



Bundesministerium
für Umwelt, Naturschutz
und Reaktorsicherheit



Precautionary Flood Protection in Europe

International Workshop

5 – 6 February 2003, Bonn

Background Paper

Ecologic

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German Federal Ministry for the Environment,
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Introduction

Flooding is a natural phenomenon, not a new problem: Between only 1971 and 1995 more than 150 major floods occurred in Europe¹. Since August 2002, when the worst natural disaster in living memory hit Central and Eastern Europe, floods have become one of the major problems within Europe. Effects included damage to human infrastructure with significant effects on the economic system². Is this a taste of a warmer world, which we are heading towards?

The main driving forces behind floods are weather extremes caused by climate change, land sealing, changes in catchment and floodplain land-use, population growth, urbanisation, increasing settlement, roads, railways and hydraulic engineering measures³. Floods like in August 2002 show there are limits to technical methods of flood prevention, and that global warming might not only be a problem for non-developed countries. It also can hit the highly developed North⁴.

In order to address such disasters in the future, precautionary measures have to be taken. Instead of considering flood management in isolation, it is necessary to approach floods from the integrated catchment management approach, which forms the foundation of the Water Framework Directive. Relevant policy areas have to be considered integrating flood protection instruments into the planning process. Interests of different users (e.g. shipping, water industry, housing, etc.) have to be considered together with nature conservation and sustainable river management. New ideas and measures in spatial planning will play a major role. In turn, catchment management needs to be undertaken in the context of other national and regional policies, especially those for rural/urban development.

At the Informal Meeting of Water Directors of the European Union Member States, Norway, Switzerland and Candidate Countries in Copenhagen in November 2002, it was agreed to organise a working-level meeting on flooding, to discuss the major challenges that have to be met.

Major challenges

➤ *Are current regional planning practices adequate?*

In the past, the need to increase agricultural production drove flood management. The best soils were usually found in the flood plains and these were drained and protected by dykes. But, the result was the loss of storage in the flood plains. For example, the Elbe, which shares similarities with many Central European river basins, 80 % of all natural flood plains are cut off from the river by dykes. More than 1,300 km of dykes are situated alongside the main river channel itself⁵.

¹ Lammel, B. (2002): Managing floods in Europe: The answers already exist, More intelligent river basin management using wetlands can alleviate future flooding events WWF Background Briefing Paper 26 September 2002

² see: Die Presse 22.01.03: In der Versicherungsbranche wackeln tausende Arbeitsplätze
<http://www.diepresse.com/detail/default.asp?id=332442>

³ European Environment Agency: Sustainable Water Use in Europe, Part 3: Extreme Hydrological Events: floods and droughts. Environment issue report number 21, Copenhagen 2001, pp.17-20.

⁴ Joschka Fischer, German minister for foreign affairs in: Yahoo News, 17. August 2002

⁵ Lammel, B. (2002): Managing floods in Europe: The answers already exist, More intelligent river basin management using wetlands can alleviate future flooding events WWF Background Briefing Paper 26 September 2002

Planning is always a reaction on driving forces and based on current and future circumstances. The major driving forces for planning behaviour practised in the last decades were agriculture, navigation, hydropower and housing. Wetlands were drained and widely used as building land because within such areas property prices are low and the land is easily to access⁶. A tendency to settle areas liable to flooding is influenced by a perception that risk has been lowered by protective structures⁷ and water related areas are always attractive.

The circumstances confronted with, have almost been the same in the last hundred years. But now human activities are changing the natural balance of the earth, interfering as never before with the atmosphere, the oceans, the polar ice caps, the forest cover and the natural eco-systems that make our world a livable home. As the floods have shown, protection by engineering solutions based on former circumstances is limited.

All this results in question of how **adequate existing models** (especially local models) on climate and weather are? Should we change our **planning** principles and how secure are our technical solutions? Do we need new models and tools for a better flood protection and how are we going to combine them with other aspects like navigation or housing? Will climate change mean that we have to abandon some areas that are currently protected? What has to be done with existing infrastructure and houses in protection zones? Is **resettlement**, like in Upper Austria after the August 2002 flooding⁸, an adequate tool to lower the risks for the next time? If yes, what effects would it have on social aspects like the acquisition of personal assets? How will people react to the **shift of values**, when they have to exchange property on the riverside for a less "beautiful" one?

European River management has become an international issue⁹, including aspects of flood management and prevention and leads to the question of down stream responsibility. Solidarity is required between up-stream and down-stream states; the development of a cross-border system of compensation, trade-offs and information exchange is needed¹⁰. But how will this **solidarity** look like and how will it **shift responsibilities**?

➤ **Responsibilities and legal framework**

Precautionary flood protection can be covered within the main legal framework by planning laws and identification principles of protection zones. Civil protection and flood management can limit the damage but are inadequate on their own to achieve long-term flood protection¹¹. Most European countries have different regulations and responsibilities for both issues, regulated in different laws (planning, water, housing, environmental, civil, nature conservation, agriculture). Not only responsibilities within these nations are conflicting,

⁶ Kron, W.: (2002): Hochwasserschäden und Versicherung, lecture on 7.11.2002 at a seminar on "Hochwassermanagement" at the German Federal Institute of Hydrology, Koblenz.

⁷ Global Environment Outlook 3: Floods and climate change, <http://www.unep.org/geo/geo3/english/474.htm> [online, 14.01.03]

⁸ A conference of the local government and the majors of the flood effected villages decided to resettle about 100 to 160 houses in Upper Austria. For details see <http://www.ooe.gv.at/alz/alz2002/18/01.htm>

⁹ see: Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy Official Journal L 327 , 22/12/2000 P. 0001 - 0073 Article 3(3)

¹⁰ Gorbachev, M. (2002): Security and Responsibility for Transboundary Water Management, Green Cross International Keynote Address at the Rio summit.

¹¹ *BMU-Umwelt-Mitteilung* :Hochwasserschutz an der Oder - ein trinationaler Rechtsvergleich http://www.umweltbundesamt.de/wasser/veroeffentlich/bmu_umwelt/ikso.htm

European Countries also put different focuses on flooding. For example: Germany has its focus on precautionary measures, while Poland and the Czech Republic put their main effort on the management of floods¹². Within the EU civil protection is based in the EC¹³ without specific laws regulating policy and procedures on this topic. Germany and France have started an initiative to ensure that this topic is clarified within the new European Convention¹⁴.

The USA has chosen a third approach. In 1979 the US merged separate and fragmented responsibilities of parallel state and local level disaster programmes under one - the Federal Emergency Management Agency¹⁵. Canada established in 1988 an Office of Critical Infrastructure Protection and Emergency Preparedness (OCIEP). Protecting critical infrastructure and responding to emergencies is a shared responsibility in Canada, requiring the full co-operation and effort of the Government's departments and agencies, provinces and territories, municipalities and the private sector¹⁶.

This brings up two sets of questions clarifying responsibilities and legal frameworks on the topic of precautionary planning on one hand, and on flood mitigation and Civil protection on the other hand. Who has the **competence** and **power of making decisions** in the planning process and in emergency situations? These questions are closely linked to the question of **prioritisation of values**, meaning what tangible assets should be saved or not.

➤ **Financial consequences - Who is going to pay?**

Windstorms and floods caused almost 500 of a total of 700 loss events in 2002 worldwide. The outstanding natural hazard event of 2002 was the major flooding in Central and Eastern Europe. Austria and Germany have for the first time in modern times suffered damages in a way that handling and compensation on a national level was impossible. The flood caused economic losses of about Euro 18.5bn¹⁷, of which only a good Euro 3bn¹⁸ was insured¹⁹. In both countries the financial burden was one of the reasons for the postponement of tax reform²⁰, and it dominated the claims burdens in the insurance industry²¹ in 2002, too.

Because of the impossibility of single Member States to deal with the costs of the damage, the EC set up an emergency plan. The Commission examined with the authorities of the affected regions, how best to use the flexibility margins offered within the programmes financed by Objectives 1 and 2 of the Structural Funds, as well as programmes for rural development. The EC decided to set up a new EU financial instrument (solidarity fund) to grant emergency aid to Member States and Candidate States in the event of major disasters²².

¹² *BMU-Umwelt-Mitteilung* :Hochwasserschutz an der Oder - ein trinationaler Rechtsvergleich
http://www.umweltbundesamt.de/wasser/veroeffentlich/bmu_umwelt/ikso.htm

¹³ EC treaty of Nizza in Art. 3 Abs. 1 (u))

¹⁴ German-French proposal for the European Convention on the topics of freedom, security and justice, presented by Joschka Fischer und Dominique de Villepin. Working group X on Freedom, Security and Justice.

¹⁵ see: <http://www.fema.gov/about/history.shtm>

¹⁶ http://www.ociepc-bpiepc.gc.ca/home/index_e.asp

¹⁷ US\$ 18.5bn For simplification the exchange rate was set to: 1 Euro equals 1 US Dollar

¹⁸ US\$ 3bn For simplification the exchange rate was set to: 1 Euro equals 1 US Dollar

¹⁹ Munich Re Group (2002): Press Release 30th Dez 2002, http://www.munichre.com/default_e.asp

²⁰ <http://www.n-tv.de/3058915.html> 19. August 2002: Die Flut-Katastrophe Aufschiebung der Steuerreform, Milliarden für Flutopfer.

²¹ Financial Times Deutschland (12.8.2002): Unwetterschäden drücken Aktien der Versicherer.

²² Press release by the EC IP/02/1662 on 13 November 2002 in Brussels: Solidarity Fund: Commission proposes Euro 728 million for German, Austrian, Czech and French regions hit by flooding.

Minimisation of risk and damage can only be done in an integrative process. Flood prevention and mitigation must be shared between government, public and the insurance industry²³. Only if all three parts co-operate in an appropriate partnership efficient flood prevention and mitigation is possible. For example: France established an insurance system with fixed premiums on material value insurances, collected in a national fund. The adjustment of claims is regulated by the insurance companies if the government declares a event a „Catastrophe naturelle“. In the USA insurance against flooding is on a voluntary basis. An insurance holder can buy insurance at the state or a private company. Premise is that the community the building is located is participant in the National Flood Insurance Program (NFIP). A classification is done by the Federal Emergency Management Agency (FEMA), which produces a Flood Insurance Rate Map (FIRM) based on hydrographic surveys. In Germany insurance on flooding and other elementary disasters is a complementary insurance which is offered with household insurances. Therefor a GIS based risk classification system (ZÜRS²⁴) provides a basis for the insurability; the tariffs differ among companies.

So the question is about defining the **partnership**. What kind of changes in the insurance – public-state system is needed? Can it be solved on a broad scale using **traditional** insurance techniques? How can **new** instruments look like?

➤ **Information sharing - How can we learn from each other?**

When floods hit Saxony, Germany, in August 2002 problems occurred in the co-ordination and communication during disaster management²⁵. Mistakes can occur under time pressure, when complex decisions have to be made and unusual circumstances exist. An evaluation has relevant possibilities for improvement.

Disaster prevention and management should include administrative decisions and operational activities that involve prevention, preparedness, warning, response, and recovery at all levels of government. It does not only involve official bodies as non-governmental organisations and community-based organisations (Red Cross, military forces, police, private people, and so) also play a vital role. Most of these organisations have wide experience in the issue of disaster management.

This leads to the question of **responsibilities** among the different institutions and organisations. How should we share information on disaster management? How should we **exchange experiences** on the different levels? Could a European initiative, **establishing, testing and documenting best practices** lead to a better performance in **disaster management**? Would a task force for disaster defence as a co-ordinating unit be of help? Should that be international, European or other? What could be the role for military forces?

²³ Lawa (1995): Guidelines for Forward-Looking Flood Protection

²⁴ ZÜRS stands for Zonierungssystem für Überschwemmung, Rückstau und Starkregen and was developed by German insurance companies. It allows to locate singel houses to 3 different risk classes.

²⁵ von Kirchbach (2002): Bericht der Unabhängigen Kommission der Sächsischen Staatsregierung über die Flutkatastrophe 2002

Conclusion

As laid down in the Budapest initiative on strengthening international co-operation on sustainable flood management a joint initiative of the European Commission and the Water Directors should be started. It should address the key issues on

- planning principles
- responsibility
- financing and
- information sharing

This initiative has to have a high level priority status in policy making and administration. The discussion should be wide and public participation must be promoted in order to guarantee stakeholder involvement, finally resulting in an action plan for short, medium and long term future. Thereby conflicts between different stakeholders, have to be defeated and solved in an acceptable way.

This means that the EU needs to define as soon as possible which land-use and water management policies and practices are adequate to reduce recent flooding problems in Europe. Thereby all areas of policy making especially the mid-term review of the Common Agricultural Policy, the evaluation of the Structural Funds and the interim revision of the Trans-European Transport Networks have to be considered. This process has to be done under the view of the Water frameworks directive's objectives.