



Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety



Bavarian State Ministry of the
Environment and Consumer Protection



6th International Conference “Water in the Alps”

Water Management in a Field of Conflicting Interests: Between Natural Hazards and Nature Protection

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Recommendations

1. Fluvial Geomorphology and the Interactions with Sediment Transport

For many decades, hard engineering techniques have been widely used in river management to deal with flooding issues and to develop further floodplain areas. River training measures, e. g. for flood protection, as well as the construction of dams and reservoirs that interrupts the downstream transport of sediment have substantially altered the fluvial geomorphology. As a consequence there is in many places **a lack of sediment** that causes a deepening of the river bed and requires cost-intensive stabilization-measures, e.g. for bridges. In contrast there is a **sediment surplus** in other places, leading to an aggradation of reservoirs and rivers. This can even lead to an increased flood-hazard in some settlements and have serious impacts on fish habitats and river ecology.

In future we need, especially for alpine rivers, a better understanding of fluvial systems, including the impacts from river construction measures for the whole catchment area. We highly recommend to strengthen research activities in this field, to establish long-term monitoring, to develop and support new measuring-techniques, to model sediment-budgets and to initiate pilot-projects in order to better understand causes and effects in river systems in order to derive concepts which ensure the lateral sediment transport through the whole river system: from the alpine areas to the river mouth.

2. Links between the Water Framework Directive and the Flood Directive

River basin managers often have to find the best compromise to restore or preserve the ecology of alpine rivers while at the same time ensuring the required standard of flood protection. All the times when flood protection measures are applied, possibilities for measures which support also the achievement of the environmental objectives of the WFD should be explored. Furthermore the use of green infrastructures, e.g. restoring floodplain connectivity, giving room back to the river, needs to be further supported in future, in order to contribute to a reduction of flood hazards and to improve river dynamics and river ecology. Not least, this also serves again the humans: near-natural rivers and riverbanks can have a strong “social function”, as valuable recreational area in cities (e.g. Munich, Isar-Plan).

3. Communication of Water-Related Issues

Communication of water-related and risk-related issues is becoming increasingly important, both for the implementation of the EU Directives and, practically speaking, for the need of conciliating different uses of water as well as land use. Some main recommendations should be taken into account while activating participating processes and sharing data and information:

- communication experts are helpful in the communication process, in particular for providing targeted-information and avoid misunderstandings;
- the intention of sharing the information and data should be clarified;
- involvement of all stakeholders as soon as possible, already when defining the goals of the process; discussions should be lead in a flexible / interactive way;
- involve people by an interactive way of communication and by providing target group-oriented information;
- new media and social networks could be helpful for improving interactive and bilateral communication, stimulate feedbacks and facilitate the involvement of public and stakeholders;
- as risk perception of people varies a lot due to different factors (like personal experience), one important goal of the communication process should be the raise of risk awareness. We have to communicate that protection measures can never present an absolute protection against natural hazards, it always remains a residual risk. Risk-management is a common task of public authorities and citizens. We have to emphasize the need of reducing the personal risk through measures of personal provision.