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ASTANA, 21–23 September 2011

Seventh “Environment for Europe” Ministerial Conference

**Astana, Kazakhstan
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Astana Water Action



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Sustainable management of water and water-related ecosystems

Sustainable management of water and greening the economy

Astana Water Action

Note by the Chair of the Bureau of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes

Summary

The Astana Water Action — a collection of possible actions for improving the status of water and water-related ecosystems through their more sustainable management — was approved by the United Nations Economic Commission for Europe (UNECE) Committee on Environmental Policy at its special session as an outcome of the Seventh “Environment for Europe” Ministerial Conference (Astana, 21–23 September 2011).

This initiative was developed by the Chair of the Bureau of the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention), assisted by the Bureau of the Water Convention, the Water Convention secretariat and a drafting group composed of members nominated by the Committee on Environmental Policy.

Countries and other stakeholders are invited to commit to implementing some of the actions and to report on their progress at the future meetings of the Committee.

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Background

1. The Astana Water Action was developed in spring 2011 by the Chair of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) Bureau, assisted by the Bureau, the United Nations Economic Commission for Europe (UNECE) Water Convention secretariat and a drafting group composed of representatives of Austria, Azerbaijan, Croatia, the Czech Republic, Estonia, Finland, Hungary, Monaco, the Russian Federation, Spain, Switzerland, the United States of America and Uzbekistan, as well as representatives of the following international organizations and non-governmental organizations (NGOs): the United Nations Development Programme (UNDP); the World Health Organization Regional Office for Europe (WHO/Europe); the United Nations Environment Programme (UNEP)/Environment and Security Initiative; the Organization for Economic Cooperation and Development (OECD); the Scientific Information Centre of the Interstate Commission for Water Coordination of Central Asia; European ECO-Forum, the Global Institute for Water, Environment and Health; and the Global Water Partnership (GWP).
2. At its special session held from 24 to 27 May 2011 in Geneva, the UNECE Committee on Environmental Policy endorsed the Astana Water Action as an outcome of the Seventh “Environment for Europe” Ministerial Conference.
3. The action proposals are structured according to the agreed questions for discussion at the Astana Conference (see ECE/ASTANA.CONF/2011/1, annex) and the official substantive document on sustainable management of water and water-related ecosystems (ECE/ASTANA.CONF/2011/3). In addition, the Astana Water Action builds upon existing policy documents, declarations and guidance material already adopted under UNECE, as well as other international organizations, NGOs and processes.
4. The Astana Water Action is a collection of possible actions for improving the status of water and water-related ecosystems through their more sustainable management. They are meant to serve as a supporting tool with concrete suggestions for Governments for an improved implementation of their past commitments in water management, assessing the current status of actions in support of sound water management and identifying priorities.
5. Due to the different situations in countries of the UNECE region in terms of the status and management of their water and water-related ecosystems, the actions are not ranked or evaluated in a systematic way: priorities for actions will differ among countries reflecting the current state and actual challenges to water management. The arrangement and order of the lists of such actions in the present document should, therefore, not be seen in any way as constituting a ranking of the actions or conferring priority on those mentioned first; the intention has been, rather, to permit ease of reference in discussions on the draft.
6. The time frame for the Astana Water Action is 2012–2015.
7. In particular, the objectives of the Astana Water Action include the following:
 - (a) To provide suggestions for Governments on possible concrete actions to take to better manage their water resources according to the local/national/regional challenges they face, also including issues not currently addressed;
 - (b) To further the implementation of the water-related commitments expressed, for example, in the Rio Declaration on Environment and Development, Agenda 21, the United Nations Millennium Declaration, the Johannesburg Plan of Implementation and the outcome documents of the thirteenth session of the Commission on Sustainable Development;

(c) To invite Governments to commit on a voluntary basis to implement some specific actions contained in the Astana Water Action and to report on their successes and further challenges on water issues at future meetings of the Committee on Environmental Policy;

(d) To provide arguments for improving Governments' funding basis for water management from all sources.

8. The Astana Water Action should be seen as a complement to present policies, programmes and strategies at all levels, which takes due account of existing instruments and processes and which is flexible enough to deal with new ones, without duplicating efforts.

9. In order to make the Astana Water Action more practical and concrete, as well as to increase its political relevance, Countries and other actors are invited to voluntarily commit to some specific actions contained in it or other similar actions, using the template developed for this purpose (see annex). Countries and other actors should register their commitment to actions as soon as possible (preferably by 30 August 2011) so that this can be acknowledged at the Ministerial Conference and presented in an informal document complementary to the present one.

10. Subsequently, countries and other stakeholders who made commitments are encouraged to implement the actions they committed to and to report on progress at future meetings of the Committee on Environmental Policy.

I. General actions

11. Some actions are of a general nature and important for a coherent implementation of any water action, such as:

(a) To make water and water management integral parts of development strategies at local, national or regional levels;

(b) To improve the communication and cooperation on water between different institutions, ministries and sectors and integrate sectoral policies, e.g., water, health, environment, agriculture, forestry, transport, energy, finance and education;

(c) To involve stakeholders (e.g., water users and NGOs) in water development plans, programmes and management in basins, including in river, wetland and lake restoration;

(d) To develop curricula for water and sanitation professionals at all levels, as well as cross-sectoral curricula;

(e) To invest in the human capital, i.e., in improved operational/staff capacities of water administration and management institutions through trainings, etc.;

(f) To budget sufficient financial resources to finance water management (measures and staff).

II. 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. Management

12. Proposed actions:

(a) Develop integrated water resources management (IWRM) plans for basins (for rivers, lakes, groundwaters) with action programmes, prioritized listing of initiatives and estimated costs and sources of finance, taking into account present and future water demands;

(b) Establish and enforce strict pollution reduction targets for municipal and industrial pollution sources as well as discharge permits from municipal and industrial sources to support adequate water quality levels;

(c) Improve the institutional arrangements for water entitlements and water allocation systems;

(d) Develop and implement sustainable abstraction of groundwater and surface water, taking into account the local conditions, based on permits;

(e) Improve contingency planning for a range of industrial accidents;

(f) Provide extension services¹ and promote exchange on good agricultural practices and associated cost savings (such as soil conservation, nitrates pollution prevention, etc.);

(g) Apply good management practices in the mining industry during operation and after decommissioning such as “mining for closure”, in order to reduce the environmental impacts, especially on water bodies;²

(h) Continue funding and implementing the National Policy Dialogues (NPDs) on integrated water resources management and water supply and sanitation in countries in Eastern Europe, the Caucasus and Central Asia within the European Union Water Initiative.

2. Monitoring and information management, assessment and research

13. Proposed actions:

(a) Establish and/or upgrade existing nationwide monitoring networks based on a set of indicators for water quality and quantity of surface water and groundwater bodies to

¹ Extension services are communication and learning activities organized for rural populations by professionals from different disciplines, including agriculture, agricultural marketing, health and business.

² See for example UNECE 2008. *Safety guidelines and good practices for tailing management facilities*, available online at: <http://www.unece.org/env/documents/2008/wat/ECE-MP-WAT-WG-1-2008-5-e.pdf>, <http://www.unece.org/env/documents/2008/wat/ECE-MP-WAT-WG-1-2008-5-r.pdf> and <http://www.unece.org/env/documents/2008/wat/ECE-MP-WAT-WG-1-2008-5-f.pdf>. Environment and Security Initiative 2005, “*Mining for closure*” *management practices in the mining industry*. Available online at: <http://www.grida.no/publications/list/2367.aspx>.

evaluate the effectiveness of water management policy and guide further decision-making on possible setting or revision of water targets;

(b) Implement water quality assurance programmes;³

(c) Invest in the establishment and maintenance of automatic metering/monitoring stations; in particular, introduce automated around-the-clock water quality data-recording systems for specific types of industries as an important part of pollution control and early warning and alarm systems in case of accidents;

(d) Encourage regular biomonitoring of water resources, for example based on macro-invertebrates/algae, for rapid, cost-effective assessment of quality of water bodies;

(e) Use geographic information systems (GIS) mapping in a basin to identify and display the man-made infrastructure and ecosystems, noting problems and opportunities;

(f) Identify (and map) non-point sources of pollution such as agriculture (fertilizers, pesticides, including obsolete stockpiles of pesticides, manure), untreated wastewater and leakages from latrines and septic tanks, especially in rural areas;

(g) Identify hot spots of point sources of pollution from untreated to partly untreated wastewater from industries, mining, toxic landfills and tailing ponds to prioritize actions;

(h) Identify through inventories other point sources of pollution, such as from settlements or municipalities with more than 2,000 inhabitants;

(i) Introduce labelling to inform consumers on products that are “water friendly”, e.g., have been produced with low water consumption methods or maintain ecosystems for water;

(j) Monitor and assess the state and performance of water-related ecosystems that depend on water bodies as well as the state of other ecosystems such as wetlands and forests that provide water to water bodies;

(k) Define and monitor environmental flow for rivers, deltas and wetlands, and specify environmental flow for years of different water availability with a view to ensure their sustainability;

(l) Catalogue and prioritize degraded water-related ecosystems for restoration initiatives;

(m) Estimate the values of ecosystem services, for example through the assessment of costs of avoided damages resulting from lost ecosystem services, costs of replacing ecosystem services, or costs of providing substitute services such as additional water treatment.

3. Ecosystems

14. Proposed actions:

(a) Establish new and expand existing Ramsar Sites,⁴ as well as establish transboundary protected areas, and develop and implement management plans for them;

³ For example the *Water quality assurance program* (Canada), available online at: <http://www.phsa.ca/AgenciesAndServices/Services/PHSA-Labs/Testing-Requisitions/Environmental/Enhanced-Water-QA/default.htm>

⁴ Wetlands designated as internationally important under the Ramsar Convention.

(b) Protect, maintain and restore ecosystems such as wetlands, forests, riparian zones, etc. (to improve water quality, hydrological regime, and natural hazards mitigation, as well as the natural habitat);

(c) Coordinate IWRM plans and relevant measures for specific watersheds with existing land-use/spatial development plans, national (and local) forest and biodiversity programmes (Convention on Biological Diversity), wetlands management plans (Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat);

(d) Apply the principle of environmental flow in rivers, to ensure the ecosystem needs/health; in managed catchments, seasonally mimic the natural flow regime to the greatest extent possible to protect, restore and sustain their ecological health;

(e) Involve the private sector in managing ecosystems for the services they provide;⁵

(f) Develop and expand the use of payments for ecosystem services (PES), including new pilot projects on PES.⁶

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?

1. Management

15. Proposed actions:

(a) Ratify or accede to and implement the UNECE-WHO/Europe Protocol on Water and Health;

(b) Ratify or accede to and implement the family of conventions related to chemicals impacting on water such as the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Stockholm Convention on Persistent Organic Pollutants;

(c) Introduce and apply the user-pays and polluter-pays principles as an incentive for efficient and sustainable water protection and use, in line with the principle of cost recovery;

⁵ World Business Council for Sustainable Development, *Guide to Corporate Ecosystems Valuation: a framework for improving corporate decision-making* (2011), available online at: http://www.wbcsd.org/DocRoot/MFjSs2eRbr7dm6qV6efx/WBCSD_Guide_CEV_April_2011.pdf. And: *Corporate Ecosystem Services Review*, available online at: http://www.wbcsd.org/DocRoot/R3HpfX53CixLEiQsBRpJ/Corporate_Ecosystem_Services_Review.pdf.

⁶ See UNECE, *Recommendations on payments for ecosystem services in integrated water resources management* (United Nations publications, Sales No. E07.II.E.12), available online at http://www.unece.org/env/water/publications/documents/PES_Recommendations_web.pdf; Food and Agricultural Organization of the United Nations, *The State of Food and Agriculture 2007: Paying farmers for environmental services* (Rome, 2007), available online at <http://www.fao.org/docrep/010/a1200e/a1200e00.htm>; *The Economics of Ecosystems and Biodiversity (TEEB) study*, accessible online at <http://www.teebweb.org/>; Perrot-Maître, D., *The Vittel payments for ecosystem services: a "perfect" PES case?*, International Institute for Environment and Development, London (2006), available online at <http://pubs.iied.org/pdfs/G00388.pdf>.

- (d) Introduce or further develop sustainable/progressive pricing for water supply and wastewater treatment;
- (e) Introduce policies and measures to ensure access to affordable water supply and sanitation for poor and disadvantaged groups, for instance through targeted subsidies;
- (f) Invest in environmentally friendly sanitation and wastewater treatment, appropriate operation and maintenance;
- (g) Strengthen compliance with drinking water standards;
- (h) Elaborate water safety plans for water supply, sanitation facilities and recreation, considering also cyanobacteria and toxic algae;
- (i) Introduce/revise and enforce the delimitation of water protection zones around water abstraction facilities and beyond, for surface water and aquifer recharge, as well as establish inventories and mapping of such zones;
- (j) Promote community mobilization and engagement in ensuring proper water supply and sanitation systems management and maintenance, especially in rural areas, and introduce community-based small-scale water supply and environmentally friendly sanitation systems for rural and remote areas;
- (k) Provide schools with safe water and environmentally friendly sanitation facilities, in particular those to be used exclusively by girls.

2. Monitoring and information management, assessment and research

16. Proposed actions:

- (a) Upgrade and strengthen surveillance and control of waterborne diseases so as to detect existing but also emerging diseases;
- (b) Develop and implement simple monitoring systems, in particular for small-scale and very-small-scale water supply and sanitation systems, including private wells;
- (c) Identify pollution hot spots, and make cost-benefit analysis of water quality measures for different uses, such as industry and drinking water supply, tourism and commercial fishing;
- (d) Inform populations of rural areas on the challenges of pollution point sources such as manure, pit latrines, open waste water gutters, etc., and those of non-point sources. In particular, inform consumers of water from shallow private wells about the danger of pollution, its sources and possible health consequences and on how to handle unsafe water and/or how to get access to safe water;
- (e) Make information on the status of drinking and bathing water quality and related health risks available to the public via all media (Internet, radio, television, newsletters, etc.);
- (f) Establish a system of public fish consumption advisories indicating where human health is at risk from toxins in fish tissue through water pollution;
- (g) Support research to improve understanding of emerging potential waterborne threats to human health.

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

1. Management

17. Proposed actions:

(a) Integrate water resources management into the national climate change adaptation strategy and integrate water-related disaster risk reduction into national development plans;

(b) Develop, update and implement basin-wide drought and flood management plans jointly with all relevant sectors, including at the transboundary level;

(c) Develop early warning systems and contingency planning, in particular for water supply, sanitation and wastewater plants in basins, to prevent and minimize damage from extreme weather events;

(d) Jointly consider land-use planning, flood and drought risk management, as well as the remediation of hydromorphological alterations of rivers;

(e) Restore, and where possible, reconnect flood-plains with their waterways and apply proper spatial planning measures to optimize their flood-tolerant use and to ensure their long-term maintenance;

(f) Introduce/review information and the tools to facilitate rainwater infiltration, harvesting and reuse in urban and rural areas;

(g) Continue the programme of pilot projects on climate change adaptation in transboundary basins and the platform for sharing experience in this regard under the UNECE Water Convention, as well as other international initiatives of UNECE countries, United Nations agencies, and international organizations.

2. Monitoring and information management, assessment and research

18. Proposed actions:

(a) Develop and/or maintain and upgrade hydrometeorological data systems to improve the availability and reliability of climate-related information;

(b) Develop vulnerability assessments and mapping of expected climate change impacts; exchange data at transboundary level as a basis for decision-making;

(c) Assess the safety of hydrological infrastructures during extreme weather events and, if necessary, take actions for improvement. For example, assess the actual and potential role of water reservoirs and revise their operational rules during such events if necessary;

(d) Promote research and study of climate change related processes, e.g., glacier/permafrost melting, desertification, etc., and their impacts on water resources, as well as the health-related impacts, e.g., on drinking water distribution systems, and how to better predict and prevent human exposure to waterborne pathogens.

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

1. Legal framework

19. Proposed actions:

(a) Implement or accede to and implement UNECE conventions such as the Water Convention;

(b) Accede to amendments to open the Water Convention and the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) to countries outside the UNECE region;

(c) Develop cooperation with countries outside the geographical scope of the UNECE region, especially the neighbouring regions, to exchange best practices and experience;

(d) Develop, ratify and implement new bilateral/multilateral agreements for transboundary cooperation on specific water bodies in accordance with the UNECE Water Convention. In particular, sign and ratify those agreements which have been negotiated for a long time and are ready to be signed; strengthen implementation of existing agreements, and review and revise them if needed;

(e) Strengthen joint bodies for the management of transboundary water resources, broaden their mandate to address all aspects of IWRM and enforce their decisions at the national level;

(f) Link global and regional multilateral environmental agreements (MEAs) dealing with or touching upon water at the national level, for example through MEA water support groups;

(g) Improve transboundary cooperation on shared groundwaters with a view to concluding and implementing bilateral/multilateral agreements for their protection and sustainable use.

2. Management

20. Proposed actions:

(a) Link transboundary water cooperation to other related policies, such as agriculture, forestry, energy, navigation, tourism, health, industry, etc.;

(b) In transboundary basins, develop and implement IWRM plans jointly through water bodies' (rivers, lakes and groundwater) basin councils, joint bodies, river basin commissions or other types of institutions;

(c) Where needed in transboundary basins, establish conflict prevention and management mechanisms, include such mechanisms in transboundary agreements and make use of international possibilities in this regard, including the mechanisms to support implementation under the UNECE Water Convention;

(d) Develop and implement transboundary cooperation aimed at the maintenance, protection and restoration of transboundary water-related ecosystems in the basins such as forests, riparian zones and wetlands, including through establishing transboundary protected areas.

3. Funding

21. Proposed actions:

(a) Establish joint funding mechanisms at a transboundary level to promote investments with positive transboundary externalities, such as wastewater treatment, ecosystem conservation and pollution abatement, by providing grants, technical assistance and loans to local companies and organizations;

(b) Share benefits but also costs of measures that benefit all countries in a given basin (e.g., the Commission of the Republic of Kazakhstan and the Kyrgyz Republic on the Use of Water Management Facilities of Intergovernmental Status on the Rivers Chu and Talas);⁷

(c) Promote coordinated action by linking investments to transboundary agreements;

(d) Promote coordination between donors and international organizations on financial support for transboundary management, as well as possibly for the establishment of transboundary institutions (i.e., initial funding-seed money).

4. Monitoring and information management, assessment and research

22. Proposed actions:

(a) Develop, establish and maintain joint systems for monitoring, assessment, forecast and early warning in transboundary basins;

(b) Harmonize existing reporting obligation and data formats;

(c) Ensure free and transparent exchange of information on water quantity and quality (surface and groundwater) in the transboundary context, which is easily accessible on the Internet;

(d) Provide online catalogues of existing regional and intersectoral water-related regulations;

(e) Identify and address hot spots in transboundary basins of lakes, rivers and groundwaters and perform risk assessment (loss of livelihoods, migration, environmental pollution/degradation, physical security and increase in conflict dynamics);

(f) Improve information and stakeholder participation in transboundary water basin management planning and its implementation, while supporting NGO participation in transboundary water bodies restoration and management measures.

III. 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?

23. Proposed actions:

⁷ <http://www.chutalacommission.org/eng/committee.php>.

- (a) Create and support water user associations to manage water demand locally;
- (b) Require water metering of all water users;
- (c) Increase water-use efficiency in buildings through building standards/codes;
- (d) Introduce environmentally friendly, water-saving sanitation systems;
- (e) Reduce leakages in water distribution systems by identifying them, as well as developing financial and practical plans for reducing them;
- (f) Promote rainwater harvesting on the household and agricultural levels;
- (g) Encourage reuse of treated wastewater in agriculture based on WHO guidelines on the safe reuse of wastewater, excreta and greywater for agriculture;⁸
- (h) Adapt agriculture to the local climate and water availability, including by growing less water-consuming crops;
- (i) Scale-up the modernization of irrigation and drainage systems to enable sustainable water and land use;
- (j) Improve water accounting in the agricultural sector, such as through metering and water volume payment systems in irrigated agriculture, if needed with some state support/incentive/subsidy for the equipment;
- (k) Develop public-private partnerships for increasing the efficiency and productivity of water use in industry and in agriculture, as well as its reuse and use life-cycle assessment for assessing the water footprint of products.

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. Proposed actions:

- (a) Make water a major part of greening the economy, and consider the nexus water-food-energy; conduct national water-energy-food nexus assessments for coordinated and coherent measures;
- (b) Invest all revenues from water fees into basin and local water management, including for water supply and wastewater treatment;
- (c) Raise awareness on present and future water consumption by different economic sectors including virtual water/water footprint in products;⁹
- (d) Promote water-efficient techniques and low-water-content products in intranational and international trade;

⁸ http://www.who.int/water_sanitation_health/wastewater/gsuww/en/index.html.

⁹ World Business Council for Sustainable Development (WBCSD) and the International Union for Conservation of Nature (IUCN), 2010: *Water for Business: Initiatives Guiding Sustainable Water Management in the Private Sector*, available online at: http://www.wbcsd.org/DocRoot/3wlfDj0SSDsKcJWIBbKu/WBCSD_Water_for_Business_WEB.pdf, World Business Council for Sustainable Development: *The Global Water Tool*, <http://www.wbcsd.org/templates/TemplateWBCSD5/layout.asp?type=p&MenuId=MTc1Mg&doOpen=1&ClickMenu=LeftMenu>; *The Water footprint network*: <http://www.waterfootprint.org/?page=files/home>.

- (e) Factor water efficiency into public procurement through, inter alia, adding to tender offers the obligation to reduce water use;
- (f) Invest in infrastructure and technologies for a more efficient water use (circulation and reuse of water in industry and agriculture, saving water in homes such as through water-saving toilets);
- (g) Reduce operational costs of water utilities by increasing their efficiency;
- (h) Take measures to reduce energy use for pumping and treatment of water and wastewater;
- (i) Investigate alternative energy-efficient, innovative and cost-efficient water technologies, mainly sanitation and wastewater treatment systems adapted to the local conditions, and make this information available and accessible to institutions, business and the community;
- (j) Strengthen the regulation of natural monopolies regarding water supply and sanitation and establish clear tariff-setting rules to promote efficient water use and ensure transparency and predictability.

Annex

Template for submitting actions within the framework of the Astana Water Action

The below template should be used to submit actions undertaken by countries, major groups and the private sector within the framework of the Astana Water Action. For each action, please provide information on the following six items.

1. Country/organization:
2. Title^a of the action (indicate between brackets the reference/s to related paragraphs of the Astana Water Action):
3. Description of the action and if possible target date:^b
4. Expected outcome:
5. Partners:
6. Contact points:^c

Please note: This template should be submitted, if possible by 30 August 2011, to Sibylle.Vermont@bafu.admin.ch and Sonja.Koeppel@unece.org.

^a The title must be as precise as possible.

^b In six lines maximum (possible indication of source material such as websites).

^c E.g., Committee on Environmental Policy delegate and the UNECE Water Convention focal point/Ministry dealing with water.