Convention of the Protection and Use of
Transboundary Watercourses and International Lakes
Task Force on Water and Climate
Seventh meeting
Geneva, Switzerland, 13 October 2014

Overview of the activities of the pilot projects and other basins in the global network

The programme of pilot projects on adaptation to climate change in transboundary basins under the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) has started in 2010 and aims to:

1. Support countries and specifically countries with economies in transition (in Eastern Europe, Caucasus and Central Asia as well as in South-Eastern Europe) in their efforts to develop adaptation strategies and measures; in transboundary basins
2. Assist UNECE countries in implementing the Water Convention and the European Union (EU) Water Framework Directive (WFD) under conditions of a changing climate, also in light of the EU White Paper on adapting to climate change[1];
3. Create positive examples demonstrating the benefits of and possible mechanisms for transboundary cooperation in adaptation planning and implementation, also beyond the UNECE region;
4. Implement the Guidance on Water and Adaptation to Climate Change;
5. Provide a forum for exchange of experience, good practices and lessons learnt regarding adaptation projects in different parts of the region.

The following pilot projects[2] are supported directly by the UNECE secretariat in the framework of the Environment and Security Initiative (ENVSEC) and in cooperation with other ENVSEC partners such as the United Nations Development Programme (UNDP), the Organization for Security and Cooperation in Europe (OSCE) and the United Nations Environmental Programme (UNEP):

a) Pilot project on the Chu Talas Basin, shared by Kazakhstan and Kyrgyzstan, implemented by UNDP and UNECE, in cooperation with OSCE,
b) Pilot project on the Dniester Basin, shared by the Republic of Moldova and Ukraine, implemented by UNEP, UNECE and OSCE,
c) Pilot project on the Neman river basin, shared by Belarus, Lithuania and the Russian Federation

The following already ongoing activities have also been included in the programme of pilot projects:

d) Activities regarding water and climate change adaptation in the Rhine basin, shared by Austria, Belgium, France, Germany, Italy, Liechtenstein, Luxemburg, the Netherlands and Switzerland, implemented by the International Commission for the Protection of the Rhine (ICPR),
e) The project “Dauria going dry” on the Amur/ Argun/ Daursky Biosphere reserve, shared by the Russian Federation, Mongolia and China, implemented by WWF Russian Federation,
f) Activities on water and climate change on the Danube river basin, shared by Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Republic of Moldova, Romania, Serbia, Slovenia, Slovakia and Ukraine, implemented by the International Commission for the Protection of the Danube River (ICPDR).

From 2013, this programme has been broadened to include additional basins also from other regions of the world, which corresponds to the outcome of the sixth World Water Forum, target 3.3.2, recommendation 3 to create a global network of basins working on adaptation to climate change. This network is managed by UNECE and the International Network of Basin Organizations (INBO.

The programme and network aim to promote cooperation on adaptation in (transboundary) basins, to compare different methodologies and approaches for adapting to climate change and to promote a shared vision between the participating basins. While the different basins primarily work on their adaptation activities themselves in accordance with the agreed decisions of their governing bodies or with the terms of reference of international projects, joining the network would allow for the exchange of experience, learning from each

[1] White paper - Adapting to climate change: towards a European framework for action.
[2] The pilot projects directly implemented by UNECE and partners and the platform for exchanging experiences are funded by Austria, Finland, the Netherlands, Sweden, Switzerland and the European Commission.

other, establishing contacts between basins and their experts, discussing challenges and lessons learnt etc. The network includes annual meetings of all basins, regular larger workshops etc.

In addition to the basins mentioned above under a)-h) the following basins have so far joined the network:

g) Drin, shared by Albania, the Former Yugoslav Republic of Macedonia, Montenegro and Greece: project ”Internationally Shared Surface Water Bodies in the Balkan Region”
h) Sahara and Sahel Observatory (OSS) / Consultation Mechanism of the North Sahara Aquifer System (SASS), shared by Algeria, Libya, Tunisia
i) Niger basin, shared by Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Guinea, Mali, Niger and Nigeria,
j) Congo, shared by Cameroon, Central African Republic, Democratic Republic of the Congo, Republic of the Congo, Equatorial Guinea and Gabon: Projects implemented by the International Commission of the Congo-Oubangui-Sangha Bassin (CICOS)
k) Mekong River Commission Climate Change Adaptation Initiative (MRC-CCAI) on the Mekong River, shared by Cambodia, Laos, Thailand and Vietnam
l) Senegal, shared by Guinea, Mali, Mauritania, Senegal: projects by the Senegal River Basin Development Authority.

More information about the activities and progress of the pilots and basins g) to l) is included in the annex.

ANNEX: Description of each pilot project

A) Promoting Cooperation to Adapt to Climate Change in the Chu and Talas Transboundary Basin

1. Name and short description of the project

"Promoting Cooperation to Adapt to Climate Change in the Chu and Talas Transboundary Basin" (Kazakhstan and Kyrgyzstan). The project aims to improve the adaptive capacity of Kazakhstan and Kyrgyzstan, to support dialogue and cooperation on the needed steps to design an adaptation strategy in the transboundary context and thereby prevent controversy on the use of water resources.

The specific objectives of the project are:

- Modelling of the possible changes in water resources of the Chu-Talas basin associated with climate conditions and elaboration of joint scenarios,
- Preparation of joint vulnerability assessment, focusing on selected areas/sectors of importance for the work of the Commission,
- Development of a package of possible adaptation measures and relevant procedures for the Commission, which may contribute to decreasing potential tensions over changing hydrological regimes.

The pilot project is a part of the general programme of projects "Support of the cooperation on adaptation to climate change in transboundary basins" under the auspices of the UNECE Water Convention and is partially funded and implemented by the "Environment and Security" Initiative, and this allows the exchange of experience with other similar projects and initiatives.

2. Concrete results achieved in 2014

The project covered two areas- joint management of transboundary water resources and preparation of recommendations for adaptation to climate change. The experts from both countries examined how the climate change affects economic situation in Chu and Talas basins, focused on agricultural sector which mainly depends on water resources. The Joint Water Commission Secretariat coordinated the project.

The final report of the project was prepared, covering physiographic characteristics, analysis of the water resources status and use, economic situation characteristics including water management and projects on research and management of water resources in the basin), current and future vulnerability, expected consumption of water resources and related economic analysis, preliminary options for types of adaptation measures at the transboundary level.

A visual summary of results of the project, including maps and graphics was developed.

A. Development of irrigation in the context of decreasing flow volumes in transboundary rivers and increasing water consumption;

B. Computer mapping of shortlisted irrigation systems, types of drainage, irrigation methods and techniques was carried out in the administrative districts of Zhambyl region;

C. Economic evaluation of the results of the programme activities was carried out;

D. The following recommendations were given to use energy saving technologies;

3. Which major challenges did you face with regard to transboundary cooperation and climate change adaptation? How did you overcome them?

Analysis identified differences in approaches between two countries to assess data and trends in water use in shared basin. Further work necessary in comprehensive planning of joint activities in adaptation, data harmonization and share of information on.

4. Are you developing or implementing a transboundary adaptation strategy? If yes how?

A framework and template of a transboundary adaptation strategy was developed. One of the most important recommendations of the Chu-Talas Water Commission is to organize and lead the development and implementation of specific measures and actions to adapt to climate change in the basins, among others measures and actions based on the principles of integrated water resources management in transboundary Chu-Talas basin.

5. Are you implementing any adaptation measures in the basin? If yes how did you prioritize the mand how are you implementing them?

Most of the activities planned under this programme meet the region's objectives to adapt to the effects of climate variability and change. It is expected that implementation of the programme will increase the efficiency of the use of irrigated land and will result in saving up to 20-30% of water resources.

6. How did you link transboundary climate change adaptation to adaptation activities and stakeholders at the national, regional and local level?

In order to attract political attention and financial resources it is necessary to bind the results of the vulnerability assessment and adaptation measures to the current national programmes and priorities for adaptation, water resources and agriculture.

7. Future planned activities

At the meetings of the Commission the issues regarding the project are considered, and in the future, within the framework of the Chu-Talas Commission, the following issues have to be addressed:

- Research, monitoring, data exchange, green economy and efficient use of resources;
- Information exchange on climate change on administrative level;
- Reduce the damage from extreme floods, water shortages (droughts) and other possible emergencies;
- Interstate cooperation on the issues of climate change, green economy and sustainable development;
- Increase of the efficiency of water use in agriculture;
- Adaptation measures of agricultural engineering;
- Protect aquatic ecosystems, watershed of the basin and maintain good water quality;
- Investments to increase resilience to climate change in the densely populated areas of the basin;
- Development of a model basin adaptation strategy.

8. Other important lessons learnt

- To strengthen inter-country coordination for basin projects;
- To eliminate the project time fragmentation;
- To create and maintain an accessible database of the data sources and results obtained;
- To raise awareness about the project at all levels;
- To expand cooperation between academia and legislation.

9. Suggestions for future activities on water and climate under the ECE Water Convention in 2015-2018

Further work should be focused on expansion activities in the fields of: climate risk analysis, water quality and quantity analysis in the transboundary context; environmental issues related to water resources; joint elaboration and ranking of measures and scenarios of adaptation, assessment of the investments, costs and benefits regarding adaptation, identification of resources and opportunities for funding; as well as harmonization of basin-scale measures at the international level.

10. Contact details

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B) Dniester river basin - Climate changes and security in the Dniester River Basin

1. **Name and short description of the project –** Climate changes and security in the Dniester River Basin

2. **Activities and concrete results achieved in 2014**

- Discussion on the draft document "Strategic framework for adaptation of Dniester basin to climate change" during the workshops in Geneva (February) and Chisinau (July). Suggestions and remarks expressed by related Ukrainian and Moldovan organizations and agencies were presented, considered and introduced to the final version of the document.
- Staring development of an implementation plan,
- Identification and prioritization of adaptation measures in Dniester Basin at national and international levels. Formulation of possible pilot projects aimed at improvement of hydrological monitoring system, hydrological modeling, data exchange and information management.
- Prioritization and launching of pilot adaptation measures with corresponding funding (project aimed at calculation of water balance for the Dniester River etc.).
- Funds for some adaptation measures are foreseen within the framework of the state budget programs i.e. flood protection program, reconstruction of melioration systems, improving of national monitoring system in Dniester Basin etc.

3. **Which major challenges did you face with regard to transboundary cooperation and climate change adaptation? How did you overcome them?**

   The main challenge is still the lack of understanding of importance of the climate change problems both at official level and by ordinary people. One of the challenges is also a bureaucratic approach to development of adaptation plans and activities requesting time consuming procedure of official approving and consequent financing. The ways of overcoming these challenges included involvement of respective officials to the work in thematic working groups, commissions, and projects meetings. Participation of NGOs is also essential.

4. **Are you developing or implementing a transboundary adaptation strategy? If yes how?**

   Issues regarding implementation of climate change adaptation strategy in transboundary context are the part of Ukrainian-Moldavian cooperation in Dniester Basin.

5. **Are you implementing any adaptation measures in the basin? If yes how did you prioritize them and how are you implementing them?**Adaptation measures are being implemented under the state programs focusing on flood protection, improving of hydrological monitoring and forecast and forecast of hydro meteorological extremes.

6. **How did you link transboundary climate change adaptation to adaptation activities and stakeholders at the national, regional and local level?**

   Participation in adaptation measures in Dniester Basin is realized via national, regional and local development programs and by the activity of Dniester Basin Committee.

7. **Future planned activities** Persistent implementation of the Strategies of adaptation of Dniester basin to climate change.

8. **Other important lessons learnt** Acknowledgement of the importance of the popularization of the global climate changes strategy at every level of society.

9. **Suggestions for future activities on water and climate under the ECE Water Convention in 2015-2018**

   Final edition of the Strategies of adaptation of Dniester basin to climate change, publication, popularization and step-by-step implementation.

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C) Neman River Basin

1. **Name and short description of the project**

   The project implemented by UNECE and UNDP Belarus, with funding from Finland and Sweden through the Environment and Security Initiative (ENVSEC): The overall objective of the project is to improve integrated river basin management and transboundary cooperation in times of a changing climate in the Neman river basin. The project aims to strengthen the capacity to adapt to climate change of the countries sharing the Neman river through supporting dialogue and cooperation on the needed steps to design an adaptation strategy in the transboundary context. It will aim to reach a common understanding on future water availability and water use taking into account possible climate change impacts.

2. **Activities and concrete results achieved in 2014**

   Development of the summary of the vulnerability assessment and corresponding maps for the entire NRB for different types of natural resources and for different sectors of economy based on project's results and on intersectoral cooperation.
   Improvement and update of the common information platform (Internet database) www.cricuwr.by/neman.
   General assessment of the impact of point sources in the territory of Belarus was made.
   Proposed list of activities was prepared and preliminary discussed in the frame of Belarusian input to the Lithuanian Water Management Plan for the Neman River Basin.

3. **Which major challenges did you face with regard to transboundary cooperation and climate change adaptation? How did you overcome them?**

   Challenges were not in the frame of the Neman pilot project realization phase. The dominant problem in the Neman River Basin in communication is different status of membership – EU and non EU members with additional procedures for visa application etc.

4. **Are you developing or implementing a transboundary adaptation strategy? If yes how?**

   Strategic Framework (SF) of the Neman River Basin Adaptation to Climate Change was developed and coordinated by the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus and by the Ministry of Environment of the Republic of Lithuania. SF is prepared for publishing. This SF was developed based on the results of the pilot project of NRB and intersectoral cooperation organized in the frame of this project.

5. **Are you implementing any adaptation measures in the basin? If yes how did you prioritize them and how are you implementing them?**

   Implementation of adaptation measures is the Neman River Basin is on the initial phase. It is plan to implement adaptation measures through national programmes on adaptation and water management and eventually through a basin-wide process or institution, as appropriate, a few measures can be implemented through a possible follow-up project, such as construction of monitoring stations on Belarusian territory.

6. **How did you link transboundary climate change adaptation to adaptation activities and stakeholders at the national, regional and local level?**

   Improvement of the Water Management Plan for the Neman River Basin (Lithuania) with input from Belarus and improvement of the Scheme of Complex Use of Water Resources of the Neman River Basin (Belarus) take into account adaptation to climate change based on the main project's results. Improvement of the national strategies and plans on water resources management taking into account the main project's results.

7. **Future planned activities**

   Publishing of the Strategic Framework of the Neman River Basin Adaptation to Climate Change.

Maintenance and improvement of the informational platform.

Further develop the scope and the framework of transboundary cooperation at all levels. A technical agreement on transboundary water cooperation will be elaborated between Lithuania and Belarus, based on the existing instruments of cooperation, if possible by the end of the year 2014, for signature by the Ministries of Environment. Areas to be covered include monitoring and assessment, data exchange, minimum environmental flow, hydrology, water quality, water infrastructure etc. A draft Technical protocol will be widely discussed during the expert meeting which will be organized in October 2014.

Priority areas for future cooperation include:

- Input to the Lithuanian RBMP to be prepared by 2015 under the WFD requirements;
- Upgrading of the monitoring system, e.g. installation of automatic monitoring stations;
- Sharing of data: through the project platform, including its harmonization with European practices (e.g. WISE).

8. Other important lessons learnt

First international experience for the entire transboundary Neman River Basin in:

- Modeling and forecasting of climatic and hydrological characteristics;
- Preparation of common strategic framework on adaptation to climate change;
- Pilot implementation of the assessment of surface water quality using agreed indicators and criteria.

9. Suggestions for future activities on water and climate under the ECE Water Convention in 2015-2018

Support of the follow-up activities and international projects for implementation of the WFD and Strategies of Adaptation to Climate Change in non EU countries in cooperation , information and experience exchange with bordering EU countries.

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D) Rhine basin - Climate change adaptation strategy

1. Name and short description of the project

Since modifications of climate values impact the hydrological processes as well as the water regime, the Conference of Rhine Ministers charged the ICPR in 2007 to draft a "Study of Scenarios for the Discharge Regime of the Rhine" and work out an adaptation strategy. Following a literature evaluation issued in 2008, the new study was published in July 2011. The results (in form of climate scenarios for 2050 and 2100) have been discussed within the different ICPR working groups (ecology, water quality, water quantity) in order to develop an interdisciplinary adaptation strategy for the Rhine and its catchment. The three main ICPR working groups will make a step forward in developing the common strategy during an interdisciplinary meeting in March 2014 according to the new mandate from the 15th Conference of Rhine Ministers (October 28, 2013; Basel). A preliminary strategy should be finalised by end of 2014/begin of 2015.

2. Concrete results achieved in 2013

The main results are (see all reports here):
Workshop "Effects of climate change on the Rhine river basin" (30 and 31 January 2013)
The publication of important reports linked to ecological consequences of climate change and possible effects of climate change on water temperature evolution, amongst others:

- Report "Present state of knowledge on possible consequences of changes of the discharge pattern and water temperature on the Rhine ecosystem and possible perspectives for action"
- Reports (summary and extensive version) "Estimation of the effects of climate change scenarios on future Rhine water temperature development" (results of model calculation from a specific expert group)
- The results and new mandate from the 15th Conference of Rhine Ministers (October 28, 2013; Basel) (see below the extract of the Ministerial Declaration 2013 concerning "Climate Change and Adaptation")
- "The Ministers and the Representative of the European Commission (…) state that:
- the flood prevention measures implemented so far within the Action Plan on Floods to reduce flood risks go in the right direction and that measures already taken (…) must in future be reinforced, taking into account aspects of climate change;
- (…) low flow events, in particular in summer and in connection with high water temperatures must be followed with more attention.
- They ask the ICPR:
- to draft a preliminary ICPR climate adaptation strategy for the Rhine catchment, based on the assessment of available studies/the diagnosis on the discharge regime (floods and low flow) and on the temperature regime and to check proposals for adaptation measures concerning the expected effects of climate change, based on management plans existing in the different states/regions. In the near future the ICPR will decide on further steps, eventually on an ICPR low water (management) plan;
- to take into account socio-economic developments (…) to include all actors concerned."

3. Which major challenges did you face with regard to transboundary cooperation and climate change adaptation? How did you overcome them?

Our main challenge is to develop a common, interdisciplinary and transboundary adaptation strategy by end of the year. This has to be somehow linked to national strategies and the work already done for the implementation of the WFD and FD. Within the ICPR we overcome this challenge by assessing national climate strategies, setting up special groups/bodies like the ones on water temperature modelling and HBS (which gather together the 3 main working groups) and a lot of discussions!

4. How did you work on improving the link between scientists, experts and decision-makers? What lessons did you learn from doing this?

The results of the climate study – which was based on several research projects (amongst other Rheinblick2050) - have been adopted and are currently being discussed in the different subsidiary bodies of the ICPR reaching from working and technical groups to the Strategy group and the Plenary assembly. The two last bodies are strategic but also, in a certain way, political. In addition, conferences of Rhine Ministers decide on important political issues. Their decisions are binding for the Governments concerned. The Conference of Rhine Ministers in 2007 but also the last Ministers Conference of October 2013 charged the ICPR to draft a climate change study and an adaptation strategy.
We learned so far that a mix of top-down and bottom-up measures (from the transboundary/international level to the national and regional level and vice-versa) is the best option when developing an adaptation strategy. It is also very important to use or take into account measures that are already realized or planned (on national or international levels).

5. Did you work on awareness-raising and involving the local population within the project? How did you do this? What lessons did you learn from doing this?

Within the ICPR there are two main ways to involve the public: passive via publications in paper or digital form through our website and active via direct participation of NGO's in our expert and working groups. These NGO's act as an intermediary to reach the general population. Furthermore we are presenting our work on climate change to visitors and in different workshops at EU level or within other river commissions.
Besides we are already doing public awareness-raising in different fields that are or will be impacted by climate change: ecology, pollution and micropollution, flood risks, etc.

6. Did you involve other sectors in the project? If yes how? What lessons did you learn from doing this?
Different sectors are represented through national delegations, observers and NGOs (nature conservation, flood management, drinking water …). But more work could be done to integrate other sectors into our discussion on adaptation measures (agriculture, spatial planning, energy production…). By identifying potential adaptation measures we try to identify win-win measures with other non-water related sectors.

7. How did you link transboundary climate change adaptation to national adaptation activities?

By national/regional reporting through our delegates in our meetings, by doing summaries of national adaptation strategies, by giving priority to the measures that are linked to European directives and have transnational effects. Besides, we also consider that when national activities and measures are being added together it leads to a reduction of the vulnerability to climate change.

8. Future planned activities
It is planned to finalise a common climate change adaptation strategy by the end of 2014.

9. Other important lessons learnt

There are and will always be uncertainties about climate change impacts but the Rhine countries think that the trends are robust enough to act and develop an (international) adaptation strategy.
Do not reinvent the wheel: try to use available, realized or planned measures linked to the Water Framework Directive and Floods Directive implementation or coming from "old" programmes (e.g. ICPR's Action Plan on Floods since 1998).

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E) International Commission of the Congo-Oubangui-Sangha Bassin (CICOS)

1. Name and short description of the project

Development, based on hydrological and socioeconomic data, of a prospective tool supporting decision making for the sustainable development of the Congo basin. It will facilitate optimal review and planning for major water infrastructures (dams for hydropower production, low-water level support, irrigation – water transfer), their environmental and social impacts and consistency at basin scale.
The tool supporting decision-making will also be used to simulate climate changes (changing rainfall, temperatures) and their impacts on water resources and related ecosystems.

- Facilitate review and planning for major hydraulic infrastructures (dams, hydropower production, low-water level support, irrigation), their environmental impact ; water sharing, benefit sharing, assessment of the consequences of the infrastructures on the basin
- Allow simulation of climate variability and change. The input chronicles (rainfall, temperature) will be modified by global (IPCC) or regional (IRD) climate models.

Congo HYCOS Programme
Contribution to improve hydrological monitoring of water resources through the development and early implementation of an information system across the Congo basin (Congo-HYCOS project), which is fed with recent and high quality data, easily available to all types of users especially through internet.

- Establish a regional system for collecting and archiving hydrological data, which is able to carry on at the end of the project;
- Provide the requested hydrological knowledge basis for an integrated and sustainable management of water resources and natural environment in general.

2. Concrete results achieved in 2014

Prospective tool on the basin of the Congo River:
Call for tenders of the consultant (BRLingénierie) to implement the modeling and water resources allocation tool in the Congo Basin with French funds. Data collection in progress, national workshops presenting the project. Regional workshop to validate the land management scenarios to model.

Congo HYCOS Programme:
Development of the project document describing the monitoring network. National workshops to validate the project document. Roundtable of donors to fund the operational phase of the project.

Data collection in member countries of CICOS
Digitization of historical data. Continued political and institutional awareness on the need for monitoring the resources to estimate climate change

3. Which major challenges did you face with regard to transboundary cooperation and climate change adaptation? How did you overcome them?

Hydrological data collection and complex and little known operation of the central Congo basin (flooded forests). Solution: Drafting of a data exchange protocol and implementation of the Congo HYCOS programme, innovative work with scientists from IRD to estimate the dynamics of the central basin.
So far, climate change is associated mainly to forests rather than water topics. Solution: systematic awareness of stakeholders on this topic, film under preparation.
Staff training to implement the Congo HYCOS programme and sustainable funding of structures beyond project duration. Solution: awareness-raising among policymakers voting budgets of the importance of monitoring the resource. Sectoral and non-participatory approach of topics related to water: development of a Master Plan for water development and management (SDAGE) with a participatory approach.

4. **How did you work on improving the link between scientists, experts and decision-makers? What lessons did you learn from doing this?**

   Within the model, it is expected to involve international scientific partners such as the French Institute for Research and Development (IRD) that will provide a scientific and technical support for entire project. CICOS participates or is in charge of animating various researcher networks (friend congo, cap net …). Relations with policymakers are institutional, CICOS being a state body.

5. **Did you work on awareness-raising and involving the local population within the project? How did you do this? What lessons did you learn from doing this?**

   Under the SDAGE (Master plan), CICOS is establishing consultation platforms to involve population in major decision affecting the Congo Basin. Given the size of the basin, these are representative of populations (politicians, NGOs, trade-unions …) and not people themselves.

6. **Did you involve other sectors in the project? If yes how? What lessons did you learn from doing this?**

   The mentioned consultation platforms, as well as regional or national workshop of some projects.

7. **How did you link transboundary climate change adaptationt on national adaptation activities?**

   National and regional workshops punctuate CICOS projects, this way decision makers from the countries participate or give their approval to major steps.

8. **Future planned activities**

   November 2015: selection of climate change scenarios to be modeled.
   February 2015, results from water allocation model of available water with scenarios of climate forcing.
   March 2015. Start of training activities on the model in 2015.
   If funding is acquired: start of the operational phase of the Congo HYCOS project to implement effectively the monitoring network.

9. **Other important lessons learnt**

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F) Danube River Basin - "ICPDR Strategy on Adaptation to Climate Change"

1. Name and short description of the project

The need to take the necessary steps to adapt the water sector to climate change was recognised by the countries of the Danube River Basin. Therefore, the International Commission for the Protection of the Danube River (ICPDR) was asked by the Ministers of the Danube countries to prepare a Climate Adaptation Strategy for the whole basin. The Strategy was finalised and adopted in December 2012, an is based on a scientific research study which summarises all relevant information on climate change and expected impacts on water for the Danube.

The Strategy is currently under implementation, whereas the most important tools for taking the required adaptation measures are the 2nd Danube River Basin Management Plan and the 1st Danube Flood Risk Management Plan, both to be finalised and adopted in December 2015.

The Climate Change Adaptation Strategy and Study are online available following the link: http://www.icpdr.org/main/activities-projects/climate-change-adaptation

2. Activities and concrete results achieved in 2014

- Discussions in ICPDR Expert Groups towards practical implementation of the Climate Change Strategy in water management planning processes based on a questionnaire towards the elaboration of the 2nd Danube River Basin Management Plan and 1st Danube Flood Risk Management Plan
- Further dissemination and presentation of the Strategy and related results in the frame of meetings and climate change conferences in and outside the Danube basin.

3. Which major challenges did you face with regard to transboundary cooperation and climate change adaptation? How did you overcome them?

- Inhomogeneous data base and information on climate change and expected impacts in the basin. In order to overcome this challenge a scientific study for the whole basin was elaborated, which helped to create a common understanding amongst countries and stakeholders.
- Climate adaptation as a cross-cutting issue requires to be taken into consideration by different experts/stakeholders in different countries. Capacities to address climate adaptation can be quite inhomogeneous within a basin due to different socio-economic circumstances. Other "day-to-day" water-related problems can be perceived to be more pressing than adaptation to climate change. Targeted projects can help to increase capacities not only for climate change adaptation but also for sustainable water management planning, what is often going hand in hand.

4. Are you developping or implementing a transboundary adaptation strategy? If yes how?

The Strategy was finalised in December 2012.

5. Are you implementing any adaptation measures in the basin? If yes how did you prioritize the mand how are you implementing them?

The main tools for implementing climate adaptation measures are the river basin management and flood risk management plans, which are currently elaborated/updated and which will be finalised by December 2015.
Climate change adaptation, meaning inter alia long-term risk management, poses a challenge in practical application in water management planning activities and decision making due to existing uncertainties. However, during ongoing discussions it reveals that in many cases river basin and flood risk management activities and related measures are important key steps also towards climate adaptation, meaning that the approach of applying no regret measures seems to prove practical at this stage.

Information on expected climate change impacts which was compiled during the process of the elaboration of the Climate Change Adaptation Strategy is useful for performing a check of programmes of measures under climate change, respectively to shape and focus future water management planning activities.

6. How did you link transboundary climate change adaptation to adaptation activities and stakeholders at the national, regional and local level?

Climate change adaptation is closely linked / based on integrated water management planning activities. Stakeholder involvement is fostered via direct participation in the ongoing discussions. In addition the EU Water Framework Directive and the EU Flood Risk Management Directive require public consultation during the elaboration of the management plans on international as well as national level, in the frame of which the issue of climate adaptation is covered as well.

Furthermore, specific climate change adaptation activities are ongoing at sub-basin level (e.g. Sava, Danube Delta), as well as at national level. Exchange is fostered via participation of national/sub-basin representatives in discussions, meetings and planning activities.

7. Future planned activities

Integration of climate change in the 2nd Danube River Basin Management Plan and 1st Danube Flood Risk Management Plan, including programmes of measures, and both to be elaborated by December 2015. Similar activities are ongoing at national/sub-basin level.

8. Other important lessons learnt

- Step-wise approach for climate change adaptation seems to be reasonable
- Climate change adaptation activities can help to foster important river basin and flood risk management planning approaches and the implementation of sustainable water management measures (e.g. improving ecosystem resilience, natural water retention measures, etc.)
- The application of the subsidiarity principle is of key importance. The possibilities at the international basin-wide level are by nature limited, also because the practical application of (climate change adaptation) measures is often an issue for the national/local level. Therefore, more detailed planning is required at the sub—basin/national/local level.

9. Suggestions for future activities on water and climate under the ECE Water Convention in 2015-2018

Exchange of experiences on the practical application of Climate Adaptation Strategies

10. Contact details

Further information can be obtained from the ICPDR website http://www.icpdr.org or get in contact with the ICPDR Secretariat: Raimund Mair, Technical Expert River Basin Management; email: Raimund.Mair@unvienna.org; phone: +43 1 26060 5333

G) Sahara and Sahel Observatory (OSS) / Consultation Mechanism of the North Sahara Aquifer System (SASS)

1. Name and short description of the project

The North Western Sahara Aquifer System (NWSA), better known under the acronym SASS for its French name Système Aquifère du Sahara Septentrional, is a large aquifer extending over more than 1000 000 km2 shared by Algeria, Libya, and Tunisia. The NWSAS designates the superposition of two main deep aquifer layers: the Intercalary Continental (IT) and the Terminal Complex (TC). The promotion of a sustainable management of the SASS water resources in the three concerned countries represents a major challenge to ensure a sustainable life in a highly vulnerable region. In fact, this region has succeeded in maintaining a sustainable life throughout centuries thanks to its extraordinary capacity of adaptation to a harsh environment by opting for a fair and wise management of its water resources. However, this equilibrium has been disrupted by the excessive and uncontrolled use of this resource.

With a view of establishing a sustainable development in the region, the Sahara and Sahel Observatory in collaboration with the three concerned countries, launched the SASS in 1999. The SASS project has now ended the third phase of its implementation.

While the previous phase 1(SASS I 1999-2002) focused on acquiring a deeper knowledge of the SASS resource in terms of its hydrologic and hydro-geologic aspects, the second phase (SASS II 2003-2006) consolidated the results of the first phase by the establishment of a permanent Consultation Mechanism whose Coordination Unit is hosted by OSS. The functioning of this Unit is funded by the three countries.

The third phase SASS III (2007-2013) entitled "Operational recommendations for sustainable water resources management of the North-western Sahara Aquifer System" specifically focuses on water use (agricultural use) and generally on the environmental and socio-economic aspects related to the irrigation practices in the SASS region.

One of the objectives of this project is to build a hydro-economic model capable of responding to the questions of the threatening risks and provide accurate information for the resource managers, stakeholders, and decision-makers within a framework of a common management of a trans-boundary aquifer.

The final outcomes of the project is the elaboration of operational recommendations for the utilization, management, and measurement of water extracted for agricultural purposes, notably in the zones where the water, the soil and/or the ecosystem are most vulnerable.

The project has two components:

- Enhancing the hydro-geologic knowledge of the aquifer through a survey on 5500 farmers aiming to collect and analyse socio-economic and environmental data on the agricultural systems practised in the region.
- Promoting a more effective irrigated agriculture at the economic, social, and environmental level through the implementation of six demonstration pilots in the three concerned countries to develop with the farmers of the region ways to construct a more sustainable and effective agricultural system.

2. Activities and concrete results achieved in 2014

- Completion of 600 socio-economic surveys in order to analyse the impacts of climate change on the basin
- Final report on analysis of 5500 socio-economic surveys with operational recommendations for sustainable development
- Final report on pilot demonstration with operational recommendations for efficient irrigation and valorization of salty water in agriculture.
- Six operational demonstration pilots were selected to address the problems of unsustainable irrigation water management. The Pilots were first identified and selected by the institutions in charge of water resources management of the three countries involved in the SASS project.

Pilot 1 - Protection of "fogarras" (traditional irrigation systems) and the associated agricultural production systems in Reganne (Adrar, Algeria).

Pilot 2 - Improving the efficiency of irrigation water and controlling soil quality degradation in

Oued Righ in Algeria.

Pilot 3 - Restoration and protection of the irrigated agricultural systems in "Bir Etterfess" in the Libyan Djeffara plain by the valorization and development of the scarce brackish water resources available for irrigation mainly through the application of proven irrigation and appropriate intensive systems.

Pilot 4 - Agricultural valorization of geothermal water irrigation during off-season cultivation in Merdoum and Zemzem in the wadis of Central Libya.

Pilot 4bis - Valorization of desalinated water with hyper-intensive irrigation in the region of Gabes in Tunisia. This pilot was selected to replace Pilot 4, which was abandoned due to the political conflicts that occurred in Libya in 2011.

Pilot 5 - Improvement of irrigated land affected by salinity and hydromorphic soils and restoration of the oasis cultivation systems of Jedida and Mansoura in the region of Kebili, Tunisia.
Rationalization of brackish water use in the Tunisian region of Sidi Maklouf, Mednine, (Djeffera).

- Achievement of a hydro-economic model with multiple scenarios of development to help decision makers
- The demonstration pilots 2, 3, and 6 have been identified as test zones for withdrawal assessment. The required satellite images were acquired free of charge, courtesy of Africa-Geodev. In support of this component, OSS coordinates activities in North Africa for the AGRICAB project. The project includes building-in the use of low and medium resolution imagery for the benefit of the technical services of three riparian countries.
- The results obtained under this component include:
- state of the art of the evapo-transpiration models based on satellite imagery;
- a synthesis on the use of satellite data to assess withdrawals in the SASS basin of the GeoAquifer

3. Which major challenges did you face with regard to transboundary cooperation and climate change adaptation? How did you overcome them?

A major challenge of the project was to assure the active involvement and adhesion of the farmers in the pilot regions. The results of the demonstration pilots showed that the impacts of climate change (irregular precipitation patterns and increase in temperature an raise of the sea level lead to increased demand for irrigation and the lowering of the ground water level as well as salinization of the available water resource thus provoking a situation of water scarcity) can be addressed by the introduction of a good agricultural governance, as well as the introduction of water efficient agricultural irrigation practises and the use of solar energy, water desalinization technique and of innovative water resources such as thermal water.

4. Are you developping or implementing a transboundary adaptation strategy? If yes how?

The activities of the project are aligned with the Strategic Framework for Water Security and Climate Resilient Development in Africa, which was launched by the African Ministers' Council on Water (AMCOW) during the Africa Water Week in 14-18 May 2012 in Cairo, Egypt.
We are currently in the process of developing recommendations which could be included in a regional adaptation Strategy of the SASS.

5. Are you implementing any adaptation measures in the basin? If yes how did you prioritize the mand how are you implementing them?

The implementation measures implemented by the project are currently focussed on the activities in the six pilot regions.

6. How did you link transboundary climate change adaptation to adaptation activities and stakeholders at the national, regional and local level?

The SASS II project has established a consultation mechanism of the three countries (Algeria, Libya and Tunisia). The mechanism is hosted by the OSS and meets on a regular basis. Through this mechanism experiences of climate change activities at the local level are shared at the national and transboundary

level. The consultation mechanism thereby helps to identify adequate solutions and develop common strategies.

7. Future planned activities

OSS envisages implementing a project which will include the important role of water as an energy producer, and will concern pilots at a larger scale.

8. Other important lessons learnt

The work in the six pilot zones has shown that it is very important to think about ways to attribute a defined value to the water used by the different user groups, for example through the introduction of prices for the different sources and user groups of water. It is important to estimate and understand the real economic value of water including on the one hand the source of the water and the required investment costs get access to the water and to assure the required water quality and on the other hand the use of the water and the economic gain realized through the use of the water by the different user groups (agriculture, industry, tourism, drinking water, preservation of flora and fauna).

9. Suggestions for future activities on water and climate under the ECE Water Convention in 2015-2018

In the context of its strategy 2020 OSS envisages to integrate a climate change component in all of their projects and thus examine the impact of climate change on the ground water reservoirs, the demand for water and to examine the different water uses with the aim to enhance the resilience of the population to the observed and predicted impacts of climate change.
OSS aims to provide precise scientific data to allow more detailed regional, national and local climate change predictions and to analyze the vulnerability to climate change.

10. Contact details:

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H) Niger River Basin

1. Name and short description of the project

Name: Programme for Integrated Development and Climate Change Adaptation in the Niger Basin (IPDCA/NB)
Description of the project: improvement of the resilience of the population through a sustainable management of natural resources (agro-pastoral production, silting reduction in the Niger River basin, resilience of production systems and vulnerable groups Enhancement
Components: 1. Integrated development of water resources in the Niger Basin, 2. Adaptation to climate changes in the Niger Basin, 3. Strengthening integrated management of water resources, 4. Programme Coordination and Management

2. Activities and concrete results achieved in 2014

- Identifying and partnering stakeholders
- Dialogue for coordinated and joint planning of CC adaptation measures
- Funds raising for feasibility studies and dialogue between stakeholders
- Preparation of feasibility studies (in progress)

3. Which major challenges did you face with regard to transboundary cooperation and climate change adaptation? How did you overcome them?

Major challenges in transboundary cooperation and climate change adaptation:
- Protection of the lives and goods against the floods
- Good planning water resources in CC context
- Monitoring climatic hazards and early warning
- Coordinating daily management of reservoirs and flows

Ways and means to overcome:
- Design of forecast (modelling) and management tools
- Joint planning and coordination of water resources through periodic meetings

4. Are you developing or implementing a transboundary adaptation strategy? If yes how?

Not yet. To be done later with ECOWAS[3] and IUCN[4]

5. Are you implementing any adaptation measures in the basin?
If yes how did you prioritize them and how are you implementing them?

Adaptation measures:
- Protection of the resources and the ecosystems, disaster control, Stakeholders capacity building in CC adaptation and intervention

Prioritization and implementation:
- measures in line with the NBA 2008 – 2027 Sustainable development action plan (SDAP) and the 2013 – 2022 Strategic plan (SP)
- measures planned at national level
- mature[5] measures

6. How did you link transboundary climate change adaptation to adaptation activities and stakeholders at the national, regional and local level?

Transboundary climate change adaptation in NBA aims to decrease the impact of natural risks, to adapt to climatic changes and to participate to the reduction of the green-house effect gases, in line with the ECOWAS Strategic program of Reduction of the Vulnerability and Adaptation to Climate change in western Africa
Link with adaptation activities and stakeholders at the national, regional and local level:

[3] Economic Community Of West African States (ECOWAS)
[4] International Union for Conservation of Nature (IUCN)
[5] With feasibility study and funding available

- support to national adaptation strategies through (i) hydrological monitoring, (ii) development of modelling tools for hydrological forecasts (flood, flooding, low water flow) integration of scenarios dealing with the increase in temperature, the need in water of the plants and the evaporation of the damming lakes
- Baseline assessment of the ways in which people are adjusting to climate change
- Planning, funding and monitoring of local CC adaptation measures

7. Future planned activities

- Baseline assessment of the ways in which people are adjusting to climate change to propose relevant strategies;
- Refining of modelling tools for hydrological forecasts (floods, flooding, low water flow);
- Monitoring of the application, in the works management, of the minimum low water flow to guarantee the minimum water flow as defined in the SDAP and in the previous studies to satisfy the ecosystems needs;
- Research work to integrate, in future models, scenarios dealing with the increase in temperature in order to calculate the need in water of the plants and the evaporation of the damming lakes

8. Other important lessons learnt

- Real need for taking into account CC vulnerability in water resources planning and management;
- Real need for strong coordination of adaptation measures at regional and local level with a transboundary perspective;
- Real need for support in forecast and early warning;
- Need for capacity building in CC adaptation (specially in development, management and maintenance of adaptation infrastructures6, in development of tools of adaptation and water resource management)

9. Suggestions for future activities on water and climate under the ECE Water Convention in 2015-2018

- Experience sharing and capacity building in CC adaptation at trans-boundary scale
- Experience sharing and capacity building in developing of tools of adaptation and water resource management at trans-boundary scale

10. Contact details

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[6] Flood protection dikes and works,