



Government of the Netherlands



EXPERT SCOPING WORKSHOP ON QUANTIFYING THE BENEFITS OF TRANSBOUNDARY WATER COOPERATION

6-7 June 2013

Institute for Environmental Studies, Vrije Universiteit Amsterdam, the Netherlands

Elaboration Notes Workshop

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Day 1. 6 June 2013

Session 1: Opening: meeting objectives and agenda

Introduction

The Expert Scoping Workshop was organized in the framework of the United Nations Economic Commission for Europe (UNECE) Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention), with the support of the Governments of the Netherlands and Switzerland and the Stockholm International Water Institute (SIWI). The meeting took place in the VU University Amsterdam, Institute for Environmental Studies on 5-6 June 2013. This was the first activity organized in the framework of the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention). The meeting included plenary sessions (see powerpoint presentations) and breakout sessions in two strands: Policy and Research. After the individual breakout sessions, the two groups came together to share outcomes and to discuss approaches and methods of identifying, quantifying and communicating the economic, environmental, social and political benefits of transboundary water cooperation from a policy-makers viewpoint. The aim was to elaborate a guidance document that would support primarily policy-makers in quantifying the benefits of such cooperation. A participants list can be found on the UNECE site.

The meeting began with a welcome and introduction by Niels Vlaanderen, Senior Policy Advisor at the Dutch Ministry of Infrastructure and the Environment, who observed that transboundary water cooperation was particularly important and relevant for the Netherlands. There was a policy- and decision-making need for information on benefits, particularly in times of economic crisis, when pressure on budgets sharpened critical consideration of investment. Policy advisors came to the workshop with a number of questions about benefits, gains, or saving of costs. This extended beyond just the monetary, to include questions such as issues of trust for investors, for example. In preparing for the workshop, it had been decided that a scoping phase was the best choice for balancing the concerns of practitioners and researchers, with those with knowledge.

Nicholas Bonvoisin of UNECE provided a brief background to UNECE's work. Though the focus is on UNECE's Water Convention, it is hoped that the results of the workshop will be equally useful for promoting the New York UN Water Courses Convention. The UNECE Water Convention is based on three complimentary sustaining obligations: the obligation to take all appropriate measures to prevent and control and reduce transboundary impacts; the obligation to ensure that transboundary waters are used in reasonable and equitable manner; and the obligation of riparian countries to cooperate through establishing bilateral and multilateral agreements that lead to joint bodies responsibility for joint management.

Politicians are generally keen to understand the benefits of joining multilateral agreements. They need to know what the benefits are of entering cooperative arrangements with other countries regarding transboundary waters. In particular, upstream areas require answers. Ideally, states will buy in to real cooperation, rather than merely adhering to the Convention's legal framework to cooperation. It is expected that the meeting will provide insight into identification and communication of the benefits, and where possible quantification. It is vital that information is presented in manner that is policy relevant and comprehensive, highlighting a full range of benefits - not only benefits of cooperation but also the costs of conflict, of isolation and exclusion, distrust and misunderstanding.

The success of transboundary water agreements is based on multilateral processes - guidelines or methodologies are not valid unless these are participatory processes involving all parties. This is vital for the adoption and operationalization of guidance. It is hoped that the interaction of participants will result in

technically-strong policy guidance and come up with innovative and participatory ways to identify, quantify and communicate benefits. Approaches should be uncomplicated, the workshop does not aim to produce a research paper, but is seen as a policy tool for policy-makers.

Transboundary water cooperation is an under-researched, under-analysed topic. The quantification of benefits is always complex, but in the transboundary context it is more so. This meeting needs to scope many types of benefits, not only traditional benefits of improving water quality, or irrigation system management, but also issues such as regional integration and poverty reduction. Transboundary water cooperation has unique features and raises unique issues, and the workshop should deliver quantitative evidence-based information to enable policy-makers to make robust discussions with transboundary countries in their region. The workshop was not intended as an academic conference, but as a place of debate.

The objectives of the workshop were to define transboundary cooperation in the context of policy making. A transboundary setting is quite different than a sovereign state setting, and special features need to be identified. In looking at a typology of benefits, methods and approaches, it is essential to draw on any experience already acquired. The end goal is identified as a methodological guidance note by UNEC E to assist in evidence-based analysis in furthering cooperation in relation to water at transboundary scale. We need to understand policy-makers and have a policy-science interaction - are the existing range of robust applications sufficient to bridge research gaps?

The breakout session of the Policy Strand set the question: what are the needs and challenges? What are the key information requirements? What are Best Practice examples? What do policy-makers need to do to make a step forward? These were seen as the building blocks towards the Guidance Note.

The breakout session of the Research Strand focused on other questions: what are the special features of quantifying benefits in the transboundary context? How can we come up with a typology of benefits, if indeed we should? Do existing methodologies need augmenting? What methods and approaches are currently available and what do they cost? What are the funding implications for methods which require long-term implementation? Is there a willingness for evidence-based analysis, in the policy context? While actions such as quantifying crop production and hydropower output is straightforward, how should one quantify regional integration, for example, or distribution issues and equity? The Research Strand would also consider data requirements and research gaps.

On Day Two, the strands were reconciled. The nuance of discussion was picked up. The output from the Workshop would be a definition of transboundary cooperation; a grip on the range of benefits and what challenges are faced. Typology was seen as a key target, together with approaches and methods leading to a Guidance Note.

Session 2: Setting the context of transboundary water cooperation

Presentation 1. Jeroen Warner, *Wageningen University*

What is cooperation? Lessons learned from the Middle East (see powerpoint)

Discussion Notes

Although there might be existing treaties, regional agreements, EU rules, etc. these are only as strong as the political will to abide by them. If there is no political will, there are always ways to dodge regimes. In cases of legal pluralism, countries can decide which legal requirements they prefer to work with, choosing which is most convenient to them.

Sometimes regimes do more than is required, because there is a political will to stretch the terms of agreements. Countries do not necessarily take a minimalist approach, if they see benefits from compliance.

It is useful to have specific examples of water tensions, to take as a starting point – such as dam building. These highlight specific conflicts and tensions. In terms of policy dialogue, it is not helpful to hide tensions, but to name them.

Water wars are not the only wars about resources, we have had wars about energy in the past. But these conflicts are never *only* about energy or water.

There are more examples of cooperation than conflicts about water. Cooperation on water can be a starting point which ultimately reaches beyond water issues.

Countries will often adhere to agreements, not simply because it is a legal requirement, but because they perceive that it is in their interest. Identifying and communicating benefits encourages this behaviour.

Presentation 2. Benedikt Mandl, *International Commission for the Protection of the Danube River*

Transboundary Water Cooperation in the Danube Region: Status, Challenges, Benefits (see powerpoint)

Discussion Notes

Can we quantify the benefits of information flow? Can we quantify the benefits of stakeholder engagement, or quantify the benefits of attracting funds?

There is an inherent value in the participatory process, multistate platforms do not necessarily solve problems, but create they can create capital.

Is cooperation through water a driver of other benefits in regional integration – or is regional integration a pre-requisite? Every region of a river basin has specific problems. Diverse regional and local situations need to be addressed.

One might intuitively believe that those experiencing the most extreme water pollution would be the ones pushing hardest for remedial action. However, the opposite is true, it is the societies who have been active in environmental awareness the longest who pressure for environmental measures. Environmental protection, even clean water, is a luxury good.

In western Europe, the process of developing water resources has gone on for centuries, and has changed geomorphologies, and affected the environment in other ways. In Asia this is not yet the case. The Mekong area, for example, does not have the level of development of western and central Europe, nor the level of

integration, and certainly not the capital. To minimise the impact on the environment, is it perhaps better to delay development until the integration and cooperation is in place?

Cooperation in the framework of the ICPDR would not have progressed so far without the EU. The EU is an important driver in this case.

The ICPDR is an institution which does not expressly facilitate, or engage in judgment on conflicts. Its contribution is in information flow, not arbitration. Quantifying the benefits of ICPDR activity at a monetary level is not possible. Its success should not be seen in simplistic terms of gaining compliance with environmental law, there are also benefits in efficiency gain from operating on an international level and gaining from a variety of experiences at national level.

In the transboundary river context, there are cases of investment in joint infrastructure development, including benefits or disbenefits, from sources outside the country invested in. There is private investment – such as cooperation in shipping, and for flood risk where, for example, Germany funds infrastructure elsewhere. Among corporate investors, Coca Cola has replenishing targets and has paid for wetland restoration in Croatia. There are also examples of investment in preventive measures, such as where Germany invests in basins to contain excess storage water and avoid damage.

Presentation 3. Christian Severin, *Global Environment Facility*

Lessons learned from Transboundary Cooperation (see powerpoint)

Discussion Notes

Negotiations can result in a minimum of cooperation, but there may still be an impact in the sense that talking about issues can smooth out contested points.

Whilst we know that meetings have benefits, governments can be sceptical about putting money into funding meetings. We need to find an indicator of the impact of this type of cooperation in order to quantify. UN agencies make use of assessing relationships between inputs and outcomes.

It is often difficult to project forward from current activities. We need to find ways to secure the resources not just to embark on a project, but to secure the continuance of the work in years to come.

Presentation 4. Daene McKinney, *University of Texas*

Opportunities and Challenges of Policy-makers and Potential Research Contribution on Quantifying Benefits (see powerpoint)

Discussion Notes

When an upstream country has a control over a resource which is desired by a downstream country, downstream countries historically under-deliver on negotiation, hence the upstreamer take measures which are not in the interest of a downstream neighbour. If downstream countries would deliver, then the common “pie” would be larger. The challenge is in convincing all parties to view benefits as a pie, instead of focusing on individual interests. This insight is not necessarily useful to stakeholders, but may help to persuade the donor community that there is a good reason for seeking a cooperative solution.

A high degree of transparency is important in gaining confidence and trust. The process of carefully going through the data in the negotiating phase gives people confidence.

There are issues at a variety of scales, not just international. In smaller regions, there can be conflicts between upstream and downstream areas within a country. Political might can outweigh technical considerations, you might not end up with the system as it was conceived at a technical level.

Breakout Session A: Policy Strands

Identifying the needs and challenges of policy-makers and potential research contribution on quantifying benefits

Introduction to session:

- the workshop outputs target a definition of cooperation;
- there are a range of benefits that policymakers need to quantify – after considering the broadest range, we can then select the most valuable to policy-makers;
- the challenges for policy-makers and the special features of transboundary cooperation should be identified;
- the transparency of cooperation and how that relates to quantifying benefits should be considered;
- there needs to be discussion on a typology of benefits, and approaches and methods;
- we should communicate to the Research Strand, if there are gaps in information, or questions;
- we should take a demand-driven approach, focusing on the demands of policy-makers, with an end goal of a guidance note targeted at policy-makers.

Presentation 5. Jahid Hassain Jahangir, Joint River Commission, *Ministry of Water Resources of Bangladesh*

Illustrating case for the policy needs for transboundary water cooperation (see powerpoint)

Discussion Notes

Bangladesh is exceptionally vulnerable, experiencing both extreme drought *and* extreme flood. The cooperation of the other riparian countries in the area is vital in resolving these problems. At present, there is no committee or forum of all countries, though there are some initiatives at ministerial level, contact being primarily between Bangladesh and India – with a shared framework on hydropower and agricultural development including Bangladesh, India and Bhutan.

Without getting all parties together, and having joint information, it was impossible to quantify benefits. However, it was pointed out that there were a number of examples of multistate situations, even with a history of conflict, where relatively simple tools brought parties to the table. There were different ways to calculate services and create an incentive for parties to engage in discussion.

Presentation 6. Harry Liiv, *Ministry of the Environment of Estonia*

Illustrating case for the policy needs for transboundary water cooperation (see powerpoint)

Discussion Points

Estonia and Russia cooperate in a twinning project which has been constructing wastewater treatment facilities for three years already. Progress is good and there are even instances of co-funding projects. There was a Joint Commission in September last year.

With regard to agriculture, there is a need for cooperation, not only between countries, but also between different ministries. Discussions on protecting the river basin have been ongoing. In September, there will be a commission addressing agricultural pollution, followed up with working groups. Scientists on the Estonian side have been assessing agricultural pollution for some time, and information has been shared with the Russians. In June this year the Russians will present findings from the Russian side for common understanding on agricultural policy. There has been a common audit on this catchment area.

Water management is a long-term process, and planning should be cautious and careful. Ideally, scientists should be monitoring continuously. It is difficult to plan long-term management when funds only cover the initial period.

There are benefits in water management at a political level, when partnerships work positively.

Parties may value each side of the same stretch of river differently. The major part of the catchment area on the Russian side is remote and sparsely-inhabited. This area was once strategically-important to the Soviet military, but is now abandoned.

Recent public statements from Russian politicians praises the cooperation with Estonia, and acknowledges that agreements and commissions are well-organised and beneficial to both sides.

Presentation 7. Anoulak Kittikhoun, *Mekong River Commission*

Illustrating case for the identification and valuation of benefits (see powerpoint)

Discussion Notes

The Mekong River Commissions struggles with a work plan, particularly regarding intangibles, this workshop needs to help us with this.

Each country in the Mekong region is at a different stage of development, this provides particular challenges when working on agreements.

Dialogue partners are not bound by any agreements – what benefits encourage dialogue partners to come to the table?

China's upstream dams have benefits for Vietnam, since they ensure dry season flow. Not all upstream projects disadvantage downstream partners *per se*.

Countries downstream of China would like more information on the operation of hydropower, in order to optimise irrigation. China is not 100% willing to share information, but does understand why it is requested.

Different countries have different ministerial structures. Laos integrates environmental issues, in Vietnam the "water people" are very dominant in these affairs.

Interestingly, countries which are vocal in opposition to China's Xayaburi dam, have their own plans for building dams which will themselves create environmental issues. Why complain about a third party if one is prepared to damage the interests of one's own fisheries?

The Xayaburi prior process had benefits, despite many seeing the process as a shambles. Although Xayaburi went ahead anyway (and as a sovereign territory, China is free to implement its plans) China did share designs and plans and the Chinese government also changed the design of the project for political reasons – with \$170 million of fish passes.

What has been learned from the process, is that what at first appears to be a "yes or no" issue, can morph into a qualified yes, by focusing on minimal impacts and optimal benefits.

It is difficult to quantify benefits which are intangible or indirect, such as institutional capacity and role, institutional impact and value of information in an institutional setting.

The MRC is a \$20 million operation and needs to be seen to be more than an organiser of workshops.

The traditional valuation of irrigation, agriculture, hydropower methodologies, etc. are routine for engineering consultants. Subtle intangibles, such as broader stakeholder values, employment, etc, are less direct, more indirect. Should we be spending energy and money on what we know about, or shift to less tangible values?

This workshop needs to have a comprehensive overview of benefits, including traditional ones, since we may be addressing policy-makers who do not yet know this area. Presenting intangible benefits as a starting point will lose policy-makers directly.

We should not forget biodiversity, there is more than the anthropocentric, we need to think about wider environmental scenarios.

Presentation 8. Jesper Karup Pedersen, COWI

Illustrating case for the identification and valuation of benefits (see powerpoint)

Discussion Notes

Harm scenarios are useful tools, enabling parties to talk about sensitive issues, working in groups to make scenarios and calculations, and even have fun with it. Acknowledging conflicts is useful, and conflict scenarios allow quantification of conflict outcomes.

Water policy is currently outside the BEAM model but is highly significant, as may be other parameters which differ from basin to basin. When BEAM 2 is finalised it will be useful to have a discussion on improvement.

Should the wider community be included in a second phase?

The role of autocrats in the Aral region should not be underestimated. Benefit models might succeed in convincing people with a technical background, but these are not the people making decisions. What benefits would speak to totalitarian regimes? Can we go that far – looking at classifying regime types? Or is this a socio-economic question, that we should avoid?

What about the power of an organised voice? In normal market economies, the voice of the small organised group can be heard more easily than, say 20,000 fishermen. The tools we use should secure information from diverse voices.

Transparency is a key trend in development, we need transparency in transboundary water management, without this you cannot measure benefits. We also need transparency regarding the power relationships involved, between countries, but also between groups (companies, ministries) within countries.

We need transparency regarding finance and funding issues. Without good information about funding, we cannot move forward with water management plans.

There may be differences between benefits for countries which have been working with conventions, etc, for 10 years or more, and those just starting work under convention. Countries just starting need information exchange and transparency, and to clarify a starting point. 15-20 years later, it is a different situation.

Presentation 9. Rob van der Veeren, Ministry of Infrastructure and Environment of the Netherlands

The Main Challenges in Quantifying Benefits (see powerpoint)

Discussion Notes

There are benefits to stretching the time for attaining targets. Increasing the number of years of a project spreads costs and tax burdens. There are quantifying benefits of options and of having options. Options analysis is a benefit in itself. You need to get consensus by selling the prospect that there is something in it for everyone. In western and central Europe, the threat of sanctions is a useful tool, but this does not necessarily beyond Europe. The workshop should consider stakeholders and what makes them tick domestically...

Breakout Session B: Research Strands

Identifying the needs and challenges of policy-makers and potential research contribution on quantifying benefits

Two main themes of this afternoon sessions are how different research strands deal with the following topics:

1. Quantification of benefits of transboundary water management
2. Different procedures and research methods of capturing those benefits

Main questions during the breakout session were:

- How should we categorise benefit types?
- What types of TWC benefits have been identified within research work and to what extent?
- What are the currently available modelling and valuation methods? Which benefit types pose most challenges to valuation?
- What is the data requirement to quantify those benefits?
- What are the research gaps in this area?

Presentation 10. Jeff Connor, CSIRO, Australia

Typology of benefits (see powerpoint)

Discussion Notes

Exactly the same procedure in the global economic network. Some ongoing work that relates the classification of ecosystem services. New international classification of ecosystem services and natural capital, by the European Environmental Agency. With the supporting services, there is a risk of double counting. Presentation builds on previous research on categorizing different types of water services. (Roy) It is the direction the literature is going recently, heading towards an international standard. (Jeff)

The six maps on slide 16 do not quite show a win-win-win-win-win-win-situation (Jeff), as might be expected (Richard). The agriculture (red map) is the loser (negative) and the other part of the equation, what do you think it costs to get to this win-win-situation of 20% of the water? It took compensation in order of 10 billion dollars. It is a possibility; the red is the loser and the rest are the winners. And the cost of transition is very high and possible in a rich country, but not everywhere (Jeff). But even if you reduce water in the red bits, how can you store more carbon everywhere (Richard)? We didn't reduce carbon. We reduced diversions, we increased the amount of water for inundated floodplains. And the Carbon Storage Capacity increased. (Jeff) So this is carbon stored in flood plains, not necessarily stored in the fields? (Richard) It is carbon stored in trees and floodplains essentially, because the trees are not helping to produce more biomass in forests. (Jeff)

Since the units of these maps are all different you cannot really compare the different values? (Roberto)

The first step goes from flow to the ecosystem service production. The second step was the valuation; taking water costs and damage measures. Resulting in a total benefits of 3 billion dollars. We also realize we missed lots of things that couldn't possibly be quantified. (Jeff)

What do we need the typology for? (Roberto)

I think this is an important question. We need to try to group the types of benefits, so you can then try to look at what are the methodologies. How do you go to quantify them? I think that's one of the criteria for using a typology that is useful for you to carry on the quantification. (Jeff)

In terms of the communication, partial evaluation seems more useful and easy for policymakers than normal evaluation. *Was this the methodology or the nature of the benefits that those methodologies are measuring, because it is not the same as the spiritual values of the commercial production in a certain sector* (Roberto)?

The issue is often that people believe there is some hypothetical bias in stated preferences questions often. Whereas if you use a revealed preference or a damage cost they tend not to find them challenging, inside and maybe outside of the economic community as well. (Jeff)

In terms of double counting and aggregation, the dollars you calculate through one methodology are not exactly comparable with the ones of others. For example, consumer surplus is not the same as the variety of change ecosystem services in market places. *Has this been a problem or a challenge when carried out this research? (Roberto)*

There are two points about aggregation and double counting.

- *Supporting services*; get a more cleaner river or a lower temperature river. Do I count that as a benefit or actually I count that as the end demand? If you focus on the end demand you won't have a problem of double counting the service.
- *Consumer surpluses vs. water costs*; some costs don't include consumer surpluses, some do. Conceptually economists believe to have the consumer surplus measured as well. The argument has often been that we end up with lower bounds with some of the other methods.

Not many papers really list 5, 6 or 8 benefits as they typically focus on 1 or 2 things. I believe it is valuable to think about cataloguing the benefits to get a reasonable basis for the range of benefits transfer (Jeff).

Is the impact of the reduction and diversion on for example bird or fish habitat a (non-)linear relationship, or do you also take into account the effect of habitat vegetation on habitats for fish and birds? (Roebeling)

There is actually a fairly sophisticated model behind that says the health of fish or birds depends on various dimensions of the hydrologic regime. So breeding depends on timing, duration and frequency of inundations of habitat that birds live in. (Jeff)

Is there also interaction between the other indicators, like irrigated agriculture, or is it just from reduction into diversion and bird habitat? (Roebeling)

It is not that sophisticated. This river system is highly researched, lots of funding for assessments. Possibly you could do this in some developed rivers, but it is a challenge to have a simpler matrix for developing settings.

Are the scales of the maps on slide 16 somehow scaled? (Roebeling) Yes, they are based on a hydrological condition model relating to the outcome. Essentially saying how much habitat is in good condition ecologically.

Using your experience in the Murray-Darling Basin; how should we draw the line between primary and secondary benefits that are relevant in transboundary water cooperation? (Philia)

There is an example of an agreement on a 'credit and debit system' in the Murray-Darling Basin, concerning salinity. The level of salinity in the river was rising in the 1980s, and it was affected by several basin states and effected several basin states. They developed a technical capacity to cooperate and understand how salinity is influenced various variables. The basis of the agreement was an output quality target, agreed actions to take focusing on the outcome and a technical basis to understand how the actions would influence the outcome. Result: various dynamic innovations. Agreements on TWC need to be focused on the possibilities to quantify outcome and technical agreement about how actions can influence these outcomes. Initially it was an infrastructure project, but it was discovered better farming practices could reduce drainage of the river. Or the salinity credit system for zoning could be used for different cost. Focusing on outcome as the policy target and it allows innovation. You also need a technical capacity to understand the impacts. We can do those sort of things in transboundary cooperation as there is a dynamic incentive. (Jeff)

Presentation 11. Peter Roebeling, CESAM, Portugal

Gains from trans-boundary water quality management in linked catchment and coastal socio-ecological systems: a case study for the Minho region (see powerpoint)

Discussion Notes

There obviously are some benefits to cooperate, but there are distributional issues. In any framework for benefits that is established, it would be interesting to possibly explore where are the potential gains losses and what are the kinds of arrangements we could make to explore that. (Connor)

The baseline is no cooperation, giving a good reference point to assess the benefits of cooperation. This presentation focuses on the final outcomes, but a benchmark/reference point is necessary. There was one scenario without cooperation within the basin and one scenario with cooperation. That is the only way to come to some quantification of the benefits of cooperation. (Brouwer)

From an economic point of view, the ideal action to perceive maximal perception would be to optimize (Brouwer). From a practical point of view, there are other ways to look at it from a basin perspective. The basin becomes part a central country with no real clash of sovereignty and clash of rights. The ideal would be to have a vision beyond the boundaries of the surface water basin, transcending political borders. (Imam)

When focusing on the outcomes, you look at costs and benefits of changes with and without collaboration. From an economic point of view you have the benefits of the outcomes; ex. what is the value of a bird or a fish or whatever? Natural values are extremely problematic to monetize. In the transboundary collaboration processes, again something can be done like an economic analyses. (Brouwer)

Transaction costs are important when talking about compensation to promote adaption of better practices. There is a costs involved in setting up a market with compensation systems etc. Their habit can be quantified and then the benefits of cooperation can be quantified (Roebeling). It would be great to also have some valuation of this quantification, that maybe we should come up with. (Imam)

In the compensation schemes good practices are subsidized. It is easy to quantify the reduction of pollution by adapting a good practice. Transaction costs are involved for the measurements and constantly monitoring of this practice. Not by looking at actual emissions but looking at the extractives, as this is easier modelling so it costs less. These measurements should be done, because there are huge differences between effectiveness of these practices in various locations; upstream, downstream, slope, etc. (Roebeling)

It depends what you need to set up to get this best practice. But if you don't have the necessary institution how to I measure it? (Imam)

How would you assess the attitude of the countries about such matters? (Dombrowsky)

Even in Australia I noticed that the downstream industry (tourism and fisheries) their initial attitude was against 'paying the polluters', which made it difficult to negotiate. But the discussion opened and the attitudes changed, when the downstream industries got aware of their own benefits if the upstream industries would reduce their pollution. Therefore it was possible to make a system of compensation that was not based on actual emissions but on the adoption of best practices as such. The various possibilities vary strongly between cultures and depends on the place and country that is dealt with. In my experience, in some countries (e.g. Australia) people are very open-minded and sensitive for market incentives, whereas in other countries (e.g. Portugal) maybe these economic instruments are less effective. This effectiveness is influences by the economic structure, populations structure, etc. (Roebeling)

Presentation 12. Richard Tol, *University of Sussex and Vrije Universiteit Amsterdam*

Climate change uncertainty and water security (see powerpoint)

Discussion Notes

How can you build incorporate scenarios in cooperation in details. Is it possible, if you are trying to see it in relation with transboundary water cooperation (TWC) what are there any gains? (Restiani)

It is in fact possible and not difficult. The question is whether is it realistic? In the old economic theory, the assumption is made that all markets are perfect. It means that the market for water that is assumed here is also perfect. Suppose a country like the USA a one of units in the model, a perfect market means that you can instantly and without costs ship water from e.g. NY to Los Angeles – perfect cooperation, can't get better. In the GTAP- model, instead of looking at the Americas as different country you can merge them into one country which makes it possible to ship water instantly and cost-free from South-America to North-America. In that sense you can mimic cooperation. Water cooperation is so complex, it is impossible to capture all variable that would be good to include. Yet, there are attempts to make this more realistic. (Tol)

It might not be the best example of secondary benefits of transboundary management, but Richard and I (Brouwer) are working on a model of the impacts of drought on the Rhine river basin. In the model it is possible to show that droughts have an effect on trade between the Netherlands and Germany, and how price changes effect the trade balance between those countries. If there is a similar drought in both countries, the trade balance is similarly changing. In this way we are able to look at import/export relationships, or water dependent products such as agriculture, between countries much more explicitly.

Recently this “partial including approach” was used in Holland and the direct damage costs for agriculture of the most severe drought was calculated. It appeared to be three times higher than if we account for those spinoff effects. Important message: the economy is adaptive, it is not a static thing (Brouwer).

Looking at a transboundary scenarios, and you start talking about changing allocations about surface water availability shifts, some countries may be prepared to give some of their surface water reservoirs when they know they still have (lots of) groundwater resources. Less incentive of the government to really look at those resources because its alternative is more accessible and cheaper. So they are willing to let go some of the surface water because they know they still have the other resources, but that still affects the overall water availability. (Conti)

In this particular run we use groundwater and we keep it as it is today. There is no exhaustion of groundwater (because we were lazy?), and there is no impact of climate change on groundwater because nobody quite knows what that will be. In another model we did explicitly look at some other scenarios; river (1) groundwater runs out, (2) river dries up, (3) restriction on the use of groundwater. From an economic perspective there is just less water availability. Groundwater is essentially unpriced and the agriculture heavily subsidized already, so in a country like the USA less groundwater availability economically means that subsidies are reduced through agriculture. Which is a good thing for the economy: water availability ↓ → welfare ↑ despite the fact that farms get into trouble. (Tol)

What is the resolution of the model? (Imam)

Roughly 3 by 2 degrees (Tol)

Is the model keeping track of the adaptation mechanisms that it is doom to get the equilibrium? (Imam)

I have also discussed with climatologists that they really should look at the climate impacts of creating reservoirs, but they don't look it up. Concerning adaptation we have the crops are seen as functions of all the inputs. So, if one of the inputs become less available but the demand for your products holds up then automatically more labour and capital is deployed. In the other scenario (green vs. blue) the land and climate is allowed to change.

At some moment the adaptation mechanism is identified, but if it involves major changes in land cover and land use, does it give that feedback to the climate model? (Imam)

No, but obviously it should do that automatically (Brouwer)

Would that be a mechanism to explore reallocation of water and managing water differently across boundaries a river basins? (Connor)

Yes, and what I think they have done is do it phenomenologically. What they have is just, we observe this amount of water in the river and that goes over the border and they assumed that it is a natural process that is not governed by laws or anything. Sometimes it is calibrated to the hydrological situation and the current legal situation. Then they change the hydrological situation, because they are physicists, keeping the laws the same. In principle there is no reason why they could not split out the two, but they haven't done it. And similarly you could build additional reservoirs, but they are not there yet (Tol).

Is there a reason for not mentioning water storage, such as dams and reservoirs, when mentioning the number of options or mechanism for adaptation that are going on? (Hurtado)

Yes, water is an endowment and irrigation water is useful if it is there. So what we did not have is, in order to make irrigation water useful, was to build a dam as perhaps there won't be more water around. That is the next version of the model, it hasn't been built yet. But as soon as it is there: it is possible to invest and make more water available. But we need to do this step first and the problem here is twofold: (1) high complexity model, essentially you use one PhD-student per step; (2) very data intensive to get these numbers right. So in principle yes, in practice we wish.

Presentation 13. Sarah Wheeler, University of South Australia Business School

How can we value improved regional security and integration? Insights and lessons from Australia (see powerpoint)

Discussion Notes

You mentioned this all could not have happened without the federal structure from above. Have there been any assessment to identify the benefits for the individual states? Are they all winners? (Bonvoisin)

There has been a lot of mapping. There is a map (not in the powerpoint) of which regions were going to lose and which were going to win. Typically looking at states gains, hydrology, agriculture, etc. It was known before which particular areas were going to be worse off and which ones were going to benefit a lot. The areas in the NSW Murray and the NSW Murray-Buchy were the regions that were going to suffer most. They were the ones protesting most and also the ones who got most money from the federal agreement (Wheeler).

Could you say more about unbundling of water rights, as water rights initially did not exist? (Brouwer)

Water rights have been allocated by Australia over time, depending on and varying among the various locations of the irrigation districts. Some irrigation organizations based the licenses on the type of pasture crop and area, counting for the amount of water owned. Whereas in other irrigation organizations the licenses were based on volumetric measures, having the farmer to inform about the amount of liters and type of farm. Legislation was often put in place with unbundled water rights from land, which meant that water used to be part of the whole land license. After the unbundling, water could be separated from land and reduced the transaction costs compared to the situation of trading the water from a permanent entitlement to a farm of someone else. Concluding, it was all very different in the various regions. (Wheeler)

What was the leading principle that guided that unbundling? In the USA there are two main cases (1) prior appropriation and (2) beneficial use. In the prior appropriation the water is owned by the those who used it first. Even if the country/region is way downstream, it claims others cannot touch that water that is coming towards them when it is released from the reservoir operator, until it gets there. In the beneficial use case, the use is tight to the land that is farmed. So in Australia I would expect that if the land is not farmed, the water rights are lost. That it can abandon not the district level, but the individual level. (Imam)

Once you have that right and water markets are there, you lose the right if you don't use it. (Wheeler)

So then the beneficial use is involved at the moment of establishing of that water market? (Imam)

It is a crowd property right. The Australian property right doesn't belong to an individual, it is a public good that belongs to the crowd. It is also the right to a proportion to a pool of water, the amount varies in time. You have a permanent right to a share of the pool of water, but actually it is not yours. For about 50 years there have been different lease conditions, and they do put conditions on it for the best practices. (Connor)

This has a lot to do with the concept of benefit sharing in a lot of transboundary river basins, the real issue is about appropriations. A lot of states in the downstream countries that use water claim that the upstream country cannot do development because it affects their establishment. (Imam)

There is huge benefits to the right institutional arrangements. (Connor)

I have a question on terminology, since we are also supposed to discuss typologies of benefits. In my understanding, benefits beyond the river were type 4. That they were thinking of forward linkages towards other sectors. The benefits of trading the water rights, in my view, would still be type 2 benefits from the river and not beyond the river benefits. I thought maybe we should also discuss these typologies. (Dombrowsky)

Presentation 14. Roy Brouwer, Vrije Universiteit Amsterdam

Downstream willingness to pay for upstream land use change to improve irrigation water supply in the Blue Nile River Basin (see powerpoint)

Discussion Notes

The discussion that followed up the presentation of Roy Brouwer during the Breakout Session of the Research Strand can be found on in the paragraph below, because it was overlapped in the program.

Discussion

Elaboration of discussions following Roy's presentation, followed by an extensive the open debate.

I heard many positive things that were very interesting to hear. You said the monitoring was insufficient. Did you come up with any recommendation on what monitoring would be preferred, and how that can be implemented in a transboundary organization? For the monitoring itself, what should be monitored? (Peter W)

We didn't go in that much of detail. Basic requirement would be: how much less sediment load enters the Gezira Scheme as a result of taking those measurements. They do a lot of research on this issues, but the data sharing is very limited. This was a collaborative project between Sudan and Ethiopia. But the Sudanese do not allow the Ethiopians to look into their data base. They use SWAT as well. (Brouwer)

Do you have some ideas on how this ideas should be approached then? How should we do it? (Whalley)

You need to have a benchmark, a fixed baseline with and without situation – that is the basic precondition for any type of economic analyses. With and without the project, does it make a difference? – in the literature this is the additionality criteria. And it is not properly being investigated. Studies from Costa Rica demonstrate that they had a sequence of different past schemes, where the additional effect of paying farmers more is nil. In many cases, farmers wouldn't do certain things already even without a payment. So we have to be careful with throwing your money around. (Brouwer)

Monitoring can be fairly expensive. If you start talking about compensation schemes it is a massive cost, especially the transaction cost can be very high. Therefore the adaption of the practice as such is preferred, because it easier to measure. (Roebeling)

There is a very famous professor (hydro ecologists) in this university, and he shows that in America with proper scientific monitoring of upstream and downstream relationships, there is no scientific relationship. I agree with you, carefulness is on its place. But if you cannot proof at least in the meta analyses that there is such a causal relation, why would I spend half a billion USA dollar? (Brouwer)

Sometimes you use a feasible proxy, because you cannot always measure what you want. But how about scientific relation that is established through modeling. So we did a project about revegetation to stop salinity. What we came up with, in terms of a feasible proxy, was simply an extension age of wood occasionally once in a year, draw a transitive cross of the field and see how many trees have been established for example. Maybe things that can be measured quite directly, and the rest of the relationship comes from modeling. (Connor)

Adding to this, we have done similar things when referring to a stress reduction, in needs actions of relatively simple things that can be measured. What we are not doing is actually verifying that. It tends to be a little bit of a finger in the air and come up with a number, this is always the problem. (Whalley)

With the European Water framework directive, there is a huge information intensity in the Netherlands. We are asked to improve our water quality. There is lots of water quality monitoring data, but we have no clue what the investments were in the past on this water quality. We don't measure this, we don't link it. (Brouwer)

Upstream farmers improve their management anyway, why is the scope for TWC? (Ines)

You want to make sure the benefits continue and you want to have a proper monitoring. The extra funding from downstream farmers is used to invest in monitoring. It can also be an additional incentive for upstream farmer, to take soil conservation measurements, now they pay for the cost price. The requirement is you get credit that you can only use for investing in the soil conservation measures. It costs recovery. If you want them to have an additional, marginal and sustainable value above the compensation that is given, is the price that is paid to make sure there are continuous investments in these measurements. In the idea of benefit sharing, these farmers should maybe show some degree of solidarity. Stimulating upstream farmers to invest. (Brouwer)

For the downstream farmer, it is the amount of money to the upstream farmer to manage the erosion problem. Establish a sediment trap, or establish an infrastructure network. This could always be sustain and make them independent what happens upstream. There are some other alternatives that could be part of the design of schemes like that. It has an economic value and a cost associated with it. (Imam)

We didn't think about this as a possible technical solution. When we visited the area the extent of the problem appeared to be so huge, the only way to solve it was to dredge the river. (Brouwer) The size of the problem can be too big for an infrastructural network. (Imam)

Don't you research that as well? Mitigation against treatment, both being an option. Generally reducing at source is much cheaper than the cleaning-up afterwards, especially on big scale. You try to focus your main effort; if you have to invest your main effort is reducing at the source and some trapping as well. About 80-90 percent of your effort will be reducing at the source. (Roebeling)

In addition and related to limited data and benefit sharing, what we initially wanted was to get information from the Sudanese Government on exactly how much they dredged and how much this had cost. We were unable to get this information. We only had one reference in the literature, that we could not validate, that came up with this 12 million US dollars. That was one problem, we could have looked at the damage costs. Even though we did many more interviews, in the upstream part we also let the GIS data to upscale it for the entire river basin. Which would have allowed us to get a total cost estimate for the soil erosion measurements. But because of a lack of information and negotiation, we were not able to define it. (Brouwer)

Independent of the structure of the document in which the document is going to be presented, a participatory and survey approach should be incorporated into the guidance of TWC. I cannot imagine a document coming from this meeting, that is somehow referring to that. (Imam)

This is really tricky, I was really not been exaggerating about how we have been approached afterwards by Water Ministry. All the professors that were cooperated with us stopped and they were very scared after seeing the results. I was invited to come there about one or two months ago, but I seriously will not go there again. We send them the questionnaire and they were involved in the pre-test. They saw all the pre-test questionnaire and told us to go ahead. We had a selection of interviews together with them. Then the survey was implemented. But after doing the research, they said that we have manipulated the research results and didn't believe the data we send them. They didn't like the results, they wanted to see the data base. Besides, they wanted us to send the original questionnaire to the Water Ministry, which we refused to do. And from that moment on there were some really nasty email exchanges. This project is funded by the Dutch Government. But the relationships have been completely disturbed. (Brouwer)

The ministry doesn't like the fact that if you ask farmers what is the problems they say the irrigation system is not well managed by the government. They really pay a high price, but concerning to them nothing happens with their money. There is no relationship between the price they pay and the costs of dredging, neither with the value of the crops. We tried to get information about that, in order to make a production function estimation. (Brouwer)

If there is no relationship between the paid amount and the value of the crop, the crop should be in a control system, then the farmers are told what to plant. But if they have the right to plant any other crop, farmers can move into a higher valued crop. So is there a control of the crops in Sudan? (Imam)

The government controls the crop in a rotation system and also the entry of the irrigation water. (Brouwer)

It is a very important to recognize to what economic system you are looking at. Whether you look at a centrally controlled planning mode versus a semi-free market, it can really disturb what you see. (McKinney)

This was the main problem in the Nile basin between groundwater and surfaces water collaboration. (Whalley)

What is interesting to me was that you talked about mechanism design principles. In any thinking about the benefits, you think more about the detail than how you design the mechanism obviously. Someone doing this would get more participation and more benefits, but there is also institutional constraints. This is your baseline: some things may not change, but changing them could be a huge benefit. In which there is political sensitivities as well and even communication issues. (Connor)

We had to remove the first 100 interview because we had developing agents included in our team and they scared the people. The PhD-student was very brave telling them to leave the team. We thought they were associated with the university, but someone (minders?) managed to found out they weren't. Even the farmers were so scared some times. They say they take soil conservation measures, because they only get a land use certificate under that condition. What we failed to do was to test and check on their land whether this was the case. We only founded out halfway, they were probably lying to us. This is just some of the challenges of working in these kind of areas.

I found the Sudanese were really quit shocking, I have never ever experienced anything like that. We are trying to write down what we have experienced there, six so called experts from Sudan have looked at it confirming

to make it all up and it is really quite stressful. I know about one story of a professor that was rather critical and he suddenly disappeared and no one knows where he is... (Brouwer)

When you were doing this study, were the Ethiopian and the Sudanese teams/faculty working together as well or each were working with you separately? (Imam)

It was collaborational research to establish these boundary contacts between Ethiopia and Sudan. Initially it went quite well, but when the first data was collected people were expecting some exchange of the information and the data. I find it very astonishing, but that simply didn't happen. (Brouwer)

If we want to facilitate cooperation, you need to identify the benefits for all involved parties. This is a confrontational issue as well, because obviously it is about negotiating afterwards. Some countries would not want to send data to their neighbors, because of being afraid they would take advantage as much as possible once their willingness to pay is known. So in what any ways can these problems be mitigated in the strategies to make it work, in contract form? How to make it interesting to share the data? (Hurtado)

I don't know exactly or see any way right now to overcome this problem. The only thing I remember is that we have spent lots of time in the Ministries to get access to the data, and it was even promised to us. We got names and contacts we kept on contacting, but without results. So it was a difficult situation (Brouwer)

I can offer some experiences from the Danube River and how the transboundary cooperation that was established in the early 1990s. The countries were not very receptive to share data and information primarily because of two reasons: (1) they felt they didn't have the capacity to actually measure something reliable, (2) the issue of conflict data. But by saying to just supply what each individual country was able to, and after 10 years they got confident. It was more about building up trust, and that is a time issue. (Whalley)

We drifted off a long way: how does this help us in quantifying benefits? (Bonvoisin)

There are always two scenarios present concerning the willingness to pay (WTP) and accept (WTA). The height of the WTP/WTA all depends on the characteristics that are chosen for the scenarios. There will always be many other options and combinations that you could have presented to the people. And this influences the final outcome of the WTP and WTA. Do you have a feel for how variation in these parameters would influence these values, because I think that is extremely important in these kind of studies. (Roebeling)

I agree with you that what goes in comes out. In this case we focused on the end outcomes. When we designed the survey we obviously did group discussions, we had meetings with experts in the Gezira to talk about what are the key issues.

The water supply availability was a key characteristic. It doesn't matter how you try to tackle this with sediment traps or soil conservations upstream. The end result should focus on whether these farmers get more water or not. They currently get five times of flood irrigation per year, but they want more and the recommended amount is eight or nine times.

Another characteristic was about improving water use efficiency. We had a long discussion about can we improve irrigation techniques; some experiments were done to use more sprinkler techniques. Drip irrigation was also discussed but it was out of the question, it requires high investments costs and strongly depends on the sediment load in the water. That is why we included sprinklers in this area as a possibility.

At least there was the price farmers currently pay, based on the existing irrigation fee. The only thing we added, which probably could have been something else as well, was the preferences of the farmers. Do they want the local infrastructure to be changed or do they prefer for tackling the problem further upstream.

Also take into account when you do a choice experiment, ten cards in total are shown to the farmers. Each time these quantities vary and so there are many different combinations. (Brouwer)

For example, in Australia I assessed 900 different options to improve water quality. You used two options for improving water efficiency (sprinklers and drip irrigation), but did you look at other options also? (Peter R.)

Don't confuse the benefits with the costs. In this study keep in mind we didn't ask for WTP. We twice asked about WTP but we don't compensate anyone, the farmers upstream have to pay. In the upstream area we chose between three soil conservation measures: (1) throw some land up the hill, (2) stone buns and (3) soil buns. Depending on where you live measures are more appropriate. There has been lost research on the cost effectiveness of these measures. We gave farmers the option to choose between these three main measures. Based on expert judgment and literature, we were told it would be sufficient to cover these topics. (Brouwer)
It is really important that you took into account much more combinations that you have shown in the presentation. Because the values of the WTP/WTA depends on the elements you show, but you crossed checked for that with 700 respondents x 10 cards = 7000 interviews. (Roebeling)

How can we translate all these good studies into something that becomes practical for the 'human behavior' element? One of the fundamental presumptions of economics is that human behave rationally, and we know especially in the transboundary contacts that is not really true. So how do we take really great studies and think about what happens when WTP isn't necessarily just about that, but about putting food in a child's mouth for example. We should come up with a way to talk to people on the other side tomorrow, who are coming more from that perspective. (Conti)

Summary/Wrap-up

We heard a lot of good ideas this afternoon, and some incredible field experiences of people working on real problems with real data sets. There were quiet of variety of different techniques that were used to get at this question or values of benefits. You might get a bit lost in the extensive details of the presentations. So it might be good to ask each presenter to briefly summarize the main methods used to get to this benefit quantification or valuing. Lots of different ideas were suggested, such as WTP and virtual water. (McKinney)

Jeff's presentation was already rather condensed about what typologies exist. The link to ecosystem services is a very obvious one, and it is used at the moment worldwide. Besides, you need to have a good understanding of the biophysical impacts. Based on the assessment of these impacts, there are various modeling approaches for valuation. For example, partial equilibrium approach (Roebeling), general equilibrium approach (Tol) and examples of market and non-market valuation techniques.

Maybe it is going to be helpful to use Jeff's framework (the three steps identified) as a start, and add to that relative issues for TWC, such as; what are the benefits without transboundary management? What is the baseline? And what do you get when you do collaborate?

The importance of establishing a baseline in assessing or quantifying the benefits is quite crucial. There is a nice distinction between processes and outcomes. The processes are related to the institutional design of capitalizing on these quantified benefits. These outcomes we can get with market and non-market valuation methods, as there are models that compare states. But then; what are the costs and benefits of TWC? The secondary benefits were addressed by these modeling approaches. The intangible benefits of institutional collaboration capacity building and data information sharing, is all captured (heading: process benefits). And of course there are transaction costs. This might be another way of structuring it. (Brouwer)

In terms of the indicators that were used to asses that progress, they were relatively simplistic in terms of data that is required. Partly because forcing this information out of projects and countries is quite difficult. Primarily the existence and operation of legal agreements at one level, where the regional institutions or the existence of transboundary diagnostic analysis has been taken and implemented.

Most importantly from my perspective is the operational aspects of a monitoring program, whatever monitoring really means. Within monitoring we have to go as far as looking at modeling outputs, outcomes and impacts as well. We need to think further into the future of what we are doing. And I think those relatively

simplistic things do provide some guidance on how mature an international basin is in terms of implementing processes. The cost element, is something I am not qualified to even really think about, let alone discuss. But I think it is very important to convey that information back to the donors as well as the countries. And PES (payment for environmental services) is highly relevant to what we are doing. (Whalley)

I agree with what you just said. I thought we should mention what Sarah said with the government structure. When you refer to maturity, you get a really nice overview of how policy matured in Australia. Besides, how economic instruments like water markets, could play a role in this process of transboundary cooperation. (Brouwer)

Different analysis and possible policy designs have been demonstrated. The point would be that somehow it has to be done in the basin: sculpt people's ideas, participants saying what they are willing to do as they often have specialized detailed knowledge about their system that has to be listed somehow. So before the question of what scenarios are valued, and that must be somehow participatory and allow us to listen their specialized knowledge, preferences and constraints etc. The options and policy designs are not chosen at random, there is some process within the framework. (Connor)

The framework seems to be more important of how benefits can be quantified. Because there is the range of issues of institutional design that defines what kind of alternative options of management there are. And that actually effects how the benefits are estimated. Is this a more useful approach to hide the framework to quantify the benefits, than for example categorizing benefits because it might not be very useful in practice to have that approach? (Restiani)

We can try to highlight that institutional designs of transboundary water management and the benefits go hand in hand, and the processes in terms of the extent of the benefits. Other issues that should be highlighted are issues about quantifying benefits related to these concepts, because there are different methods. I don't see how there can come out much more than that from this scoping meeting. (Brouwer)

Types of benefits may vary between different areas with a variety of ecosystem services. (Imam)

I would like to suggested to collect everyone's experiences of how to get people to believe the numbers you give them. All of you addressed this issue to some extent. Besides the framework, there should also come some sort of guidance on how to communicate results and making them policy relevant. (Conti)

The institutional government structures and the relationship to benefits are highly important, we should develop that at some point in the future (not this afternoon). (Whalley)

Reflecting on the different examples of valuing benefits; how important would it be to have a chapter in the guidance document on how the results have been used and communicated? (Hurtado)

In the MDB there is an example of putting a value on non-use benefits, that was decided in the end. People interpret information in different ways; some think it is a cost and others think it is a benefit. (Wheeler)

There is a lot of existing literature on valuation and different reason to use it. There are big differences between cultures and countries in how these results are being used, or allowed to be used in policy decision making. For example in Holland there is a strong opposition against the non-use benefits. But in other European countries, such as the UK that just finished the national ecosystem assessment, they valued everything in monetary terms what there is to value (Brouwer).

Day 2. 7 June 2013

Session 3: Bridging policy needs & research contribution in quantifying benefits of TWC

John Joyce re-opened the workshop by referring to the policy and research breakout sessions yesterday. There was a lot of energy in both groups that led to very detailed discussions in both groups. This is a great outcome from yesterday's event. Today, the first two presentations are an overview on what key points were discussed in both breakout sessions' strands. Outlining the most important point that came out of the discussions. After that there will be an open debate discussion. We are going to try to get a typology and some methods within the context of what the policy maker needs. In the next session there will be two more presentations, by Ines Ines Dombrowsky and Pieter van der Zaag. And after lunch there will be more discussions based on the activities where we are in terms of this methodological guidance, where we go, how we would like to stir this, etc.

Results Breakout Session Policy Strand

Chantal Demilecamps, Alistair Rieu-Clarke and John Joyce have made a powerpoint on the results.

Summary key findings of presentations:

Jahangir presented the Bangladesh context: downstream on all rivers, 80% floodplain, most densely-populated country in the world, 50+ rivers shared with India alone, and only one treaty (Ganges). Looking at benefits, there are opportunities for Bangladesh from hydropower development upstream, such as flow augmentation in the dry season and flood mitigation, but in order for that to take place, there needs to be a strong multilateral approach between Bangladesh and Nepal, India, China, Bhutan and Myanmar.

Harry presented a very different context: the relations between Estonia and Russia. Looking at the benefits of implementation of the Helsinki Agreement and a number of bilateral agreements. Benefits: the agreement had presented a platform for developing joint activities – cooperative management plans, systematic exchange of information, joint monitoring, shared understanding of challenges and targets. Water management cooperation was possible to “sell” to politicians as a springboard for wider economic integration. A good level of evolution in cooperation, with future possibilities.

Jesper talked about BEAM – a decision support system combining hydrology and economics within the context of the Aral Sea Basin. Exploring how to improve the three Es: Effectiveness, Efficiency, Equity. Covering water uses, irrigation, industry, hydropower, domestic uses, nature, looking at benefit-sharing optimizing economic welfare, at a basin level and national level. Focus on values: putting \$ signs next to benefits as a way to get people's attention. A very strong emphasis on transparency and participation in the process of developing the model and the accessibility of the model itself. The potential for stakeholders to manipulate the model themselves, and the focus on transparency is seen as essential in ensuring that all scenarios for sharing between states are on the table, together with the benefits that might accrue good or bad.

Anoulak talked about the Mekong River Commission – specifically the role of the MRC in promoting benefit-sharing. The presentation focused on work on basin-wide scenarios for the Mekong region, which included scoping, collection of data, modelling of hydrological changes, the assessment of environmental, social and economic impacts, discussion, and the evaluation of results with stakeholders. Hydropower and major irrigation schemes were seen as key drivers of scenarios. The exercise of going through this process of developing scenarios is a very important first step in states understanding the interests of the others – similar to the Aral Sea example, different options are put on the table in to promote decision-making. There was discussion on how to quantify the benefits of transboundary benefit-sharing through intergovernmental river basin organizations. How can you demonstrate the value-added of the role of MRC? If some of more intangible benefits could be articulated, this would help to justify MRC's role.

Lastly, Rob gave us a Dutch perspective on cooperation with neighbours on four international rivers: the Rhine, Meuse, Ems and Schelde. It was seen as crucial that there was cooperation on water quality, quantity, environment, trade and shipping. Some determinants of successful transboundary cooperation had been identified – combined transboundary activities: shipping, hydropower, safety, the need for commonly-agreed objectives, targets, actions. There was a need to set realistically-achievable targets, doorsteps on a longer path, to have a positive working culture, and in turn a willingness to cooperate. Rob had mentioned challenges in quantifying benefits and emphasized that this was crucial, given budget cuts. Ecosystem Services was mentioned as an emerging tool which could be used to convey benefits, and this was a useful means by which to recognize certain benefits and consider options.

What are main demands for policy makers? We need to address direct and indirect benefits of cooperation and categorise it, in terms of benefits *from* the river and benefits *to* the river. Such benefits include traditional economic sectors: irrigation, hydropower and fisheries. As a group we concluded that there was a decent amount of work done on these, and there were good tools available. Ecosystem Services was an area we should consider in more detail.

It was seen as very important that we quantify benefits *because of* and *beyond* the river (intangible benefits), ranging from the role of river basin organization, international agreements, stakeholder engagement, transparency of information, social stability, political stability, conflict avoidance, regional integration, forum for cooperation, stability of legal agreement in terms of attracting investors for large scale infra project. We need to explore more how to quantify intangible benefits of transboundary water cooperation.

Regarding the value-added of quantifying benefits: who are beneficiaries of cooperation? The distributional aspects to identify benefits: who do we demonstrate benefits to? Where in the chain do the decision-makers sit – do we need to identify the decision-makers? Does the evolutionary stage of governments and regimes need consideration? Methodological issues: we need to develop a typology, perhaps screening of benefit assessment of good work already done.

There was mention of private sector engagement as an indicator – with a certain level of stability, in a given basin area, it is probably possible to attract private sector finance, but only when legal agreements are in place.

Regarding Ecosystem Services: this is a useful tool. If you cannot quantify environmental impacts and measures, you should not try to monetize them.

Results Breakout Session Research Strand

Roy Brouwer made a powerpoint on the results.

Summary key findings of presentations:

Presentations

Jeff Connor talked about the classifications of ecosystem services and presented steps of how to assess these ecosystem services. Starting of by identifying all the relevant ecosystem services, there as very little studies take into account all the various ecosystem service. It is necessary to be aware of double counting, therefore the focus should lie on final outcomes. 'TEEB' is some ongoing work worldwide about the economics of ecosystem services and biodiversity. The presentation very clearly linked into what is going around us in this global network of TEEB.

Peter Roebeling gave us an example of the benefits of transboundary cooperation between Spain and Portugal. Even though there is hardly any institutional structure in place for TWC, with his models he showed what the benefits are with and without cooperation. These type of exercises are essential because they provide crucial information and insight into the distribution of costs and benefits between the upstream and downstream countries. The second point is the necessity of defining a baseline in case of quantifying the benefits of cooperation, in order to compare the benefits with some benchmark, to a reference scenario of no cooperation. Peter used a partial equilibrium model, which focuses mainly on the direct effects but without being oblivious for the important indirect effects.

Richard Tol presented a General Equilibrium Model called GTAP. It is a global trade model, which allows us more explicitly inside the model to look at both direct and indirect impacts of policy interventions on economies. He showed that GTAP has the convenient property that it allows to distinguish between different regions. Another important point was the message that without data nothing can be modeled. Really nice model structures are not going to be very practical and very useful for policy makers, if data is missing to populate, calibrate and validate it. There is hence a need to link economic flows to water flows, as can be seen in these integrated water accounts more and more.

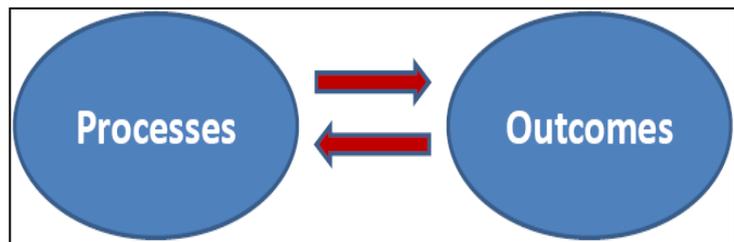
Sarah Wheeler's presentation was about the type 4 benefits beyond the river basin, in this case the Murray-Darling Basin (MDB) in Australia. It started with a nice overview of the history of policy decision making related to sustainable water management and solving water shortages in the MDB, resulting of an extensive list of lessons learned from this process. One was the important role of negotiating about the creation of water markets, on which farmer are able to sell their water and which can be used as an important supplementary resource of income if farmers are unable to grow crop on their lands in times of extreme droughts. Besides there is a need for unbundling land and water rights, that is a long process that requires a lot of talking and negotiations between the different states in Australia.

Roy Brouwer linked to the issue of institutional design of provision of ecosystem services. There were highlighted some experiences from Payments for Watershed Services and the need for these institutional economic conditions to be in place to change behavior. There is often a negotiation space created by investigating what the WTP is for certain water services downstream and by compensating water service providers upstream. Moreover it should be carefully assessed whether money should always be thrown at farmers upstream, for example, as used to be done. What is typically done in these payments of watershed services, in some cases there are very clear private incentives for farmers upstream already to do certain things. Then it is not very economically efficient to throw more money at them, to convince them to do something that is thought of being beneficial downstream. Water uses it is beneficial for them as well. In many cases, internalizing the externalities of their bad land management practices and making them aware of it, is often already sufficient to ensure that there is this sustainable flow of ecosystem services.

Framework

In order to summarize and pick up the different links between the presentations, the below diagram was created. Overall there is an important need for recognition that whatever the outcomes are they will never come about without important institutional governance types of structures. So there is an important link between multi-level governance structures and policy processes, in which these outcomes come about. It is impossible to assess, quantify and understand these outcomes/benefits, without a thorough understanding of these processes. In the economics domain it is fairly clear how to evaluate outcome. For example by using models that already exist, such as the partial or general equilibrium model (with and without TWC).

It is not necessary to tell the outside world how they need to value things, it is known that there are market and non-market based valuation methods and plenty of guidelines (e.g. TEEB) on how to assess the economic values of ecosystem services. But what is in fact necessary, is to establish a baseline to compare the benefits of a situation with and without TWC.



Steps

It is possible to use Jeff's steps:

- (1) Identify benefits
- (2) Quantify benefits
- (3) Value benefits qualitatively and quantitatively
- (4) Communicate benefits and integrate benefits into policy and decision-making

It should be taken into account that in the environmental economic domains, there are strong believers in valuing everything in monetary terms and others who think it is not absolutely necessary. Economists know this was well and it strongly depends on the demand of these values in policy and decision making. Once the results exist, they should be somehow communicated to policy and decision makers so they can be integrated into the policy and decision-making processes.

An important step where this already happens is in the design of the policy scenario. Having this with and without situation, a scientist can come up with scenarios that have no link with the real world or the real policy and decision making. In many cases economist already collaborate with policy and decision makers, because they define what the relevant policy scenarios are. It remains a very important point in the capitalization on those benefits, the results should be integrated into policy and decision making.

Processes can also be evaluate, even though the outcomes are interconnected with these processes. The focus should be more on the costs and benefits of these processes. In this case it is about setting up institutional capacities for collaboration, which requires investments and human capital. In economics terms transaction costs can be used. More attention should be paid on what these processes give us, identifying some intangible benefits. And questioning whether or not it is useful to value them in monetary terms, or if it is better to identify and qualify them.

Referring to the transaction cost, the establishment of the Australian water markets was a nice example of how this collaboration was established. The means of establishing collaboration was through these water markets. They had to be created, rules had to be explained to the participants. In relationships trust matter a lot. And they influence the transaction costs, significantly perhaps.

Further specifying/categorizing some of the transaction cost:

- Typically the construction of the necessary legal infrastructure
- Water markets – the rules of the games for providing the ecosystem services and the benefits
- Monitoring is very important for the sake that what is being delivered, is actually being delivered.

Important points

- We talked about the communication of the results and guidance on how to use results. The importance to look forward and think about the maturity of the institutional governance designs, so the enabling environment for actually delivering those benefits, was an issue that was raised at the end of the meeting;
- We talked about what should be in the guidance document. One of the participants made a plea for not writing prescriptive guidelines, they should be more descriptive;
- We discussed what should be in monetary terms and what should not;
- We had a short discussion about preferences for market base instruments, not everywhere people have a high believe in the usefulness of economic instruments .

So it depends on preferences for how the decision making procedures should be informed often, in a local context that determines the way the benefits should perhaps be communicate to policymakers.

We had an overview of the different approaches: Jeff with an ecosystem services framework, the modeling stuff, Roy presented something on valuation, Sarah had a combination of models and valuation approaches in trying to underpin Australian policy in the MDB. From an academic research strand what could be useful in this context is the economic game theory, where people look at the stability of international agreements and under which preconditions the stability of that agreement can be secured. We could perhaps learn more from that strand of research and the terminology used in that particular field.

The most important message is the need of linking the outcomes to the processes!

Discussion: How can the supply meet the demand?

Bridging policy needs and research contribution in quantifying the benefits of TWC. (see powerpoint)

One comment related to the discussion on how much we go onto the benefits. Because some of the issues that are pointed are beyond the quantification of the assessment of that. It is more about realizing the benefits and making them happen. The issues of using water markets or other economic instruments, that is really about how do you go about realising the benefits. It is not so much about the benefits itself. That this will influence the space for benefits, if in this particular case these instruments cannot be used. Part of the space of benefits will not be reachable, it has a constraint. It seems to me we should be touching onto the instruments and realisation of benefits, but without going to too far because it is a different topic. (Hurtado)

Linking outcomes and processes sounds like first looking at outcomes and then look at the processes? (Veeran)

The outcomes come about in an institutional context. It is important to keep in mind there is focus on both at the same time. (Brouwer) It concerns a circle as is depicted in the figure: if you have your process, then you see what are the outcomes, it feeds back etc. (Whalley)

In addition to Roy's presentation, it was discussed that economists normally assume what are the outcomes that in the end will have to be looked at. In that sense quantifying benefits is a simple exercise, but in reality these processes really affect even the quantification of benefits. Quantifying benefits is not a static and simple exercise, but there are these other issues that should be taken into account. Of course the focus lies on quantifying benefits. We should be aware that this exercise will depend on what are institutional designs. There are transaction costs, if these are not included it will not capture the real benefits as there might be higher costs arriving at the outcome. It might not be possible nor useful to quantify everything in monetary terms. The idea is how to take into account these processes that affect the benefits, maybe in different measures. (Restiani)

The processes issue is a question of behavioural responses. There exists a potential benefit space, but the way the institutions are designed may give people an (dis)incentive to do it better, continue to improve or be stuck on one technologies, etc. These are the behavioural incentives in the designs of the institutions.

Another important point that should be discussed is that benefits should be quantified but also beneficiaries. Even within a country farmers may benefit and municipal water supplies suffer, etc. So understanding this is a key for policy. (Connor)

It is obvious that processes and outcomes very much intervene. A good example comes from the Czech Republic where the Minister of Environment introduces environmental taxes, it was very difficult to integrate this in the Ministry of Finance. So there was built a model showing the fiscal impact and also on behaviour of consumers and producers. The model was changed and adjusted from time to time. During the whole process it was possible to have a discussion between the Minister of Environment and the Minister of Finance, and in the end the Minister of Finance supported this proposal of the Minister of Environment.

It was highlighted that there is a need for defining a baseline and that these exercises can provide an insight in the distribution of costs of benefits across countries. Probably defining this baseline is much more important than all the other modelling issues we have been talking about, because this baseline is needed to agree upon existing situations. This baseline is an extremely important first step.

Besides it is mentioned that there is a need for investments in people, skills, etc. But I don't think that is the problem, not in the contrast I know of in the former Soviet Union. There are lots of people in various places that are fully aware of the recent (scientific) developments. The real problem is a lack of political will, there is no demand for good professionals of good practices. These good practices are dismissed with being politically incorrect.

The challenge to move forward is to identify and support the right people. Not referring to the participants of this workshop, consultants, policymakers, researchers nor local NGOs, because these are all the usual suspects. I am thinking about people we do not know of and that we do not reach out to in all our conferences. They are just young starting careers, students having discussions on their campuses, etc. If the UNECE want to play a role in reaching out for them, transparency is very important. An easy tool could be to have a website for knowledge sharing, maybe some kind of blog where command could be placed, discussions could be facilitated and information could be shared – so people with interest in this topic can read and discuss about it. Money should not be spend on skills upgrading during expensive trainings. (Pedersen)

At the end of the Research Strand transparency and sharing data and information was discussed as well. What should be emphasized institutional capacity building. Again as a benchmark for judging what is considered cooperative behaviour of individuals, for example. The point about transparency is highly important and it is indeed not only about investing in people but also institutions. (Brouwer)

Yesterday, the discussion on payment for environmental services was very instructive. Typically this topic is dealt in the sense of environmental degradation and remediation. It might be useful to broaden that concept, by for example including infrastructure or institutional aspects. Where downstream potential beneficiaries exist benefitting from activities upstream, they might be willing to invest in these activities. It is broader than necessarily the traditional environmental perspective. “Watershed services” are maybe more than just physical environment, physical infrastructure and political institutional capacities. (McKinney)

What is really important about putting water agreements in place is that it allows institutions to develop. From that we can fill up the range of economic instruments, such as water markets. These instruments basically help people to change their behaviour. It builds up an debt capacity, which is a really important benefit, but the knowledge and learning aspect of it is hard to measure.

The other main point that should be made, especially in these strain situations when it comes to the benefits there tends to be a focus on valuing benefits on a short period. A job which is often done by consultants, but the value of the resulting benefit that is sometimes questionable. Regarding to valuing benefits, it should be about determining long-term benefits; putting research programs in place, then you get the quality, then you build trust and then you get a lot more progradation. (Wheeler)

Quantifying and measuring type 1 and 2 benefits is already known and widely done. Before saying it is difficult or impossible to quantify certain other benefits, it should be narrowed down. From a policy perspective there is no need in quantifying difficult benefits, such as thrust or political stability. But it could be extremely helpful for policymakers to measure possibly quantifiable benefits such as integrating regional infrastructure, increasing trade and linking markets. So it is really demonstrated for policymakers what is the value of cooperation, by going beyond economics and narrow it down. (Kittikhoun)

In terms of the intangible benefits, are there benefits you would want to prioritize from the list that has been put up from yesterdays discussion? Yesterday we had a discussion about the value of information and options itself, should we go on quantifying that? Should the institutions be valued as part of the process, and in what way and at what point should this value be picked up in the process? (Joyce)

If you ask for tools how to asses that, the only thing I can come up with is the CGEs where they introduce currently non-existing institutional arrangements and facilitates environmental issues which are related to water. And then they assess how that is respected to impact the national economy, but there are a lot of assumptions underlined these models. (Brouwer)

In the way that you value water markets as an institutional design, you could also value institutional guidance in that general equilibrium context or at a partial level? (Joyce). You can do both. Another technique is the experimental economics. In case there is a lack of enough data, it is possible to do some scenario experiments in economics. There is a lot of theories that goes behind it, that is driven by how people’s behaviour changes

and it has different incentives and structures facing them in different scenarios. This was used in Australia to make the water markets more efficient. In this way information is gathered on how efficiency changes, how to get changes in various sectors. There are a number of ways for game theories. (Wheeler)

In the Mekong River Commission (MRC) contexts are we valuing that it is a hundred thousand dollar investment in this fish pass, are we adding up those values or how do we think about this? (Joyce)

I can think of maybe one example on a local watershed level, we have played so called 'trust games'. Looking at upstream and downstream farmers and you see under which conditions the farmers are willing to invest in measurements, for example. They play the standard investment game, and we see how much of that money that the farmers get is invested in soil conservation measures. Then you start changing the institutional contexts, by starting saying the farmers can invest the money earned from the soil conservation in whatever you want. How does that change the institutional contexts and change their behaviour. We have been trying to pick this up through the behaviour of these participants in those games. And see then how the framing of the game affects investment behaviour, but also how that affects trust. The game is played in a couple of steps, so they invested in something and they expected something in return from their neighbours as well. The strength of trust or the strength of the interrelationships between neighbours in the same watershed, or the people living in one upstream and one downstream area we measure in these games through the investments that people make in these games. It is a very technical game theoretical assessment, but it is more at micro level where you try to assess what is the willingness to invest and under which conditions.

In Australia there are great experiments with limited budgets of governments who make farmers tendered to take measures on their land use. In this 'sealed winning' game, where farmers help governments against a certain cost price to disclose information that governments in principle do not have at that moment. So there is an asymmetry, the government has a limited budget and doesn't know how to invest or spent this budget in the most efficient and cost effective way. By involving these farmer into that 'sealed winning' game, they get a lot of valuable information from the farms about what they can do against what price. (Brouwer)

The objective is really to establish that there are some benefits to cooperation. With some retrospective, it might be useful to look at what the outcomes have been of various agreements and collaboration. You can see a lot cases where systems have been optimized in different ways and created large sources of value. This might be quite useful for new purposes. (Connor)

Doing retrospective studies to identify potential causal links is important and might be hard. I think you need to say when mis-action that had this type of causal effect and then you can put a value on that end outcome. Using economics combined with political science will really move that forward. (Conti)

The European Bank for Reconstruction and Development (EBRD) is an organisation consisting of bankers, that does not talk a lot about intangible outcomes. They are aware of the fact that there are intangible outputs that are most important. But they have also decided that it is very difficult to quantify intangible outputs. As a result they introduces these transition indicts, which has been build over time. These indicts now consist of different sub-indicts, including one on environment. It created in fact a first overview or typology of output of intangible outcomes. Therefore it could be questioned whether some intangible outcomes were missing.

The second step would be to find out how to quantify these intangible outcomes. The EBRD is using a scale form 1-5, and it demonstrates how countries are doing. It has successfully been used for 20 years by many (inter)national organisations. Also UNECE countries carefully use this transition index, just like the transparency. (Pedersen)

An agreement to my point of view, from the physical science point of view, basically means regulation of behaviour in order to either decide on the sharing of the water or to decide on how to address other factors that contribute to the quality or the quality. So, either it is infrastructure or land management or any of these

actions. The agreements usually are a little bit ambiguous, they don't really define the actions that have to be taken, as much as the actions you are not going to take, especially in the source of cooperation.

From my point of view, the first step in quantifying the benefits is to start from the countries perspective. If I have this agreement; what are the policies that I'm going to do in order to implement this agreement? Once these policies that need to be done for implementation, in the broadest sense of the policy. There is a link here between the policy makers and the lawyers who adopted the agreement, and whoever is contributing to the quantitative information to that agreement. After identifying the policy, then we know what are the structures, what are land uses, what is the behavioural that we are going to start encouraging or penalizing. And start identifying the quantities of the substance that is to be affected and how it is going to be redistributed. That leads to the possibility of using the physical model.

All of the above is in fact part of a circle of processes, and if there is any way we could extend that circle a better definition on benefits or vision on what the end outcomes could be reached. If we can come up with what other people have done with respect to other type of benefits, and see how they have quantified them. Developing the matrix of possible actions with possible potential benefits related to that action, by defining the approaches and tools that should be used for quantification. (Imam)

Yesterday in the policy group it was discussed to do a matrix which is a very mechanical exercise, but if you take some of these basins and reinforce them. Very soon after we start plodding these benefits, we have got to see a lot of between them, of what cooperation will add and bring to that basin. It also defines the actors and the beneficiaries.

All these different you talk about sound very interesting and fun, and I think it would be an interesting exercise. I cannot promise, but there is an opportunity for us to try this out on all 350 participants of this IW-conference coming over in October. We need to find some way to do something with transboundary cooperation. It is probably not possible to highlight the UNECE too much, because it is mainly fresh water. But we can highlight it under a transboundary cooperation label, and then we can probably try some of these tools we have been talking about. (Severin) It sounds like a valuable stepping stone. (Joyce)

Going back to the important value of information as well as the topic about uncertainties. In the context of these transboundary agreements the information can be interesting in a couple of different ways. Someone mentioned this idea of interactive gaming. I think that the riparian states in a basin can either be very transparent about information or they can withhold information and reveal it as the negotiation plays out. That is one way that information enters the process. And another way information enters, there is a lot of uncertainty about things we don't know, such as what the stream flows will be next year. Over time that is revealed to us, but in the meantime we are stuck in a situation where we need to have some kind of forecast. Therefore we have to use the historical record and pretend it is going to repeat itself.

One of the things that IPCC has done for us is trying to get us comfortable with the fact that we have to do decision making in a very uncertain environment and we have to make forecasts. There are ways to reduce the uncertainties with a level of information gathering, in some basins there are incredibly sparse data sets and in other basins they may be very rich. An important issue that drives certain part of negotiating processes are the various levels of uncertainties in data sets of river basins. (McKinney)

Basically the option analysis (decision making under uncertainties) it used a lot in investment assessment, for example for valuing hydropower or financial assets. The uncertainty is then modelled directly, rather than having several analyses. The concept is appealing in terms of decision makings under uncertainty and defining the real best options in the long term. Which gives us the flexibility considering the uncertainties. It does require quite sophisticated data for modelling, so that is also a challenge. (Restiani)

There is a lot of simulation involved in that. But if you look at the instrument side, the most simple example of dealing with uncertainty are contracts. If a farmer is not sure about how much crop he can get of his land at a certain conditions, and he wants to have some price guarantee. Demand and supply side people are interested

in buying the crops, there is uncertainty. How do you take away that uncertainty? By offering the farmer contracts. It is very important that there are different ways to address this uncertainty. (Brouwer)

There need to be enforceable contracts, between an authority and farmers. In many countries this doesn't exist. There is always the possibility of defection without penalty. Showing the benefits so it increases the enforceability of the water agreements. (Hurtado) The lack of enforceability has a significant impact on the provision of ecosystem services, if you don't have it, you don't get it. (Brouwer)

The water markets increased the resilience of the whole process and that also takes away part of the uncertainties. When you develop the resilience, that is also a benefit that is difficult to monetize. (Timmerman)

Yesterday I emphasized the farmers debt capacity and resilience. One thing I remembered last night, I didn't actually talk about that water markets also introduces debt capacity for environmental water management. Jeff and I have an online paper with water resources research, this was basically modelling. In Australia there are huge amount of water entitlements that are owned by environmental managers. Objectives are a variety of use, flows have to be different to achieve different environmental objectives. The model that we did basically said if you allow water managers to trade in the water markets, so to buy water allocations not just to use the stock water entitlements they own, you will get beneficial environmental outcomes. We generally find that we do. (Wheeler)

There is this linking of hydrology to economics. Hydrology models run a 100year climate sequence, that gives a distribution of the states of nature that could arise. If you have that information there are options that make the system more reliable for certain kinds of users. So you can value that reliability in something like a state issue model. There are some things you have to make a longer investment and there are probabilities and outcomes and things you can do to mitigate. You can put on water restrictions of consumers, stop irrigating, or you can decide to have more irrigation capital that is more efficient. There are some choices in there. Because there are opportunities for trade, carryover of water, ways of operating storages - all of these thing you can understand the certainty profile and that has value. A lot of what sophisticated river planning does, is looking at those things. They will have a good water plan what to do in case of big droughts or floods and how likely is that. What are the values of the options if you look at the best river optimizations. Hydrologist do a lot of this stuff and there are lots of opportunities to value in various river basins. (Connor)

The Australian water markets are really interesting, the system took 15 years to demonstrate the benefits of TWC. As far as I know there are no international water markets yet, but it would be great to get there. But there is a very distinct difference between the Australian case and a intra-national water market. If eventually countries get to TWC we know that they can benefit. We need to be aware that in the international system we don't have an agency that will enforce these water markets. There are some examples of transboundary payments between upstream and downstream areas, but real water markets do not exist yet. (Dombrowsky)

It was very interesting to hear about applying game theory to transnational water cooperation. Up until now I got money from the ministry and it would be very interesting to see what can be done with that.

Concerning cooperation and benefits of cooperation, I had a specific questions when I came to this workshop was. I really believe there is a benefit in all kinds of international cooperating, such as meetings etc. Because with the recent cut backs, I cannot convince my boss anymore of the importance of the attendance to this international meetings. It would be interesting to quantify the benefits of that as well.

With respect to real option analyses related to flood control; there is lots of sea level rise, but no one knows how much exactly. If you want to study the next 100 years to make sure we know exactly how high the sea level rise will be, you might be flooded in the meantime. We should do something with increasing dikes, etc. However, how much should we invest today, without having to regret our investments tomorrow. For this type of analyses in Holland we are currently using real option analyses. (Veeran)

Session 4: How do we use the quantification of benefits to facilitate cooperation?

Presentation 15. Ines Dombrowsky, German Development Institute

Benefit Sharing: how do we get there? (see powerpoint)

Discussion Points

In the Israeli-Palestinian situation, groundwater is also significant, but despite this being a huge factor in the region, people have problems moving forward on this, due to lack of trust.

A good example of where an infrastructure project can trigger wider action: during the negotiations on the planning of Ruzizi III it was realized that better watershed management was necessary in order to ensure sustainability of the operation of the hydropower plant. The establishment of an international water management convention for the Kagera basin and Ruzizi river was instigated as part of project preparation for the hydropower plant. The Energy ministries initiated discussions on the convention, which was then signed by Water Ministers, but has not yet been ratified by Heads of State because of ongoing conflict in the region.

In terms of how much quantification took place, and when was it needed, the Rusomo case was interesting. Originally planned in the 1980's, nothing happened, due to conflict, until 2005 when the Nile Basin initiative was taken. At this point, the Energy people wanted to go for maximum production; but the feasibility, environmental impact and resettlement studies revealed high social costs related to maximum energy output. If there had been more studies outside the negotiation framework, people could have reached decisions earlier and moved more quickly. But that raises the question: who would be responsible for such studies outside the negotiation framework?

There is a literature available on third party intervention in conflict situations. This is an option where two parties cannot resolve issues. In the cases presented, however, even when an outsourcing arrangement had been suggested, to enhance trust, there was no receptiveness from decision-makers.

Presentation 16. Pieter van der Zaag, UNESCO-IHE

How can information on benefits support hydro solidarity? (see powerpoint)

Discussion Points

The slide about terrestrial evaporation was fantastic, see slide 29. (Joyce)

China worked for Russia to prevent the destruction of those terrestrial evaporation. (Joyce)

Egypt has a stake in the Congo forest, as this forest evaporates all this moist, then it precipitates in Ethiopia and flows into Egypt. So this is a great ecosystem service. (Zaag).

This part about re-supposes a consensus over basic water entitlements (slide 20), it sure adoptates into Ines' presentation about who would lose and overcompensate (what I don't really understand). If you take Turkey for example, say it is compensated to release more water for a particular service downstream but you question they are damming of the water in the first place, so there is an inequitable situation. *Has there been a case where you used the payments anyway, because the benefits outweigh the costs and supersede an inequity question and move forward; are you aware of certain cases in that contact?* (Joyce)

I agree with almost everything, but I don't agree with saying that it is always the case. It really depends on what we are talking about, and to what extend the water rights that countries are paying for. But I agree with Pieter that in many cases it is connected to it and it is underpaid in the policy process. The debate tries to say we can get away with that, but I think there are many case we can't. In terms of the cases, one famous case is the Netherlands and other countries paying to reduce pollution in the rivers Rhine, Meuze and Elsas. In this

example it is not just one country that is paying, but all countries pay something. But, I once spoke to a German (politician) that was involved in this process saying they were not going to keep this agreement as they could not sell it to their people any longer. It sounds like Germany is paying for the clean-up of the Rhine for the sake of Holland. (Dombrowsky)

The same happened on the Meuse river, there were Dutch politicians who suggested to help the Belgium's to help build ways for the cleaning plants. Recently, there were still cities that were discharging waste water directly into the river Meuse, including Brussels and the cookie factory Bastogne. But then the Minister of Water from the Nederland's opposed it; religiously saying "the polluter pays". So there was a willingness amongst Dutch politicians to help Belgium because it was in their own benefit, but the Minister itself stopped it from happening. (Zaag)

Another example comes from the German Democratic Republic (GDR), during its end phases. There were some decisions between the GDR and the Federal Republic about possibly cleaning up the areas upstream. But Bundestag refused to pay GDR. (Dombrowsky)

Referring to what Pieter vdZ just said about the Belgiums who have the Right to Pollute, holds for the Dutch as well who have the Right to Clean Water. It is quite complicated, where are the water rights across those borders. (Brouwer)

The perceptions of these rights has changed over time. In the 60s and 70s it was normal to clean up the act, but now we don't do it anymore. So our thinking about values and entitlements is changing, which is also influencing how we quantify the benefits. For instance in the 50s, we were very happy to use the Rhine as a sewer but we look at that completely different now. (Zaag)

This is also an economic consideration because we know it is more cost effective and cheaper, to clean up pollution at the source rather than cleaning up downstream. It is also a necessity from our side to work together with the other European upstream countries, for the sake of Europe. (Brouwer)

How were they taken into account? (Roebeling)

We did various projects on this, to establish some edificial floods in a certain period in the year. To re-establish some in the dynamisms, this creates all kinds of positive ecosystem services. The problem is to quantify. So what we should do is the TRY it and then MONITOR. And the feedback will tell how the ecosystem services respond, so what can be learned from it and then adjust it. You have to start somewhere, but this is very expensive. Because if you calculate how much benefits you get from hydropower, it is very difficult to convince these bodies to really accept this. But the benefits will be great! (Zaag)

Belgium consist of two parts. At some point information sharing wasn't wanted anymore. The style of doing business changes completely, also how the things were organized institutionally in the basin. (Brouwer)

It is possible and not that difficult to develop matrixes where benefits and technology meet; at one side there are actions to achieve benefits such as improving water use efficiency in irrigation, at the other side there are technologies to achieve these benefits. This may be a way to make private sector more aware of their own benefits and opportunities of transboundary water cooperation. (Pedersen)

First, oceanic evaporation remains the biggest source of evaporation. Second, the water budget for transboundary cooperation might cause more concern with respect to perception. It requires assumptions to say something about an annual scale. To start with the benefit concept and the impact shed are useful. (Imam)

Polluter pays principle; in the past we had a "right to pollute" and after the Water framework directive it changed to a "right to have clean water". Going beyond these qualities; the right should be compensated, the wrong should be punished. (Roebeling)

Session 5: Inputs for Methodological Guidance Note

Discussion: Inputs for key elements and characteristics of Methodological Guidance Note

Characteristics of the Guidance Document. (see powerpoint)

The last two days we had a lot of discussion in different directions and various levels of depth. During this session we'll try to bring these together toward the objective of the workshop and the UNECE Guidance Note. I would like to ask not to decide about what others say even if this might be stupid. We are still in the scoping phase and after this workshop everything will be reflected to decide upon which topics cannot be included in the final version of the Guidance Document.

Part I. Characteristics of the Guidance Document; ambition, depth, length, language, tone...

- 1.1 What type of Guidance Document do policymakers need?
- 1.2 What type of Guidance Document can be developed in the framework of the Water Convention?

Part II. Content of the Guidance Document; potential chapters, topics to be covered

- 2.1 Draft Table of Content (level 1)
- 2.2 Content of chapters
 - Topics, questions to be addressed
 - Sources of information: literature, case studies
 - Identify key gaps to be filled

Part I. Characteristics of the Guidance Document

What type of Guidance Document do policymakers need?

Niels Vlaanderen gave a quick presentation on how to give a good structure to all the good ideas that should be put in a useful guidance note that can be used by policy makers. As a general split in the note, there should be a general part on methodology and another part that offers a framework, a stepwise approach. In the general part there should be said something about the typology of benefits, the distinction between direct and intangible benefits. All this should be illustrated by case studies, which can have proven results or are more aimed at the future possibilities. There should be attention on the process side.

Benedikt Mandl talked about the need to take into account the local situations. So far the target audience have been the countries as such. What is being neglected here, is that we seem to assume that all of these countries are functioning in the same way. And I think that bears a risk that is would be insufficient in the ways we might want to progressing these countries. After all it is not the countries that make decisions, it is the individuals making decisions depending on their specific situation. Therefore local situation should be taking into consideration.

Purely looking at the quantification of benefits, it would be the factual basis for providing arguments. On top of that, politics are often a lot more complex and less straight forward. There should be a bridge between scientific evidence, policy on the next level and the target group we are trying to get involved. That full chain needs to be reflected. Otherwise we end up with a nice toolkit from a very Western/Eurocentric perspective, but it may not be applicable to reach the worlds that are far from ours.

Harry Liiv pointed out the importance to introduce what may be efficient to assess the different types of benefits of TWC, introducing the idea of what are the needs. Countries are in different situations and may or may not have agreements with their neighbors. Some other countries may have also to reassess the existing agreements. For them that may be also one instrument why they should reassess the agreement, and are able to find benefits. Give them more direction just at political level and higher policy level as such. Once again, what kind of values we may see to assess this.

Christian Severin also suggested to split everything in two. There should be something that targets high level politicians. But also a document to get attention with a maximum of 5 pages, maybe a small pamphlet. There

could also come a more extensive document containing the technologies, methodologies, some of the assessments and the more in depth description of some of the case studies.

I'm talking about policy making from a funding perspective, it should be taken into consideration for the document as well. We should be able to spill out the benefits of TWC through number of indicators otherwise we cannot step in. It would be really valuable if this document is able to work on the national and the regional level, with the river basin organizations. There is so many dynamics there that should be captured.

If we are able to show the community what the benefits are of TWC then we are save. It can be showed to government and funders, with the message "this is exactly what you have been funding the last 20 years and that why you need to keep on doing it". (Christian)

Discussion: What type of Guidance Document do policymakers need?

The benefits should not be exaggerated and based on scientific experiences. Beside the disbenefits of TWC should be mentioned as well, otherwise we are overselling it. (Zaag)

A brief document is not just useful for policy makers but also for those interested in private sector investments. They want to read a four page document that tells them about the risks and benefits. (Conti)

The output of this work seems to be a guidance on identifying, quantifying and communicating benefits. It will not itself directly and immediately state what the benefits are. That could be a separate document at the same time, such as a brochure which goes with the Guidance Note. A document which give some nice examples of these great benefits. But the main document itself is a guidance note to help in the different situations, countries, advisers, funders look at a basin and advice the countries what are the benefits of TWC between them. (Bonvoisin) The output should consist of the pro's and the con's, otherwise it is not worth anything. We need to be fair to ourselves, the basins and the politicians. (Severin)

Concerning the length of the document. There are people who like to see text vs. people who like tables and pictures, both type of readers should be able to be attracted to it. The same advice to putting examples in, it might be very helpful to illustrate things. It should not only be a recipe of things to be done, people will not understand that. Besides, take into account the level of knowledge and experience the reader is expected to have which also has to do with the language. I like the idea of having a short policy summary at the start, also to help distribution amongst other relevant countries, institutions or colleagues. (Veeren)

For the end products we can maybe consider three levels of communication.

1. **"Pamphlet"** - Very short executive summary.
2. **"Guidance"** - Language that can be understood and supported by illustrating examples and figures.
3. **"Technical note"** - Containing appendices for real experts and interested people. Explaining the ideas with illustrations, might be a way to have something that is generally accessible. (Pedersen & Connor)

I was on this water management having three of four levels. It was now developed as a web based system, so it is relatively easy to have web links to greater levels of detail. There is a relatively short executive summary, then going into what you really need to know, then some more details on case studies and examples and the references. So all the detail can be online. Having it as a web tool, is considered being the most easy way to keep up to date. There is a danger that the document will become very static and it needs to be a living document. It is very important to have not quite a weekly approach, but at a reasonable period allow new ideas and examples to come in. The idea of having as many practical examples, will not make the manual too prescriptive. Giving suggestions what should be considered and leaving it then the to subsidiarity approach of basins or commissions deciding upon it. (Whalley)

What type of Guidance Document can be developed in the framework of the Water Convention?

Nick Bonvoisin shared his thoughts on what type of document that should be developed. There are certain sorts of documents maybe we can exclude, such as sets of recommendations and their assessments. In this context it would have to relate to the mandate that has been given to develop a Guidance Document.

It has to be broad in applications applicable for all the UN-member states, not just within the region. It could be looking at institutional and ministry procedural, legal and policy aspects. Not going too detailed or being prescriptive on methodologies, but to describe the possible processes, outline techniques, advantages and disadvantages; for a background document. The hope is that this would be a document which would go back to the government bodies and parties for adoption and consensus, which is difficulty that could be approached in different ways. In this particular context there are these three step: (1) identify, (2) quantify and (3) communicate. Think about the audience, think about how to communicate the results of the quantification to the politicians. (Bonvoisin)

One important thing to take into account is that policy makers take decisions and then try to fit costs around it. Countries need objective/neutral documents to work together. The important person a document should target is the project manager, after a decision is taken. Providing help how to work together with people from the other countries. Describing the steps that should be taken within the cooperation process, identifying important focus points and useful methodologies for separate steps. Being catchy for both the word-reader and the image-reader. I should not say so, but the Guidance on Adaptation does cover quite some of the things that were discussed here. Concerning the technical details, a living document such as a website can be useful for the real technical and more extensive information. (Timmerman)

Discussion: What type of Guidance Document can be developed in the framework of the Water Convention?

A living document is a great aspiration and you would expect many people to share their experience on different case studies and new techniques and so on, but it never happens. (Bonvoisin)

How does the UNECE foresee the process with regard to other international processes that are thinking about the same issues and developing their own strategies for the same regions as the UNECE? How do you ensure that it's being carried out in alignment with other international organizations are doing? (Pedersen)

It is a UNECE document, but also a multi-level process. We have to involve the countries, which is the primary client. The countries are members of these other organizations as well, and so we would push to get input from our partners, other stakeholders, NGOs etc. Normally documents are circulated quite widely through a broad network, using email lists of certain groups which normally works quite well. What we could do is to have an open working group in September in which states and parties will be involved in within their region. We need to clarify how we can promote this UN-agreement. (Bonvoisin)

The document needs to be relevant outside Europe. Outside Europe the other parts of the world have very weak legal institutional frameworks at the basin level. A focus should lie on the local area to be relevant outside Europe. We should coming up with methodologies for assessing transaction costs, to involve and establishing these legal institutional arrangements. The great challenge is to get the principles that are in these conventions are at a basin level for the whole world. And to do that you need to have methodologies to assess the benefits and the transaction costs, in case studies etc. (Rieu-Clarke)

We should expand so that the concept of cooperation is more general and it allows policy makers to explore not just what is in the convention, but the potential the convention offers. In the sense of multi-lateral and multi-bilateral agreements, and go from there. This will be maximizing the benefit of the convention itself, as well as the ability and diversity of potential benefits that could be explored. (Imam)

I always see two levels. Is there some sort of guidance that can help me to assess the benefits of establishing a legal basin agreement; what methods can I go through to assess that? A lot of presentations are focused on the basin level, but there is another question. That is to having tools to assess benefits multi-lateral, multi-

basin cooperation. It is what previous conventions have been trying to do, cooperating at regional or even global level. And then that document becomes a really very thing that stated can be used when trying to assess whether they want to become part of the convention. (Rieu-Clarke)

With respect to using the internet as a communication tool, which can be very useful. But it is generally the case website change, and two years after publication the information cannot be found anymore without spending a lot of time on understanding the new website. Make sure the title can be found by a searching machine, so it can be easily be found on the UN-website. (Veeran)

Part II. Content of the Guidance Document

Roberto presented the first draft of the Table of Content (ToC), in order to facilitate the discussion. From here we will discuss (1) Do you think this is broadly how the chapter structure should be? (2) Is there a major thing that is important enough to add another chapter? After the discussion the ToC will be revised.

Discussion: Content of the Guidance Document

I would build more along case studies. (Mandl)

It is good to have chapters on each type of benefits, the methodologies could be inside those chapters. So linking the methodologies to the type of benefits. (Ten Brink)

Referring to the process, I can't see what it does. It sort of end with setting up a process for assessing benefits. But shouldn't it take us forward in terms of governance and management of transboundary waters, so the needs to be a route forward for steps to be taken. At the moment it is just a function of academic chapters. Maybe very beneficial to understanding the benefits is to transboundary water management, but where is the application for it. (Whalley)

There exist a lot of literature and guidance on assessing benefits. If this document need to be useful it should focus on the benefits of transboundary water cooperation, not on the benefit of ecosystem services or the benefits of hydropower generation. Somehow it needs to link back to the transboundary nature of it, otherwise it will not be complementary to existing literature on benefit assessment. (Deane)

In scientific research you start with the objectives. In journalism you start with the story presented quickly, using a headline and then it is slightly more details are liberated. The main message/objective of this guidance document is showing there are some possibly great benefits from TWC. Maybe therefore your forth point (Ch2.) should almost be first? Maybe showing a flow chart/picture on what the whole process looks like, give some examples and then unpack the rest of the details. So generally more the headline up front, like an eye catcher. This answers the question "Why does this manual exist?" "Because it is important, and here are the thing you'll have to do." The chapters that follow tell you more about it. (Connor)

I'm not sure if chapter 3 (Methodologies assess TWC benefits) and 4 (Setting up a process for assessing the benefits of TWC) can be separated in the way they are right now. Because the prices of assessing is basically engaged in methodology. So we may have to rethink about that. This also goes over chapter 2, I think we need to have simple catchy subtitles. Then later extend on these benefits.

One thing that is missing here is the resource space, a database of resources available among the states. Such as international organizations, technical programs or similar organizations that can provide technical support. t may be a good idea for us to compile a list of the available technical helping support. And provide this information in order to help member states to somehow make it easy to know where and how they can be helped in the process of cooperation. (Imam)

Are we only interested in quantifying or also in operationalizing the benefits? (Roebeling)

In the UN we need to look at review and follow up, so it would be consistent to have some chapter at the end which does talk about methods within the process. Only if you actually have some ideas about the follow up

on how to realize these benefits. There should be communicated to policy makers; there are all these possible benefits and you have to do these steps to come there. This should help the countries. (Bonvoisin)

There could be another chapter on operationalizing or realizing of the potential benefits of TWC? (Roberto)

I wouldn't go into methods just make sure it is highlighted somewhere what has to be done. (Bonvoisin)

I would suggest to make separate chapter on the rationale, because that is where you take the reader by the hand. You will highlight some issues that the reader will understand, so it provides the background and create some interest. Not necessarily linked to the chapter headings, I think it is also important in such a document to highlight there are also costs linked with situations of non-transboundary cooperation. (Pedersen)

I still don't have the clarity what is going to happen with this Guidance Document; what kind of product we are discussing, who is going to read it, etc. In my opinion it is very useful to assess communication products always through three areas:

- (1) information that it contains;
- (2) emotion – how do you reach the target audience, illustration of issue through case studies;
- (3) call to action – this should be the message of the guidance, that provides help within this process of transboundary water cooperation. (Mandl)

What is the target audience? (Roberto)

The target audience of the Guidance Document is going to be, mid-senior level officials in ministries of the countries themselves, our partners and consultants as well that work in the different countries. But of course that is separated from the other potential added documents. So there is a direct and an indirect audience. (Bonvoisin)

Concerning the different types of benefits, such as peace, political stability, trust, security, sustainable delivery of services. If we look at the chapter on benefits, it would be good to give an example of where this is happening somewhere in a basin around the world. So that it is not just a wish list, but you can actually point to actual real world examples, maybe by using little boxes or something to illustrate it.

Concerning the question of adding an extra chapter about operationalizing benefits, I think it is probably important to talk about the delivery of benefits as well as the monitoring and the evaluation of this whole process. We should forget about the fact that if you set this thing up and go through this process, then there is something beyond that has to be carried out. (Deane)

What is the benefit of the process? The document should give you an overview of the benefits, but also points out for you the point where you can better cooperate. Looking at what agreements should focus on. This could be a good way to analyze that. It might be something to put in the rationale as well. (Timmerman)

A couple of elements have been mentioned like case studies and considerations for countries who are thinking of conceiving to the conventions. Each of these headers, how are they relevant for people who aren't yet in the convention and using this as part of their evaluation of the process. (Conti)

We are talking about benefits of transboundary water agreements. What I would like to see, and would grab people's attention straight away, is graph that is highlighting the short- and long-term benefits that are derived from cooperation. It starts off with short-term benefits within a period of 5-10 years, and then each type of benefit (1-4) build on each other in time. So the graph is not linear, there is a non-linear increase that accumulates the benefits for cooperation. It introduces the different types of benefits and it also distinguished the short- and long-term benefits. (Wheeler)

It is not mentioned yet, but transboundary water issues are sometimes undervalued for the general public. So we have to prepare the public also on this concept, rather than targeting the politicians (Zaag)

Discussion: What should the final Methodological Guidance Note offer?

Content of the Guidance Note. (see powerpoint)

There could be a first chapter on Transboundary Cooperation, another chapter on Benefits, another chapter on Methodologies for Assessment. The word Assessment is used, rather than Quantification, because in some contexts you cannot quantify.

The *process* of Benefit Assessment may deserve a chapter.

Chapter on Communication? Or perhaps communication should be included in every step of the process?

Some present thought the structure was very academic. It was suggested that we could base the MGN on case studies, giving concrete examples, and use them to highlight aspects of these chapters.

From the policy side it was considered useful to identify the types of benefits, with maybe a separate chapter on each type of benefit, and connect this to methodologies.

This should not simply be a collection of academic chapters, but should take us forward in terms of the governance and management of transboundary water cooperation.

It is important to keep in mind that there is a lot of literature and guidance for assessing benefits, but if this document is to be useful, it needs to focus on transboundary water cooperation, not hydrology or something. We need to constantly link back to transboundary water cooperation.

Taking an example from journalistic writing: start with headline and then elaborate. The first point to get make is that there are potentially great benefits from transboundary cooperation. Then should there be a flow chart giving an overview, and then an example, and then unpack it.

Use a visual chart of the processes: This is the explanation of why this needs to be done.

Chapter 1.

Use simple catchy subtitles : " Water Cooperation does..." then elaborate.

We need a database of resources, technical programs, examples such as the Danube organisation, etc. What kind of help you can find where and how?

In principle the mandate here is quantifying and communication, not operationalisation, do we want to expand the mandate?

We should have a chapter at the end to give idea about follow up and realisation. Policy managers like to know: you need to do this and this.

We should not go deeply into methods, but highlight what needs to be done.

We should not only feature the process of assessing the benefits, but also assessing the benefits of the process.

Take the reader by the hand and highlight issues, create a background and interest. Of course, the focus is on the benefits of transboundary water cooperation, but also important in this discussion that there are costs involved in **non**-transboundary water cooperation.

What is the product? Who are we trying to target, who will read it? Consider: (1) information, (2) emotion (take receiver by hand) and (3) a call to action.

The call to action should target decision makers: "we have something that will help you to create benefits for yourself, and now you need to get in touch with us and we will guide you through this process". Everything should be tailored towards this.

Don't forget that newcomers to a convention need easy reading. It should be obvious to countries what the common benefits are. Initially, the information for new countries should be at the level of politicians.

The audience of the guidance document is going to be mid/senior level officials; our partners who undertake analyses, and consultants doing supporting work in different countries. This is different than applying the Guidance Document, that is more at the level of ministers and so on; there is a direct and indirect audience.

Let's remember the various types of benefits mentioned during the meeting: peace, trust, stability, security, the sustainable development of services. It might be good to give an example of a basin where these things have happened. If you set this thing up, go through the process, visualise something beyond it.

How about a graphic illustration of benefits highlighting short-term and long-term benefits. This would be non-linear, starting off with short-term benefits, then, using typology of 1,2,3,4 benefits, build over time. Show this with a simple graph, showing cumulative benefits, different types of benefits and illustrate the short- and long-term gains, go into specifics later.

Prepare the public for this concept of transboundary water issues, enlighten reporters about this. Politicians are responsive, rather than forward looking, so prime public.

What are the boundary conditions we are dealing with? We are dealing with the Water Convention, so not water coop in Black Sea for example. Need clarity of scope, set boundary conditions.

The major challenge in transboundary water cooperation is always that ministries of water or environment need to cooperate with other ministries to capitalise benefits. Policy integration involves multiple ministries. We need to think about creating an enabling environment for cooperation. One of the most important things is to make sure that ministries are in the same room. If the Finance ministry is not on board, nothing will happen.

We should not ask people to do things we cannot do ourselves.

We should make the document very purposeful and focus on elements relevant to this particular task. A theoretical document is not the most useful thing.

It is important that we try to structure chapters. We need to illustrate concrete examples. We need to be specific for policy makers.

As an alternative structure - three main points: What is transboundary water cooperation; Why?; Realising Benefits. Or more simply: what, why and how? Or even why, what and how?

We need to agree on the level of detail, how many pages do we anticipate? Nick replies: 1-2 pages.

Chapter 2. Benefits of TWC

Look not just at benefits, but at beneficiaries.

Where are we now? What can we gain? Should baseline assessments be here?

Benefits are mentioned in the first chapter. Typology with possible types of benefits, and how to classify.

Disbenefits coincide with benefits and may not affect the same people. They do not cancel each other out. What is good for some is not good for others.

Regarding a range of benefits for typology, is there a consensus? Should we categorise them in types, and think of methods to quantify them? Identifying benefits is useful, but categorising them? A typology of benefits may help with communication.

Avoid reinventing wheel, there are already a large amount of guidelines out there, let's use those as much as possible. Same applies to classification. Almost a copy and paste job.

It would be useful to have somewhere dos and don'ts, and pitfalls, of benefit sharing, using examples.

Chapter 3. Methodologies

Is there any value-added in providing 10,000 descriptions of methodologies? Identify the relevant benefits in a particular context and consult an overview of methodologies.

Will our audience be well-read in this literature?

There is a baseline, and management options will change impacts. For policy makers this is the most interesting. The baseline is paramount. Policy makers have to define the baseline and options to compare it to. It could be useful to have overview of types of methodologies with potential for applications, maybe linked to categories of benefits. To provide some kind of feeling about what is out there for lay readers.

A good summary of methodologies is that of Beech and Wolff.

Establish the baseline,(which is the existing level of cooperation in a basin) and then consider alternatives for cooperation.

It might be good to have a short section on overview of methodologies, but not go into detail – put it in an annexe.

Methodological detail is interesting once a decision has been made.

What about cost-benefit analyses?

Physical qualification of impact deserves some treatment. At least we should have an illustration of a hydrology model.

Give policy makers a clear trajectory by linking cooperation options to the methodologies.

The need for data and sharing is important. This should be the first level of cooperation –information even if the information is synthesised and not raw data.

We need to define which institutional setting allow which types of benefits, some benefits are inaccessible in a specific institute setting.

Chapter 4: Process of Benefit

Useful to put this into some kind of figure, something visual.

Where is the space to define our scope– we need to emphasise that we include coastal zones. You need to know the ecosystem unit that you are working with. This should be mentioned early on.

We are talking about this in the European setting, but we might want to have examples from outside Europe. We should not be too narrowly-focused.

Stakeholders see things differently, each group may need different tools.

Looking for a feedback mechanism. “Benefitshed” should grow.

Scales and scopes of cooperation are relevant. Agreement for specific investment is based on agreement at a specific scale.

In difficult situations, if you can get countries to sit down and identify benefits between them, that is already a success before you even begin to quantify.

Chapter 5: Operationaliation

What do you do with this valuable information? What are the next steps? How do I take this forward?

It is one thing to say we need water markets, but we need to know how to go about it. There is no evidence of a water market in a transboundary context. That is specific to Australia.

You need to include a network of experts, a list of people you can call if you have problems, questions.

Close

John Joyce thanked Roy and the IVM. Thanks too to the Dutch Government.

Chantal described the next steps: an outcome document will be prepared. A draft annotated outline of the Guidance Document will be shared in July. Coming events: seminar at Stockholm Water Week (6th September), new inputs, comments and new partners. There will be a session at a Workshop on Integrated Water Source Management – and another workshop with a broader audience in May next year, gathering and sharing experience about case studies. This will help to test the fit of the document we are writing with regional examples.

Session 6: Closing

Closing by Niels Vlaanderen, Ministry of Infrastructure and the Environment of the Netherlands

John Joyce, on behalf of the SIWI, thanked everyone for being very patient and hardworking those last two days. He thanked Roy and his department, his colleagues for entertaining and engaging with us, and participating and doing all the hard work. SIWI was very happy to have a workshop in the Netherlands with Dutch colleagues with so much expertise, that was fantastic. It was a joy that we could be host here. Besides he thanked the Dutch Government, as he enjoyed the drinks and dinner very much last night 😊

Chantal Demilecamps on behalf of the UNECE said: "As you know this event was the first event on quantifying or assessing benefits, if we change the name for it. After this the next steps. We will send you an email with all the presentations so you can upload them from the website. Please inform us if you don't want your website to be uploaded. An outcome document will be prepared from what we have discussed yesterday and today. And a draft annotated outline of the guidance document, most probably in July but we still have to decide when exactly we can share it with you. That "draft annotated outline of the guidance document" will be shared with you for comments. In terms of coming events;

- There will be a seminar during the Stockholm Water Week on the 6th of September 2013. There will be dedicated 1,5 hour to presenting this document, in order to try to get new comments and inputs and find potential new partners to invite in this work.
- Under the Water Convention there is the working group "Integrated Water Resource Management", where we have representatives of the parties of the convention. Part of the event, during one session, the document will be presented. But it might also be an important moment to have more feedback about the countries and the parties. How do they feel about the document, did it actually answered to what they had envisioned initially when they asked to integrated this into the program of work.
- There will be another workshop with a broader audience that will be organized in May 2014. That will be more about gathering and sharing experiences, more focusing on case studies. How it has already been done in some countries, and to test whether the document we are developing really fits with how it is done in river basin or regional organizations. In order to enrich and refine the document."

At last, Niels Vlaanderen from the Dutch Government had a final word: "Thank you Chantal for your outline of the following steps of the process. I have a very good feeling about those two days and I believe we have had very good discussions about the topic. As a country, we are glad we could facilitate this UNECE process. I look forward to the follow up of it. Hope to see you at some point again, so we can further discuss about this topic. I would like to invite you for a drink outside. Thank you 😊."