



## What next?

Dear reader,

RISKBASE develops a risk-based management approach for the water-sediment-soil system at river-basin scale. Our primary target audience are the drafters of Water Framework Directive (WFD) River Basin Management Plans (RBMPs). They just, or are about to finalise their RBMPs. Thus the RISKBASE findings and recommendations are not timely to be taken on board in this 1st generation of plans. We realised this already at the beginning of the project. Hence, we aim to get our key-findings noted for – and hopefully also integrated in – the 2nd generation (so first update) of WFD RBMPs. We anticipate that the ‘window of opportunity’ for our messages will be early 2012 to medio 2014 (see figure 1).

Besides having selected the ‘source-pathway-receptor’ paradigm as core of our approach (see also the contribution of Bob Harris in this newsletter) we also developed a perspective on what we will do different in future RBMPs. We:

- selected the sustaining of ecosystem services (see the 2nd RISKBASE newsletter) as the central objective (instead of ecological status);
- regard river basins (and parts thereof) as complex, dynamic and close-knit social/ecological systems;
- apply – risk-based – the best available system understanding (scientific and local) to reach the above objective;

- hereby accept, and thus learned to live with uncertainty and surprises;
- manage local/regionally, include all stakeholders but also have concern for our neighbours down- and upstream;
- regard the WFD – or any other current environmental policies – as tools, no longer as objective;
- learn by doing, in small steps, and correct instantaneously if needed (adaptive).

We easily agreed upon, but we also realise that we are still ‘miles away’ from this holistic perspective. The next generation of WFD RBMPs will provide some room for improvements. That is for sure. But how much? This is exactly what we have to find out in the last phase of RISKBASE: we have to define what the next small step can realistically be, keeping the above perspective in mind. We will do the same for the risk-based management related research agenda that we also promised to develop.

I warmly invite you to join one or more of the upcoming RISKBASE events and thus help us to answer the “What next?” question. Up-to-date and detailed information on our events will be available at our website ([www.riskbase.info](http://www.riskbase.info)).

I look forward to your appreciated contributions.

Kind regards,

Jos Brils  
RISKBASE coordinator

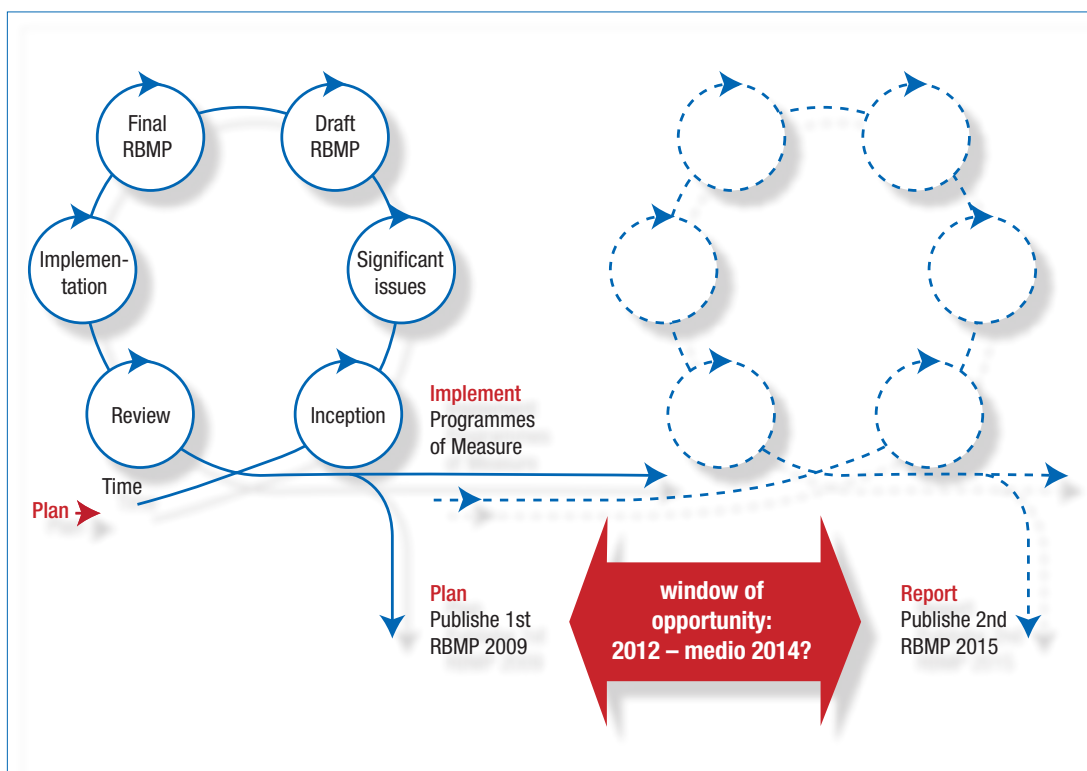


Figure 1: Window of opportunity for integration of the RISKBASE findings and recommendations in WFD RBMP (original drawing from Damian Crilly, presented at RISKBASE Work Package 5, Workshop 1, 2007, Vienna)

RISKBASE partners:

## 2<sup>nd</sup> RISKBASE General Assembly – Common System Understanding for Risk Based Management of River Basins

Today there is a fragmentation and a narrow view on research that is going on in various river basins and the resulting case studies being carried by different EU funded projects. Since most of the partners involved in those projects are coming from research the links to river basin managers and other stakeholders are often weak. Sharing the understanding of river basins between scientists and basin managers/stakeholders was one of the main objectives of the 2<sup>nd</sup> RISKBASE General Assembly, held in May 2008 in Budapest, Hungary.

Due to the venue the Danube river was in the main focus of presentations, but also experiences and management approaches from other river basins were presented to induce an exchange and to learn from each other.

After a welcome by UNESCO, the co-funder of the event, with some challenging questions on the actual water situation all over the world, the history and the current activities of VITUKI, the host of the event, were presented.

The International Commission for the Protection of the Danube river basin (ICPDR)

was introduced with its historical milestones and its actions and efforts in order to bring together the different countries in the Danube river basin and to improve the status of the Danube river.

For an improved risk assessment in the Danube river basin hazardous substances were analysed within two big cross-national surveys. Also EU projects use the Danube as a test case, mainly to test the feasibility of decision support systems (DSS) they are developing.

Industrial accidents at rivers such as the pollution of the Tisza river (tributary to the Danube river) with Cyanide in January 2000 as well as the pollution of the Rhine with pesticides and insecticides in November 1986 were presented as examples of what measures were taken immediately after the accidents and which conclusions were drawn afterwards.

The “Living with water” approach that is applied in the Netherlands showed the Dutch way on how to face and handle the consequences of climate change by focusing on the improvement of water system resilience. A better integration of the “human

dimension” into river basin management is one of the main objectives of the EU project NeWater that develops new approaches to adaptive management under uncertainty.

Finally the risk governance framework as it is seen by the International Risk Governance Council (IRGC) was introduced and discussed.

The RISKBASE work packages reported on their actual achievements in the project. At the end of the day a plenary discussion of the RISKBASE Advisory Panel and the RISKBASE Consortium addressed questions related to achievements and future steps to be taken in the project, in order to achieve the project targets within the last 1,5 years.

To make the presentations and discussions more visible, the participants had the chance to join an excursion to two flood protection cases of the Danube river north of Budapest in Visegrád and Szentendre.

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Figure 2: Danube river at Visegrád (Photo: DECHEMA e.V.).

## 2<sup>nd</sup> Thematic Workshop – WP 1b River Basin Cases

In May 2008 this 2<sup>nd</sup> thematic WP1b Workshop “*Bridging Science, Water Management and Practical Experiences in European River Basins*” was organized in Budapest, Hungary, by CSIC (Spain) in collaboration with TNO (The Netherlands), DECHEMA (Germany) and VITUKI (Hungary). The event was sponsored by the EU through the CA RISKBASE and UNESCO (Italy), which also funded the best poster award delivered at the workshop closure.



Figure 3: Overview of the discussion during the Workshop (Photo: CSIC).

This workshop aimed at providing elements to improve the management at river basin scale. The event was organized in four sessions. Three of them focused on selected river basins across Europe, i.e. Llobregat/Ter, Danube/Sava and Dommel river basins, and the fourth one addressed a prognostic case on the impact of biofuel production at the EU level. The workshop was attended by 65 participants from 15 countries all over Europe (see Figure 3). In the course of the event, more than 20 lectures and 10 posters communications were presented by experts in the field of risk-based management issues in European river basins.

Several topics such as water scarcity, ecosystem services, the human dimension in river basin management and policy-makers perspectives concerning risk were deeply addressed during the Workshop.

As a result of the fruitful discussions hold, a number of remarks were identified:

- Mediterranean basins are prone to suffer water scarcity, therefore, to manage the associated risk a diversity of water sources need to be considered (reuse of wastewaters, surface and ground water, and desalinated seawater). In addition, the relationship between water quality and quantity has to be taken into consideration, as well as potential disruptions of the water cycle (ground water feeding base flow in rivers).

- River basin authorities should focus more on public demand and health issues to improve the quality of life of the inhabitants through adding social values to the river basin. The new goals might be included in the second generation of RBMP.
- Acting on sustainability development would lead to have a reasonable model on the current economic, environmental and social situation within the river basin and forecast the gains and losses regarding the wealth and nature.
- A better understanding between ecological and chemical water status is still required.
- The ecosystem services concept is important; however, it is necessary to develop new practical criteria for its application in watershed management. Coming from an ecosystem service approach, for instance, enhancing navigation would suppose decreasing services provided by nature reserves such as flood protection, nature conservation, etc.
- Despite the open discussion on several impacts of bio-energy on humans,

ecosystem and economy, our state of knowledge is limited. First one needs to frame the problem considering the issues at stake and largely discuss with stakeholders. Then it is required to build scenarios to approach the challenges, and to balance risks versus opportunities to finally suggest alternatives leading to reduce the risks and to exploit the opportunities.

Extended information on lectures and posters was included in a Proceedings book distributed to all workshop participants and to other scientific and stakeholders from many institutions who could not attend the workshop. The Proceedings book as well as all the workshop's presentations was publicly available through the RISKBASE website from June 2008.

An extended report on the workshop was published in the international scientific journal *Trends in Analytical Chemistry (TRAC)* vol. 27 N° 8 (2008) pp. 641 – 647.

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Figure 4: View of Danube at Budapest (Photo: CSIC).

## Developing a “Logical Process” for knowledge-based decision-making

Under the driver of the Water Framework Directive new approaches are needed for decision-making in land and water management at the scale of the river basin or catchment. This note outlines where RISKBASE might help in terms of a logical process for decision-making based on our understanding of the catchment system.

Risk-based approaches might be better labelled knowledge-based approaches. We firstly need to be clear what the critical pressure linkages are; what is it that it is really necessary to control, and where we should intervene to achieve maximum benefit. So, we need to know what the main pressures on the system are, how they are transmitted through the landscape and what receptors (aquatic ecosystems - and increasingly a focus on the goods and services they provide) are being affected and need to be protected. In other words we need to understand the catchment system sufficiently well to be sure that the environmental management options we select and implement will be effective.

The source-pathway-receptor paradigm can be used as a framework to allow the key pollutant linkages to be identified. The technically feasible management options can then be worked out according to the hierarchy: remove/minimise source, intercept pathway and/or protect the receptor. Next the costs and benefits of each option can be assessed - a highly important part of river basin/catchment scale management. From such an analysis the “win-wins” can also be determined to achieve other benefits – e.g. soil erosion is a threat to soil quality but also the resulting sediment in rivers can inhibit

fish spawning; focusing on one may help the other issue. The same approach can be used for any pressure, chemical, physical or economic.

Once the number of options has been reduced through their progressive identification as being both technically feasible and cost-effective, their acceptability needs to be tested in a social, and ultimately political context. This process is shown diagrammatically below in the diagram below as a “logical process”. Such a process will be needed in order to adopt approaches that are both risk- (or knowledge-) based and ecosystem-centred.

As described in the diagram above, the “logical process” is a “bottom up” one. However, the reality is different. In many countries political processes initiate the activity and the process is driven from the top downwards. For example the UK government decided for political reasons (regional regeneration, new housing stock for young workers, etc) to build 150,000 new houses in the Thames estuary without much consideration of the environmental aspects, which included implications for flooding and the lack of capacity for both water resources and energy provision. Technological solutions to these problems are now being re-

trofitted, but should have been considered at a much earlier stage when they would have been much more cost-effective.

The challenge for RiskBase is to show that the bottom-up logical process is one that society should move towards if it wishes environmental decision-making in complex systems (river basins and catchments) to be both ecosystem-centred (e.g. WFD) and cost-effective. Without such an approach this author would argue that technological solutions will always be sought - often at an ultimately greater cost to a sustainable environment.

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### UPCOMING EVENTS:

#### RISKBASE:

January 2009

Joint Thematic Workshop of WP 3 & WP4

More information: [www.riskbase.info](http://www.riskbase.info)  
and Werner Brack ([werner.brack@ufz.de](mailto:werner.brack@ufz.de))  
Philippe Negrel ([p.negrel@brgm.fr](mailto:p.negrel@brgm.fr))

#### OTHER EVENTS:

30<sup>th</sup> – 31<sup>st</sup> October 2008

Final SPI-Water Conference

Brussels, Belgium  
More information:  
[www.spi-water.eu](http://www.spi-water.eu) > Final Conference

17<sup>th</sup> – 19<sup>th</sup> November 2008

Final NeWater Conference

Seville, Spain  
More information: [www.newater.info](http://www.newater.info)  
and Ms. Borowski/Ms. Kastens  
([contact@newater.info](mailto:contact@newater.info))

16<sup>th</sup> – 22<sup>nd</sup> March 2009

5<sup>th</sup> World Water Forum

Istanbul, Turkey  
More information: [www.worldwaterforum5.org](http://www.worldwaterforum5.org)

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