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Contribution by AUSTRIA related to "Water resources"
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Introduction

Triggered by extreme events (e.g. floods, draught) in Austria and associated significant damage in the range of several billions € in case of floods and hundreds of millions € in case of draughts Austria is developing a national adaptation strategy. The Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management has initiated projects for developing a National Adaptation Strategy in 2007. Since the beginning, the Umweltbundesamt has been involved in all respective activities. For example, the Umweltbundesamt has been organizing a wide participatory process involving all relevant stakeholders, e.g. from government, interest groups and NGOs.

The outcome so far has been a comprehensive policy paper with a portfolio of first recommendations to address vulnerable sectors, among them water management. This paper provides a short information on the nine adaptation actions identified during this process with a focus on costs/benefits as well as preliminary conclusions.

Considered adaptation activities related to water management

1. Analysis of data and identification of gaps in data
   The objective is to reduce uncertainties with regard to the impacts of climate change related to water management. Such studies have been prepared for specific vulnerable regions in Austria. As high quality data are required additional resources compared to business as usual are required. However, good data are seen as an essential basis for any further adaptation activity.

2. Adequate supply of water in the future
   The objective is to increase the security of supply by integrating climate change risks into planning and building of infrastructure for water management. Some additional resources are required to further develop existing planning instruments and additional costs are expected to climate proof infrastructure. Implementation at the planning level is starting whereas climate proofing of infrastructure is seen as a mid-term measure.

3. Improvement/sustainability of water quality
   This activity addresses both, the ecological water quality as well as the chemical water quality. The target of this activity corresponds closely with the objectives of the EU Water Framework Directive. Thus, no additional resources with respect to this activity seem to be required.

4. Sustainable management of groundwater ecosystems
   The objective is to protect the currently high quality of groundwater reservoirs also in the long-term. The target of this measure also corresponds closely with the objectives of the Water Framework Directive. Thus, no additional resources with respect to this activity seem to be required.

5. Integrated flood protection as element of an integrated river-basin management

The objective is to reduce the peak flow by improved retention of water up-stream of regions vulnerable to floods. This activity can build on existing (legal) instruments, however a need for capacity building has been identified in order to facilitate integration of additional risks related to climate change. The main costs relate to a different land-use which usually reduces the current value of land but do not need additional public budgets.

6. Integration of flood protection in personal life style
   This relates to (better) insurance and better preparedness in order to manage the residual risks. The activity is to provide better information to the population at risk at the community and regional level.

7. Improved information on water consumption and water demand
   The objective is to improve information on water demand to improve demand side management. Due to current gaps this requires significant resources (see also activity No 1).

8. Introduction of management of industrial water
   The objective is to identify the demand for industrial water for irrigation, cooling water (e.g. for thermal power plants), artificial snow and heat pumps for industrial purposes. By now costs have not been estimated and (legal) instruments differ by region.

9. Additional measures on demand management
   The objective is to reduce demand. Additional financial resources to run information campaigns and to provide fiscal incentives to invest into modern technologies (e.g. irrigation) are considered.

Additional information

For most of the activities described above the time horizon of implementation is between 2009 and 2015 as it is linked to the implementation of the EU water framework directive which is guided by Guidance document No. 24: River basin management in a changing climate.

Many considered activities seem to be no-regret measures with no additional costs for the public and can be justified on the basis of risk management with the goal being not to reduce the security of supply; most relevant seem to be additional costs for the private sector.

Water management in Austria is mainly a public domain with limited transparency of costs. Due to the high availability of water in Austria waste water management is the dominating cost factor but not water supply.