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## **THIRD WORKSHOP ON WATER AND ADAPTATION TO CLIMATE CHANGE IN TRANSBOUNDARY BASINS: Making adaptation work**

**Geneva, 25-26 April 2012**

### **Conclusions**

#### **Introduction**

The third workshop on water and adaptation to climate change in transboundary basins: “Making adaptation work” stressed the importance of transboundary cooperation, a key - but often overlooked - dimension of water and climate change adaptation. This was done through analysis and exchange of best practices, success factors and lessons learned from adaptation in transboundary basins, addressing all those who are responsible for the process of developing an adaptation strategy and addressing climate change impacts on water resources and other dependant sectors (such as health, agriculture, energy, navigation, development, etc), at the national and transboundary levels. The workshop was organised under the auspices of the United Nations Economic Commission for Europe Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) in cooperation with several national and international partners.

The workshop was attended by more than 130 participants from all over the world<sup>1</sup>. The conclusions from the workshop are summarized in this report<sup>2</sup>.

#### **Climate change impacts on water resources: Too much, too little and too dirty**

Climate change impacts on water in transboundary basins may include multiplying the present-day issues of too much water (flooding), too little water (droughts) and dirty water (water quality deterioration). Often, all these impacts appear in the same basin or even the same location at different times. Extreme weather events, i.e. floods and droughts require an approach of risk management rather than crisis management.

<sup>1</sup> The list of participants is available at :

[http://www.unece.org/fileadmin/DAM/env/documents/2012/wat/workshops/Transboundary\\_adaptation\\_apri/LOP\\_workshop\\_FINAL.pdf](http://www.unece.org/fileadmin/DAM/env/documents/2012/wat/workshops/Transboundary_adaptation_apri/LOP_workshop_FINAL.pdf)

<sup>2</sup> All presentations are available at:

[http://www.unece.org/env/water/transboundary\\_adaptation\\_workshop\\_2012.html](http://www.unece.org/env/water/transboundary_adaptation_workshop_2012.html)

Tackling the risks of flooding at the transboundary level should be an important priority in adaptation to climate change in view of the serious consequences that floods can have on society. Apart from infrastructural measures, possible measures include insurance schemes and restriction of urban development in flood-prone zones. Monitoring and early warning are essential elements in flood risk reduction and need to be coordinated at the transboundary level. Nevertheless, flooding can also be seen as an opportunity, for example for biodiversity and fisheries, as it entails a large availability of water. Floodplains are often very fertile lands.

Another important trend in water management is the increasing water scarcity. Droughts are natural phenomena that are expected to increase, leading to more severe water scarcity situations, even in regions previously considered as water-abundant. Water scarcity is however not just induced by climate change; an important cause of the problem is inadequate water management. Action is needed to counter these situations. Governments need to deal with droughts through better water management, better water supply and decreasing water demand. This can for example be done by investigating new sources of water such as in the Nile basin where research is conducted to develop new schemes for improving the water supply in the region.

Groundwater withdrawal and underground water storage are becoming increasingly important measures to address water scarcity. However, groundwater use needs to be sustainable. The reuse of water is increasingly considered to address water scarcity.

In situations of water scarcity, establishing priorities for water use is necessary, even more so in transboundary basins. Criteria need to be defined for this. In water-scarce regions, agriculture practice needs to be adapted, for example by diversification of crops. Pricing of water can be an important tool to decrease water demand but is a measure that should be implemented in normal times to make it acceptable in times of crises.

Other measures to address water scarcity and droughts include structural and awareness-raising measures.

The three major climate change impacts on water quality are the reduction of oxygen levels in the water through the increase of water temperature, the increase of transportation of pollutants through flooding, and the increase of the concentration of pollution in periods of droughts. To address these issues appropriate spatial planning and land management is needed to influence the location of human activities in relation to hydrological situation and regulation of flows. General measures to prevent water pollution are more important than ever when taking into account the impacts of climate change; reduction of the use of pesticides and phosphate is needed as well and prevention of soil erosion. Moreover, sources of contamination should be shielded off from water flow in case of flood situations.

### **Importance of data and information availability and exchange in vulnerability assessments**

Lack of good data is a significant challenge for climate change adaptation. In many cases, data are politicized and not shared. The importance of data for research and decision-making needs to be better understood. This also entails that every request for data has to be made for a specific task.

In transboundary basins, vulnerability assessment needs to be prepared at the basin-level scale. Thus, data need to be exchanged between countries which is still lacking in many cases. If there is no or insufficient cooperation at the political level, experts can start by exchanging data.

Uncertainty is another important challenge in vulnerability assessments, even more in transboundary basins. Uncertainty should be quantified as much as possible and probability of events should be incorporated in the results as well. At the same time it must be clear that uncertainty is a common issue in decision making, it is not specific for climate change. It is, for instance, also present in the topic of economic development.

Vulnerability assessment is not an objective in itself. It should serve the development of an adaptation strategy and should be seen as a process instead of a product.

Every vulnerability assessment should start with a thorough analysis of already performed research. For example, in the Danube basin, a full basin-wide vulnerability assessment as such was not elaborated, but an assessment of the most vulnerable regions was done on the basis of available research and expert judgment.

The understanding of vulnerability assessment is increasingly enlarged, also taking into account social, economic, legal and institutional as well as governance aspects.

All in all, vulnerability should not only be seen as a problem, but also as an opportunity towards better organising water management.

### **Bring facts and figures to counter wrong belief, communicate hope instead of fear**

Preparing a vulnerability assessment without linking it to decision-makers might lead to a vulnerability assessment without any impact on the policy level. Research alone has too little impact on politicians. Therefore, special attention is needed on connecting research with policy making. Such connection needs to be established from the beginning, by involving decision-makers already in the planning of vulnerability assessment. This can for example be done by creating a working group composed of experts and policy-makers which meets regularly during the project. Linking experts and decision-makers is even more important in transboundary basins where policy-makers from all riparian countries need to be involved.

Good communication requires knowing the audience, adapting the style of the messages and evaluating the impact of actions. It is important to bring facts and figures to counter wrong belief, and to communicate hope instead of fear. It is therefore crucial to communicate facts, opportunities, alternatives and good examples.

Scenarios can be useful to highlight risks and opportunities, as they show the range of possible futures. Scenarios should be developed and selected jointly in the case of transboundary basins.

Elaborating a vulnerability assessment should be combined with some concrete actions on the ground. The strategy chosen in the AMICE project is a combination of a vulnerability assessment, implementation of some concrete measures to show that they are able to act now and a communication strategy to spread the news of the results. This strategy has proven to be successful.

### **No adaptation for the sole purpose of climate change – adaptation has co-benefits**

It will never be enough to try to reduce the uncertainty by generating more and better data and improving the models. Adaptation can start when the direction of change is known (in the case of stable trends). This is more important than knowing the exact magnitude of the change. Despite the uncertainty it is crucial to start adapting now by applying no and low- regret measures and win-win solutions. This includes non-structural measures like insurance options and long term flexible approaches.

Implementing integrated water resources management and transboundary water management is an important step towards more resilient water management. There is no better way to prepare for climate change than addressing the current climate variability and vulnerability in a sustainable way. Nevertheless, no action should be taken to address climate change alone; also other developments like demographic and economic changes should be taken into account.

In selecting measures, data and full information on the different option, cost-benefit analyses, decision-making tools such as multi-criteria decision-analysis are needed. Adaptation measures

should serve more than just the purpose of improving water management. Measures with co-benefits such as poverty reduction are more likely to be accepted and funded. In general, when selecting adaptation measures, the availability of financial, human and other resources in the basin needs to be considered.

Many adaptation measures are already identified and designed. However, implementation of such measures is still lacking or at its infancy. Implementation requires public participation and communication. At the implementation stage, political attention is even more important entailing the need for improved communication with the policy level. Most measures have clear benefits but the main constraint to act is the human factor: is there political support, is there a willingness to act? Additional attention for involvement of stakeholders and for ecosystem-based approaches is needed to account for this.

### **Ecosystem-based solutions**

The general feeling during this workshop was that ecosystem based adaptation is a promising but a still rarely used approach. It should be incorporated into adaptation strategies along with structural measures. Ecosystem-based adaptation often has positive effects in addition to the direct effect on adaptation, such as improving the livelihoods of people. In other words, the ecosystem approach is often relatively cheap and cost-effective. Increasing ecosystems resilience can be done by including the ecosystem as 'water user' through environmental flows.

Capacity building is also important to strengthen the sustainable use of water. An important part of climate change adaptation is training the local people, in order to make their livelihoods more resilient. An ecosystem based approach is usually best combined with capacity building.

### **Need for intersectoral cooperation**

Mainstreaming climate change into common water management is necessary as most water management problems have no singular cause and solutions not only target one cause. This can for instance be achieved by incorporating climate change into the objectives of projects and in job descriptions of project managers to bridge the gap between engineering and day to day project management. An extra reason for mainstreaming climate change adaptation into water management is to avoid controversies about whether problems are due to climate change, climate variability or other causes.

As water is a crosscutting issue it connects between disciplines, sectors, economics, etc. Water management is affected by and is itself affecting many other sectors such as agriculture, forestry, tourism, fisheries etc. Effective adaptation requires a cross-sectoral approach, including at the transboundary level, in order to prevent possible conflicts between different sectors.

Agriculture, the largest water user in many countries, needs to be included in every adaptation strategy, also due to its importance for poverty reduction. The focus in agriculture should be on improving water efficiency, for example through better irrigation systems.

Another example of an important sector is health. Apart from the well-known health issues like food security and sanitation, a less well known impact of climate change on health includes the psychological effects of disasters (loss of property and means of subsistence). When taking adaptation measures both agriculture and health issues as well as other important sectors should be considered.

In addition to intersectoral cooperation, such cooperation is also needed to increase synergies between adaptation activities at different spatial levels such as at the regional, transboundary, national and local levels.

Integrating different sectors and integrating different (governance or spatial) levels requires similar preconditions; comprehensive analysis and sufficient time allocated for interaction. To really involve other sectors and levels, more attention is needed for capacity building and awareness creation to enable comparable levels of discussions. It is crucial to search for mutual advantages. Other conditions that support cooperation between sectors and levels include an enabling environment with a legal basis for cooperation, institutions that are ready for cooperation, political support, a sound information basis and information exchange, and sufficient financial means.

All levels are beneficial and complementary to one another. There is therefore a need to combine top-down and bottom-up approaches and to strengthen the interaction between the two.

### **Climate change as a driver for transboundary cooperation**

Climate change is not only a challenge but it can also be an opportunity; it can be a starting point for better communication between riparian countries and therewith it can serve as a driver for transboundary cooperation. Essential in transboundary cooperation is the joint assessment of problems, priorities and solutions. For a basin-wide vulnerability assessment it is important to create a joint group to perform the assessment, to harmonise the used tools, models and scenarios, to communicate knowledge to the political level, to exchange information, to involve stakeholders, and to cooperate with international organisations. Apart from interstate cooperation, transboundary cooperation could also refer to cooperation between different indigenous peoples.

At the transboundary level, discussions on adaptation should consider the following aspects:

- Assess potential transboundary effects of national and lower-level adaptation options
- Identify options for reducing negative transboundary effects
- Identify options for collective actions that promote positive transboundary effects

Joint bodies play an important role in transboundary cooperation. The success of transboundary cooperation in adaptation very much depends on the existence and strength of the joint river commission's secretariat that can play a coordinating role. A joint body with sufficient mandate can also strengthen the work of the national authorities. However, joint bodies need a legal basis and a mandate to deal with climate change which is often still missing.

Nevertheless, also in bigger transboundary basins it is important to give a voice to the local population.

### **Lessons learned from the pilot projects**

Some lessons learned as reported from the pilot projects on transboundary cooperation under the UNECE Water Convention and the Environment and Security Initiative (ENVSEC):

- "Through the pilot project, for the first time we have combined all the scientists, data and knowledge; we could not have done this on our own";
- Working together between countries with different positions in EU accession and different levels of awareness among the general public makes cooperation a challenge;
- "Setting up transboundary teams leads to unique assessments, enables combination of national scientific potential and administrative authorities, sharing of work between teams and thereby doing more work than could have been done at the national level";
- Differences in organization and governance are often a greater challenge than cultural differences;
- The use of different methodologies is not always a constraint but can also improve national methodologies when there is room for consultation. Transboundary cooperation in climate change impact assessment can lead to more robust results;
- Pilot projects can play an important role but issues of replicability, sustainability and possibility for upscaling need to be considered;

- Games and role plays can be important tools to create mutual understanding.

### **Benefits of adaptation can strongly outweigh the costs**

Damages from floods are projected to rise considerably by the end of this century. This is due to a combination of global warming, socio-economic changes such as increased exposure in flood-prone areas and to land-use dynamics such as continued urbanization, deforestation and loss of wetlands. Adaptation can considerably reduce negative consequences of climate change, often at a cost that is much lower compared to the avoided damages.

For the planning process of adaptation it is critical to assess the economic, environmental and social costs and benefits of different adaptation options, on the basis of which limited resources can be optimally prioritized. Involvement of local expertise hereby is of crucial importance, as the efficiency and implementability of alternative options depends on the local geophysical and socio-economic conditions. The need to recognize and work with uncertainty requires an iterative and flexible approach.

### **Final conclusions- from analyses towards decisions<sup>3</sup>**

- There is a continuous need to improve communication between the 'water community' and the 'climate community'; Water people should go beyond just talking to the water people!
- There is a trend from looking for flexibility towards a long-term approach; more and more flexibility of agreements is changed into adaptability of agreements.
- There is a trend from analyses towards decisions; better information and analyses are available and the scenarios are known. Sufficient to base decision-making on.
- There is a trend from having sufficient financing towards the proper financing mechanisms; from large-scale projects towards targeted projects.
- The technical approach in adaptation is replaced by governance approaches.
- Emerging issues: disaster risk reduction, ecosystem-based approaches and environmental flows.

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<sup>3</sup> Based on the final presentation by John Matthews (Conservation International, Alliance for Global Water Adaptation).