tourist facilities without treatment facilities, especially in the mountain gorges.
 - Prepare and gradually introduce regulations banning pit latrines, where are located close to groundwater.
 - Encourage the use of biogas plants for waste and faeces of humans and animals.
 - In allocating land for private development to abandon construction of expensive sewage, using the principles of ecological sanitation. Given that the dry toilets do not require drainage, and for gray wastewater they are quite applicable local treatment facilities, based on sand and gravel filters.

12. Scotland, Health and Water Services

Submitted by IHP-Help Centre for Water Law, Policy and Science

In Scotland, although most of the population is served by mains water supply and sewerage, there are still rural communities with local and private supplies. Further, there have been occasional failures of the public water supplies leading to public health concerns, and more frequent failures of the drainage systems, especially as a result of flooding. The biggest policy issue in recent years has been economic regulation. Water services are provided here through Scottish Water, which is a public corporation; they were not divested as in England. Nonetheless there has been some private sector involvement through Build-Own-Operate schemes for wastewater treatment plant to meet the requirements of the Urban Waste Water Treatment Directive (1991/271/EEC), contracted to Scottish Water. In Scotland we found it beneficial to move away from local authority provision for two reasons: local authorities had competing demands on resources, impacting on investment; and it was more difficult to have transparent accounting systems for water alone, especially in terms of capital expenditure. Scottish Water is a key stakeholder for the river basin planning / IWRM process.

All provision by Scottish Water is subject to economic regulation by an independent regulatory body (although it would be possible for a Government department with suitably qualified staff to do this job). The tariffs and the capital investment programme are both controlled within a set of policy objectives set by Ministers, and incorporate both environmental standards (especially discharges from treatment works, but also abstractions) and social standards (transparent cross-subsidy for the poor). In Scotland there is a separate environmental regulator but the economic regulator has primary responsibility for social regulation. It can be noted that the elements of this (policy, and standards) work equally well for services provided by the public sector, the private sector or in partnerships, though it is helpful to have comparators for efficiency purposes. Most importantly, the new system of economic regulation has enabled Scottish Water to provide a better service, for lower charges, than was the case in the past. Both the Government (on the policy objectives) and the regulator (on tariffs and investment) consult widely with the public and key stakeholders. The regulator has a suite of enforcement powers.

In addition, our off-network provision is also regulated. Private water supplies supplying businesses or community properties (schools, churches etc) must meet all the standards of the EU Drinking Water Directive (1998/83/EC), whilst reduced parameters can apply for smaller supplies; of course the WHO provides guidelines of more global application that can be tailored for country use. Drinking water standards are regulated with appropriate enforcement powers; here there is a separate regulator but again a government department (or a local authority) could provide this function. For septic tanks and other small onsite sewage treatment, emission standards are not as effective as design standards, whereby the soil and groundwater must be assessed as suitable and then the system itself built to the approved standards. As with environmental standards the key is that there is the political will to implement and enforce the same, and create an appropriate enabling environment to foster governance through accountability, transparency and participation.

C. *What are the priorities/challenges in adapting management of water and water-related ecosystems to extreme weather events and to climate change?*

13. Climate change adaptation strategy in the Czech Republic

Submitted by Czech Republic

Climate change brings extreme weather vents expressing themselves predominantly as extreme hydrological phenomena – floods and draughts. Within the last several years an increase of annual mean temperature and average volume of precipitations has been observed in the Czech Republic. Changes in precipitation distribution during the year accompanied by occurrence of extreme hydrological events – flash rains and long dry periods are expected. This brings changes in the character of floods and decrease in the average annual discharge of surface water. With certain delay impact on volume of ground water reserves will appear. Low flow rate and higher temperature of surface water will decrease content of dissolved oxygen, support eutrophication and cause degradation of ecological functions of water. Decreased dilution capacity of streams will require better quality of waste water discharged from point pollution sources and new approaches to management of diffuse pollution sources. Higher pollution loads of water resources will result in higher costs for water treatment for drinking purposes. Some drinking water resources will even be put aside. Lack of quality water suitable for drinking purposes, irrigation, energy production and industry can lead to conflict of interests among different water consumers, including drinking water supply and nature protection. During dry periods there will be higher danger of fires multiplied by lack of water to extinguish them. Subsequent flash rain, supported by changes in vegetation cover emerging during long dry period, can cause destruction of geological subsoil and loss of its stability. Nevertheless, flash floods will be considered not only as the danger for people and property but also as source of water for future, which needs to be accumulated. This will lead to changes in flood protection policy.

Main aim of climate change adaptation measures in water sector is to stabilize water regime in landscape, to strengthen protection and efficient use of water resources, and to facilitate management of extreme hydrological events – floods and droughts. Such measures will significantly influence many other sectors. On the basis of recent knowledge the Czech Republic prepares a cross-sectional Strategy for Climate Change Adaptation, where main recommendations for the water sector are:

- to support water management planning considering an impact of other sectors (e.g. tourism, energy production, agriculture, industry, spatial development etc.);
- to change the Czech water balance assessment system so that it enables continuous water balance assessment in its spatial and time variability enabling consequential licensing of water abstraction and waste water discharge;
- to design policies and strategies for drought and water scarcity management to prevent subsequent crisis situations;
- to optimize water supply and sanitation systems to ensure their operation in the case of extreme hydrological situations (draught, flood, impaired quality of water), as well as within long lasting changes in hydrological cycle;
- to revise and update water resources protected areas delimitation (protected areas of surface and ground water resources used for drinking purposes, vulnerable areas, sensitive areas, etc.);
- to use effective legislative, economic and control tools to facilitate rain water infiltration, its harvesting and reuse in urban areas aiming to improve water

retention and to strengthen water resources; to consider possibilities of alternative water management, e.g. controlled artificial infiltration.

Climate change adaptation should be launched as soon as possible. Co-operation among sectors, as well as on international level is inevitable. All new policies, strategies and legislation should take into account climate change impact. Climate change adaptation involves legislative, institutional, economical, organisational, technical and awareness raising measures and brings opportunity for implementation of innovative techniques. Spatial planning plays important role in its implementation. Maximal effectiveness of used financial means should be observed.

14. Flood risk protection in the river Tweed in Scotland

Submitted by IHP-Help Centre for Water Law, Policy and Science

The catchment of the river Tweed, on the Scottish:English border provides a unique example of the inter-play of science and policy in sustainable water management. The Tweed is an UNESCO IHP-HELP Basin, and work by Tweed Forum and the IHP-HELP Centre at Dundee University has placed this catchment at the forefront of legislative development, scientific study and community involvement.

Taking the EU Floods Directive and earlier Water Framework Directive as starting points, the Scottish government has developed its own legislation to embrace fully the concepts of sustainable and integrated catchment management for multiple ecosystem services, including community benefits. Together with active participation from local and national stakeholders, adaptive management strategies have been developed for integrated water management across the Tweed - focusing on flood risk reduction, conservation of biodiversity, water quality and habitat improvements.

Working through the offices of Tweed Forum (the 20 year old, non-governmental river basin organization), and with local government, environmental regulators, conservation and community partners, a series of pilot initiatives and experiments have been developed. These seek to provide new evidence of how the catchments react to flooding and how habitat enhancements can be targeted to provide multiple benefits to flood risk reduction, wildlife and water quality. At the same time, studies have also focused on the communities and the barriers to engagement and uptake of measures to improve the wetland environment.

15. Integrated Flood Management HelpDesk

Submitted by Global Water Partnership

Sound flood management is an on-going, increasingly urgent aspect of climate change adaptation. The Associated Programme on Flood Management was jointly established by GWP and the World Meteorological Organization (WMO) a decade ago. In 2009, the new HelpDesk on Integrated Flood Management was launched. The HelpDesk aims to provide direct country and local-level guidance on flood management policy, strategy, law and institutional development related to flood issues, in response to requests. Hosted by WMO, the HelpDesk promotes the integrated flood management concept, which links IWRM with coastal zone management and integrated hazard management approaches, ensuring a participatory approach and a best mix of strategies to adopt in a given socio-economic and geo-climatic context. This initiative resulted in the development of the project on Flash floods efficient prediction and prevention. Three countries – Poland, Romania and Slovakia conducted a study on measures to forecast floods and elaborate a guide for inhabitants to respond to extreme conditions. A guideline on Flash Flood Management was published in 2007.

Source:

http://www.apfm.info/pdf/pilot_projects/APFM-CEE-Synthesis_web.pdf

<http://www.apfm.info/>

16. Integrated Flood Control implemented in transboundary basin

Submitted by Global Water Partnership

A project “Making space for water in the Bodrog River Basin” was developed by three countries GWP from Slovakia, Hungary and Ukraine. The project aimed to mitigate consequences of floods through achieving holistic management of flood risk. The activities considered the maintenance and/or restoration of floodplains by creating a “space” for water during flood events, as well as measures to prevent and reduce damage to human health, the environment, cultural heritage and economic activities. The involvement of municipalities, river basins organizations, NGOs, farmers, spatial and urban planning authorities was critical. Practical examples of floodplain restoration contributed also to improved habitats conditions. The 1.5 year project is funded by the UNDP/GEF. This Bodrog River Basin project is a part of ICPDR/UNDP/GEF project Tisza, which aim is to prepare the Tisza Basin Management Plan in which integration of the EU Water Framework Directive and flood directive is incorporated including flood and drought management and climate change adaptation measures.

Lessons learnt

Flood management measures include complex technical and administrative measures. It is very sensitive to request farmers to give up the agriculture benefits in favor of floodplain restoration although seasonal or unexpected events of floods might damage their economic profits. Another complex issue relates to urbanization: urban planners might have an absence of knowledge on flood risk when making decisions on future urban settlements. Administrative curbs are many: ranging from sectoral approaches to transboundary issues. In order to implement an effective integrated ecosystem management, it is necessary to establish functional public – private partnership.

Source: http://www.icpdr.org/icpdr-pages/bodrog_kick_off_meeting.htm

- D. *What are the experiences and lessons learned from the cooperation in transboundary basins to improve water quality, manage water quantity and protect ecosystems?***

17. Stakeholders dialogues for Danube River Basin Management Plan

Submitted by Global Water Partnership

In 2009, the International Commission on the Protection of the Danube River (ICPDR) launched its new river basin plan. It was a result of six years of expert work. An integral part of the preparation of the first Danube River Basin Management Plan was public consultation. This process was extended to all organizations and citizens’ groups likely to be affected. In order to reach stakeholders, the ICPDR publishes all basin-wide strategic documents and analysis reports. In addition, ICPDR cooperates with several partners at basin level, such as Global Water Partnership, World Wide Fund for Nature, Danube Environmental Forum, and several others. GWO supported to organize a public hearing of draft plan in June 2009. Together 14 countries took part in this stakeholder

dialogue. It is anticipated that in addition to knowledge sharing on RBM Plan, a broad acceptance of this strategic document will stimulate financing of programs and projects.

Source: www.icpdr.org

18. IWRM and local authorities

Submitted by Global Water Partnership

Wide decentralisation of competencies and reform of public administration over the past two decades in Slovakia brought new tasks for local municipalities also in the water sector, however without corresponding human and financial resources. The Slovak Association of Villages and Towns (ZMOS) took the lead and prepared the Guidance Document “Strategy on IWRM in Municipalities and their River Basins”, the first IWRM strategy ever reaching out to more than 2,500 Slovak towns and villages in May 2008. The main reason for preparation of such a document was a complicated implementation of European Community water related directives and excluded public, local municipalities and land users from solving vital water management problems especially in rural areas.

The ZMOS launched public discussion, facilitated several workshops with mayors and finally approved the documents on its plenary assembly in 2008. It also initiated a municipality wide survey on water management in the middle 2008. In addition, the ZMOS proposed a creation of its own IWRM Competence Centre advancing water agenda on the local level and advising/serving municipalities on wide range of water management issues.

Next phases planned for 2011-2014 are: issuing the practical guidance how to elaborate IWRM plan and consequently its areal but gradual implementation on territory of Slovakia.

Lessons learnt

As a result, the Slovak Association of Villages and Towns has developed a strong capacity in the field of IWRM and is now perceived as one of the key players in the field of sustainable water resources development, management and use by the cabinet of the Slovak Republic.

Water resources are managed at local level and the local capacity building is a proper investment to a sound management.

Source

http://www.gwptoolbox.org/index.php?option=com_case&id=228&Itemid=47

(GWP ToolBox Case study published on line)

19. ENVSEC promotes cooperation in the Dniester river basin

Submitted by Sweden

Progress on transboundary water management despite long-term frozen conflict

Pollution and frequent flooding in the Republic of Moldova and Ukraine affect environment and human security in the Dniester river basin. Thanks to modest funding from the ENVSEC Initiative, the two countries are now joining hands to manage the shared river basin in a more integrated and sustainable way.

The Dniester River, one of the largest East European rivers, influences the environment, economy and politics of the two countries. It starts in the Ukrainian Carpathian mountains, flows through Moldova and reenters Ukraine where it flows into the Black Sea. In Moldova, the river marks the border with the breakaway region of Transnistria.

Upstream water use for hydropower, households, agriculture, the mining industry and the textile industry, so important for the economy of the two countries, are affecting the natural balance of the wetlands ecosystems downstream. Centuries of reliable ecosystem services such as recreation, drinking water, irrigation and commercial fishing are thus under threat.

The combination of conflicting water needs, pollution, economic loss and heavy floods puts livelihoods and environment in both Moldova and Ukraine at risk. The risks contribute to tension and social instability. The need for regional cooperation is evident, but challenging due to deficiencies in the legal and institutional framework.

The ENVSEC partners, OSCE, UNECE and UNEP, and local experts have prepared an assessment that highlighted the need for cooperation between the countries, and the added challenge of the frozen Trans-Dniestrian conflict. Two subsequent ENVSEC projects have leveraged financial support and regional engagement throughout the river basin, counting 12 different national partners. The goodwill generated at regional level has been widespread, as confirmed by more than 45 individual interviews organized for evaluation purposes by the Canadian International Development Agency (CIDA).

Thanks to the improved understanding of the nexus between transboundary environmental and security risks in the region, the ENVSEC partners now work closely with local authorities and enjoy strong support from a number of national non government organizations.

Health authorities in the region are working together on a joint drinking water quality monitoring system. Ministers have taken the initiative to launch an additional ENVSEC project to reduce cross-border security risks from climate change, in particular flooding, by improving the adaptive capacity in both countries.

ENVSEC most significant achievement has been to foster cross-border dialogue despite the on-going frozen conflict, and to build national capacity to manage the Dniester River Basin as a shared resource.

The ENVSEC Dniester projects have demonstrated that international organizations can be an effective catalyst for regional cooperation and stability by bringing a balanced combination of local presence and compatible technical and diplomacy skills. A series of small investments have generated concrete results and sustainable national ownership. There are prospects of additional donor funds for further development, provided that the countries can demonstrate continued commitment and agree on legally binding agreements.

Dniester I (2004-2005)

Feasibility study funded by OSCE and the UNECE

Funds: 68 000 USD

Main outcomes:

- Transboundary Diagnostic Study for the Dniester River Basin
- Network of stakeholders
- Protocol of intentions regarding cooperation for the environmental rehabilitation of the Dniester river basin

Dniester II (2006-2007)

ENVSEC programme of work funded by the Swedish Environment Protection Agency and Finnish Government and implemented jointly by the OSCE, UNECE and UNEP in close collaboration with Ukrainian and Moldavian authorities and NGOs

Funds: 100 000 USD

Main outcomes:

- Action Programme to Improve Transboundary Cooperation and Sustainable Management of the Dniester River Basin in 2007-10
- Draft regional Dniester river basin agreement
- Jointly adopted regulations on stakeholder participation, sanitary-epidemiological quality control and information management: <http://dniester.org/>

Dniester III (2008-2011)

ENVSEC programme of work funded by the Swedish Environment Protection Agency and Finnish Government and implemented jointly by the OSCE, UNECE and UNEP in close collaboration with Ukrainian and Moldavian authorities and NGOs

Funds: 750 000 USD

Main outcomes are:

- i. Activities for enhanced public awareness, such as the bulletin “Dniester without Borders”, the annual Dniester Festival for children, tree-planting, and art competitions
- ii. Assessment of transboundary water quality monitoring
- iii. Online Geographic Information System (GIS): http://maps.grida.no/dniestergis_rus/
- iv. Drafting and negotiation of a draft Dniester river basin agreement
- v. Support to drafting bilateral Agreement on fish conservation and fisheries in the Dniester river basin
- vi. Facilitation of joint water control at transboundary sites and a draft legal framework for such activities

20. Cooperation between Portugal and Spain over transboundary waters

Submitted by Spain

The Iberian Peninsula’s physical and hydrographic features determine that both Spain and Portugal share a significant amount of its water resources, especially the Minho, Lima, Douro, Tejo and Guadiana river basins. The hydrographic systems particular configuration made possible to define specific bi-lateral solutions, meeting the needs that both countries have faced and will face in the future.

Portuguese-Spanish relations concerning water management started with a treaty establishing borders and common uses, the “Treaty of Limits” in 1864. Later it led, after a series of more or less specific treaties, to the “Agreement on the Cooperation for Protection and Sustainable Use of the Luso-Spanish River Basin Waters”, which was signed at the Albufeira Summit, on the 30th of November, 1998. It includes the full compliance with the European Union water policy requirements, with special attention to the issues of quality, environmental protection and public health, also comprising a coordination of the efforts from both countries in its development. This agreement was improved in 2008, with the signing of the “Revision Protocol”, in which the criteria for the assessment of the flow regime were considered, improving their time allocation, contemplating not only the annual regime, but a seasonal regime as well, thus assuring a better environmental sustainability of the shared rivers.

The Albufeira Convention defines the co-operation framework for the protection of surface waters and groundwaters and the aquatic and terrestrial ecosystems which depend on them directly, and for the sustainable use of water resources of the river basins. The Convention applies to the river basins of the Minho, Lima, Douro, Tagus and Guadiana Rivers; applies also to the activities aimed at promoting and protecting the good status of the waters in these river basins and to the existing and projected water resources development activities especially those which cause or may cause transboundary impacts.

II. Sustainable management of water and greening the economy

- A. *What policy mixes and practical tools, such as integrated water resources management, pricing, standards, and water users associations, can be most effective to improve water efficiency by different water users, especially in agriculture, households and industrial operations?***

21. Scotland and the Water Framework directive

Submitted by IHP-Help Centre for Water Law, Policy and Science

In Scotland, the EU Water Framework Directive (2000/60/EC) was implemented by the Water Environment and Water Services (Scotland) Act 2003, which set up the framework for river basin planning and also authorised the Water Environment (Controlled Activities) (Scotland) Regulations 2005/348. Both the Act and the Regulations went beyond the requirements of the Directive. The Act required sub-basin plans to increase local accountability and engagement, whereas these are not mandatory under the WFD. It also established local advisory groups which can be integrated with existing stakeholder-led catchment planning bodies where these already existed. An excellent example is the Tweed Forum in south west Scotland, which brings together water users in the catchment and facilitates relationships with regulators, policymakers and professionals. This demonstrates recognition of a nested approach to water management, with national rules, sub-national plans but implementation at a local catchment scale.

The Regulations went significantly beyond the Directive and completely reformed the law on pollution control, introduced comprehensive abstraction licensing, and brought in an integrated system for licensing impoundments and river works. The controls are three-tier (general rules, registrations and full licences), hence proportionate and risk based, with a charging scheme for registrations and licences to cover administrative costs. The water pollution regime uses the quality and emission standards set by other elements of EU water law, and has since been supplemented with Directions incorporating the non-chemical elements of ecological water quality (especially, flow and hydromorphology).

In Scotland prior to the WFD there had been no comprehensive abstraction controls and no statutory river basin planning, so these were significant reforms. They were strongly promoted by the new Scottish Parliament and by the environmental regulator, demonstrating political will (and financial commitment) to protect and improve the water environment. Both the new statutory river basin planning system and existing informal mechanisms have been used to draw together stakeholders and seek input into the river basin plans. Meanwhile the development of the new Regulations has been subject to consultation, with some elements being revised up to four times before being

finalised, demonstrating again a commitment to securing consensus around achievable best practice.

22. Policy dialogues

Submitted by Global Water Partnership

The policy dialogues and training seminars on IWRM were conducted during 2009-2010 by the Country Water partnerships and Regional Water Partnership of Central Asia and Caucasus (CACENA) regions. These sessions were a very important tool and an element of the awareness campaign and capacity development program to facilitate National IWRM planning process in all CACENA countries. The target is capacity development for key players of planning and IWRM implementation process, not only involving water specialists, but also water users and other stakeholders (around 25-30 persons in each country were attended to the meetings).

23. STRIVER Experiences (Tagus River Basin, Spain and Portugal & Glomma River Basin, Norway)

Submitted by IHP-Help Centre for Water Law, Policy and Science

The EC FP6 funded project *Strategies and Methodologies for Improved Integrated Water Resources* worked with a range of scientists, policy-makers, managers and other stakeholders to develop knowledge and experience, *inter alia* in the Glomma River Basin, Norway and the Tagus River Basin, between Spain and Portugal. The project results therefore provide a host of experiences of the challenges and opportunities in implementing IWRM. These results are available in a set of policy briefs and technical briefs available through the STRIVER website (www.striver.no), and through two main publications: Gooch, G & Stålnacke, P., (Eds.) *Science, Policy and Stakeholders in Water Management - An Integrated Approach to River Basin Management* (Earthscan, London 2010); and Gooch, G & Rieu-Clarke, A., Stålnacke, P., (Eds.), *Integrating Water Resources Management - Interdisciplinary Methodologies and Strategies in Practice* (IWA Publishing, London 2010).

B. How can we encourage investments to take into account the impacts on water quantity and water quality, energy and resource efficiency and vulnerable populations?

24. Open waste water planning helps the poorest

Submitted by Global Water Partnership

Although the EU Water Framework Directive (60/2000/EC) requires reaching good status of all water by 2015, there is a little attention paid to small settlements below 2000 population equivalent. The reason is that financial support of the EU funds flows primarily to big agglomerations. Also, technical and engineering designs are focused on urban areas as financial rules of the EU prefer large investment schemes. In this context settlements smaller than 2000 inhabitants are so far ignored by decision makers and water managers. Also, existing water utilities are not willing to embrace scattered settlements to extend their services due to high investment demand and low affordability of rural people to pay for water services. Responding to these problems, the GWP Central and Eastern Europe conducted a study on sanitation services. The project

resulted in publishing a book “Sustainable Sanitation in Central and Eastern Europe” (2007). It was published in 10 Central and Eastern European languages. Soon the publication was translated also to the Russian language as GWP Central Asia and Caucasus found it critical to approach governments to tackle the water supply and sanitation issues, based upon experiences gathered in Central Europe. Seminars on open waste water planning were organized by GWP for mayors of small and medium settlements. Local authorities received a comprehensive overview and better understanding on low-cost options.

Lessons learnt

The sanitation concepts must provide simple, robust, low-cost and sustainable systems. Open waste water planning provides for range of alternatives, including those of water saving and recycling systems based on urine diversion, onsite or cluster treatment in constructed wetlands or ponds, irrigation and other natural treatment concepts are realistic solutions that meet modern goals of resource, energy and cost efficiency.

Source

http://www.gwpceeforum.org/File/watter_talk/Watertalk%201-2_2009%20web.pdf
(GWP Water Talk No. 9/2009, page 7)
