

Water – Source of Life, Source of Danger

The Blueprint for European Waters: a Researchers' Roundtable

Key Messages

The general objective of the round table discussion on 20 September, 2011 was to identify further research needs to contribute to the new European Water Strategy, the “Blueprint to Safeguard Europe’s Waters”. Announced in early 2010 by the Commissioner for Environment, Janez Potočnik, the Blueprint shall be the political response to outline the future long-term European strategy for the handling of our most vital, but also very critical resource.

It will aim at an integrated and holistic approach ranging from extreme water events such as floods and droughts to the manifold ecological services provided by water. The strategy shall also seek to establish an enhanced cooperation between the member states and countries outside the EU27. Elements such as the reviewed Water Framework Directive within the Flagship Initiative “Resource-Efficient Europe” of the EU 2020 strategy will play a major role in the Blueprint.

The development of a long-term strategy for a more sustainable Europe that handles its resources with greater care requires the continual enlargement of the knowledge base underlying those strategies. Scientists all over Europe can contribute to this process whilst cooperating under the umbrella of national, regional and international programmes, but most importantly under the roof of the 7th Framework Programme and the future Horizon 2020.

On the initiative of six European Research Organisations, the round table discussion brought together around 50 stakeholders from research, public bodies, regions and other organisations closely related to industry to discuss the most pressing issues with representatives from the European institutions.

The following key messages were collected: The participants agreed that with the Fitness Check of EU-Water Policies and the Impact Assessment in preparation of the Blueprint the following questions have to be discussed: Are the current environmental policies coherent, cost effective and do they show effects? To what extent is the implementation of legislation following or lagging behind? How can research effectively contribute to find answers to these questions and pre-define possible solutions? What, from a scientific point of view, are the most urgent issues to be tackled?

Six scientists from five European countries gave their views on the latter question during the workshop:

In the area of **Ground Water Management** it was discussed that an optimal management requires a sustainable quantitative status and good qualitative parameters. It is necessary to dispose of forecasting methods when it comes to groundwater level and resource capacity. A faster identification of critical situations should be possible. Therefore, there is a need for **improved mathematical modelling** of the groundwater flow. This also includes better monitoring and the installation of **early warning systems** as well as improved **networking**.

When it comes to the **water management within and between industries**, the continuous **improvement of water efficiency** remains an ongoing issue, although big efforts have already been made with that regard. Nevertheless, it is still necessary to develop new technologies and to implement new methodologies aimed at **minimising their environmental impact**. The use of freshwater for industrial production can still be reduced and water reuse practices as well as related treatment techniques have to be encouraged and further developed. In addition to this, it is necessary to prevent any possible **source of risk** for the workers and for the customers, and a specific European Guideline or Legislation for the definition of proper safety limits for reused water has become necessary. Within this framework, new research activities are strongly needed in order to assess these aspects, especially related to **low energy consumption treatment** options.

Management of **water resources in the Circum-Mediterranean** region is a major challenge, also for European water strategies. Innovative methods for the precise determination of available water resources in entire groundwater/river basins are essential to allow for a sustainable water management in **water scarce areas** such as the Circum-Mediterranean. **Adapted tools and management practices** are required. Particular emphasis should lie on socio-economic and political aspects, as well as on transboundary water management issues. In the light of an **increasing population** within the region, innovations for water infrastructure systems in urban areas are of special concern. The increases in **food demand** related to a growing population as well as the effects of **climate change** exert additional pressure on water resources and ecosystems.

Coming to the efforts of developing an **integrated sustainable land management scheme**, it was stressed that humanity and nature are prone to **various aspects of global change that occur in parallel** and interact in a complex way. Correspondingly, any measures taken to address current challenges inevitably will affect numerous aspects. On the other hand **systemic approaches** for solving complex problems can benefit from manifold synergies. In addition, there

is urgent need for developing “**learning organisations**” where science, society and politics are intimately interwoven. To that end, alternative ways of governance need to be discussed and developed. Science can and has to contribute to that.

Based on the major political and scientific challenges, the **concept of ecological engineering** of water bodies was presented as a third, **technological challenge**. This would include an ecosystem based multi-scale approach to innovation that permanently recurs and adapts itself to new scientific findings. If innovation took these comprehensive challenges into account, ecological engineering would be best placed to **foster the greening of the economy in the water sector** and contribute to economic growth.

The last expert to present pressing research needs raised an issue related to the implementation of European Directives in certain New Member States. The example focused on **municipal wastewater and sludge management systems** that still need modernisation. As these systems are highly cost intensive, there is the need for **affordable sludge treatment and disposal installations** that will, integrated with urban wastewater treatment, safeguard human health and the environment. Innovative solutions are needed to reduce the costs for those systems.

Coming to EU water policy and research, the participants agreed that there is a need for more **science-based evidence**. Especially basic research plays an important role and requires the support from the research framework programme. Therefore, **water research should be an integrative part of Horizon 2020**. Cooperation of different scientific institutions is important, whilst competition should not be neglected in order to increase the quality of the scientific evidences. Regarding EU water policy, the Commission should realise that water economy and water sector research in Europe is diverse and fragmented. To overcome fragmentation in water sector research (environment, agriculture, industry), a holistic approach is needed. The manifold existing research results must find a better and faster entry into policies and applications. Also, the synergies between local, regional, national and international water research and management competences should be enhanced for better results, thereby not losing the balance between water policies that lie in the responsibilities of the Member States and those that need an EU-wide approach.

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