Transposition and Implementation of the European Flood Directive 2007/60/EC in Austria

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Floods and natural hazards

Threat from earthquake, tornados, floods, droughts and sea level rise

Quelle Abb.: WeltRisikoBericht 2013, www.weltrisikobericht.de (Stand 06.05.2014) / DI Reischl, TUG
Survey EU 27:
Can you please tell me which you believe are the main threats to the water environment in your country?

Perceived main threats to the water environment

- Chemical pollution: 75%
- Climate change: 50%
- Floods: 37%
- Changed water ecosystems: 33%
- Water shortage: 30%
- Algae growth: 30%
- Dams, canals and other physical changes: 21%
- Others: 1%
- Don’t care about this issue: 1%
- DK/NA: 3%

Flooding appeared among the most mentioned threats in the northerly Member States: e.g. the UK (75%) and Ireland (60%)
In the alpine area flood catastrophes have been the most frequent natural disasters in recent years.

Source: http://www.wsl.ch/forschung/forschungsprojekte/schadendatenbank/index_DE
Flooding in Europe, Elbe, Dresden (D), 2002

Dresden, 17.08.2002
Floods an issue in Austria

Austria 2002 - 9 dead people, about 3 billion € damage

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In July 2004 Commission compiled a communication on flood risk management including proposal for concerted EU Action Programme on flood prevention, protection and mitigation.

In addition to cooperation activities in transboundary river basins, at Member State and at European level, Action at Community level would bring considerable added value and improve overall level of flood protection.

The purpose of the EU Floods Directive

- to establish a framework for the assessment and management of flood risks
- aiming at the reduction of adverse consequences associated with floods...
- ...for human health, the environment, cultural heritage and economic activity
- ...for different types of floods (fluvial, pluvial, groundwater, maritim etc...)

Legal requirements – Reducing flood risks in a three-step approach

Preliminary flood risk assessment
- December 22, 2011
- December 22, 2018
- Every 6 years after

Flood hazard and flood risk mapping
- December 22, 2013
- December 22, 2019
- Every 6 years after

6 years cycle

Flood risk management plans
- December 22, 2015
- December 22, 2021
- Every 6 years after

Source Figure:
http://www.dhigroup.com/~/media/FE4BE85C2B174E3C9CA61E201F05BA8B.ashx
Implementation on EU-level

Common Implementation Strategy

Strategic Steering Group “WFD and Hydromorphology”
Chair: DE, UK and Commission

Strategic Steering Group “WFD and Agriculture”
Chair: FR, UK and Commission

Strategic Steering Group “WFD and Climate Change”
Chair: FR, UK and Commission

Water Directors
Steering of implementation process
Chair: Presidency, Co-chair: Commission

Strategic Co-ordination Group
Co-ordination of work programme
Chair: Commission

Art. 21 Committee

Working Group A
“Ecological Status”
Chair: JRC, DE and UK

Working Group D
“Reporting”
Chair: Commission, EEA and FR

“GIS” Expert Network

Working Group C
“Groundwater”
Chair: Commission and AT

“Chemical Monitoring”

Working Group E
“Priority Substances”
Chair: Commission

“Chemical Monitoring”

Working Group F
“Floods”
Chair: Commission

“Water Scarcity and Droughts”

“Objectives/Exemptions/Economics”

Stakeholders, NGO’s, Researchers, Experts, etc.

WORKING GROUP ‘F’ :

OBJECTIVE
Forum to support implementation of FD
Information exchange
Feedback on Implementation and Reporting
Links with Other CIS / COM Areas

ACTIVITIES
6-monthly Meetings
Preparation of Reporting Sheets / Schema
Other Activities / Resource Documents
Economics, WFD-FD Links, Research Needs
Thematic Workshops
The **legal implementation in Austria** of the Directive 2007/60/EC in national law was conducted in March 2011 by the amendment to the Water Law Act, Federal Law Gazette I no 14/2011

**Competent authorities** in Austria are the Federal Ministry of Agriculture, Forestry, Environment and Water Management and the Governors of the 9 federal states (Bundeslaender)

**Technical working group and legal working group** established in Ministry for Agriculture, Forestry, Water Management and Environment with participation of federal provinces and other stakeholders

**Long-standing experience** with Floods management in Austria
FD 2007/60/EC - implementation in Austria

BMLFUW = competent authority
Federal Ministry of Agriculture, Forestry, Environment and Water Management

Technical Implementation Committee

Committee on Legal Transposition

Working Group on Flood Risks
Working Group on Hazard Scenarios
Working Group on FRMP

Members:
→ Technical Experts of the involved Ministries
→ Technical Experts of the Provincial Gov.
→ Technical Experts of Environmental Agency

Members:
→ Legal Experts of the involved Ministries
→ Legal Experts of the Provincial Governments → Technical Experts
Variety of competences between Federal government - federal provinces:

- Water management, water law, waterway navigation, torrent control as federal government competences
- spatial planning, civil protection and nature conservation as provincial competences (Bundesländer)
Types of floods: fluvial, pluvial, groundwater

Challenges with particular situation in Alpine region (high population density in valleys, large volume of precipitation and high run-off, high mass transport, flash floods)
FD 2007/60/EC - implementation in Austria

3 pillows/steps

Preliminary FRA: December 2011
Hazardmaps, Riskmaps: December 2013
FRM Plans: December 2015

Review every 6 years

FD 2007/60/EC - implementation in Austria

Step 1: Preliminary flood risk assessment for potential risk of flooding by 2011

Member States had by 2011 undertake a preliminary flood risk assessment of their river basins and associated coastal zones, to identify areas where potential significant flood risk exists.

PFRA – Risk receptors

- Human Health
- Economy
- Cultural Heritage
- Environment
Step 1: PFRA and APSFR

Article 4 and 5, Directive 2007/60/EC

Length: 2,654 km linearer approach
Special emphasis: human life

Affected people: HQ100 area: 343,394
HQ300 area: 651,963
Step 1: PFRA and APSFR

Two different approaches: Hot-spots, river-network, catchment
Step 2: FHM and FRM

Flood Hazard Maps

floods with...

Low probability (expected period of recurrence: 300 years or extreme event scenario)

Medium probability (expected period of recurrence: likely return period at least 100 years)

High probability (expected period of recurrence: 30 years)

for...

Flood extent → 1 maps for all scenarios
Water depth → 3 maps (1 for each scenario)
Flow velocity → 3 maps (1 for each scenario)
Step 2: FHM and FRM

Flood Hazard Maps
„Flood risk“ means the combination of the
– probability of a flood event (flood hazard)
and
– of the potential adverse consequences for

human life  environment  Cultural heritage  Economic activity

(flood risk)
Risk maps:

Obligatory (art. 6):
- Economic activity (CORINE land use)
- Indicative number of people
- Installations (Directive 2008/1/EG)
- Protected area’s (Annex IV(1)(i), (iii) and (v) to Directive 2000/60/EC)

Non-obligatory:
- Damage potential (€/ha)
- Vital infrastructure: energy, telecom,…
- Objects of cultural history
- Special buildings (hospital, prison, homes for the elderly)
- Evacuation routes
Step 2: FHM and FRM

Flood Risk Maps
Step 3: Flood risk management plans including objectives and appropriate measures by 2015

By 2015 flood risk management plans must be drawn up for APSFR. These plans are to include measures to reduce the probability of flooding and its potential consequences. They will address all phases of the flood risk management cycle but focus particularly on prevention, protection and preparedness.

Source Figure: Flood Risk Cycle: http://www.floodsite.net/html/cd_task17-19/images/graphs/task_17/flood_management_practice UE.jpg
Questions
Flood Directive

What are the main appropriate objectives for the Flood Risk Management in order to reduce the potential adverse consequences of flooding:
1. before the flood (as prevention …)
2. during the flood event
3. after the flood

Objectives
(in Austria)

- Avoidance of new risks BEFORE an flood event
- Reduction of existing risks BEFORE an flood event
- Reduction of existing risks DURING/AFTER an flood event
- Raising awareness for risks and hazards
5 Fields of action
Risk circle
Catalogue of 22 measures

- Recovery: 3 measures
- Prevention: 5 measures
- Protection: 8 measures
- Awareness: 3 measures
- Preparedness: 3 measures

Event

Flood Risk Management Plans, Art. 7
Flood Risk Management Plans, Art. 7

>> Catalogue of 22 measures

>> Action planning for each APSFR

- Information about
  - Flood and area characteristics
  - Coordination flood directive and water framework directive
  - Coordination of the FRMP
  - Adaption to climate change
  - Public information
  - Working process in the current cycle

- Selection of proper measures
  - Current status
  - Additional information
  - Status development
  - Uncertainties concerning the realization
  - Prioritization

Catalogue of measures
Content

Measures are characterized by

- Short description
- Examples
- Legal framework
- Concerned departments and authorities
Prevention

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>M01</td>
<td>Elaborate and regularly revise hazard zoning plans</td>
</tr>
<tr>
<td>M02</td>
<td>Considering hazard zoning plans</td>
</tr>
<tr>
<td>M03</td>
<td>Elaborate basin-specific concepts and plannings to improve the water and soil material budget</td>
</tr>
<tr>
<td>M04</td>
<td>Elaborate and taking into account of local and regional planning activities for land use and spatial planning</td>
</tr>
<tr>
<td>M05</td>
<td>Elaboration of frameworks for the realization and maintenance of protection measures</td>
</tr>
</tbody>
</table>
In line with the elaboration of FRMP great significance is given to the measures of LUP

- The focus on risk prevention in “FRMP“ calls for instruments of land use planning
- Improvement of legal links between FHM, FRM and land use planning: obligatory consideration
- Integration of vulnerability information into LUP (floods, landslides, rockfall)
- Focus on surface areas that are relevant for flood discharge and retention use
- Creation of legal framework requirement for protection, preservation and improvement of existing retention areas
Example for consideration of FHM in land use plans:

In Styria, the regional parliament adopted a "Regulation on Flood-Protected Development of Settlement Areas" in the wake of the flood events in 2005.

This sectoral programme defines legally binding rules for risk related zoning on community level (restrictions and exceptions)

This government regulation pursues the following objectives:

- Minimising the risk by lowering the damage and hazard potential
- Maintaining and improving the conditions and areas for water retention
- Keeping areas clear in an anticipatory approach rather than taking subsequent remedial action
Flood risk management in local planning

At all events, the following zones must be kept clear:

- HQ100 discharge areas
- Red hazard zones as defined by the Austrian Service for Torrent and Avalanche Control
- Areas which are particularly suited for flood protection measures ("reserved areas")
- Riparian strips of at least 10m in width
Flood Risk Management Plans, Art. 7

Protection

<table>
<thead>
<tr>
<th>Number</th>
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<tbody>
<tr>
<td>M06</td>
<td>Retention efficient management of surface areas in the catchment</td>
</tr>
<tr>
<td>M07</td>
<td>Recovery of flood plains and sedimentation areas</td>
</tr>
<tr>
<td>M08</td>
<td>Planning and building of protection and regulation (water) construction</td>
</tr>
<tr>
<td>M09</td>
<td>Realizing and adapting object protection measures</td>
</tr>
<tr>
<td>M10</td>
<td>Assessing and realization of resettlement and land use change</td>
</tr>
<tr>
<td>M11</td>
<td>Undertaking and improving water supervision</td>
</tr>
<tr>
<td>M12</td>
<td>Maintaining, operating and improving flood protection structures</td>
</tr>
<tr>
<td>M13</td>
<td>Elaboration of operating regulations for flood prone or flood influencing facilities</td>
</tr>
</tbody>
</table>

Ecological flood protection, Bad Ischl  
Source: WWF, Feichtinger

Mobile flood protection
Flood control basin in Styria – regional distribution

139 in use
15 under construction
43 planning phase

Protection

Dimension/useful capacity:

< 100,000 m³: 90 basins
100,000 – 500,000 m³: 37 basins
> 500,000 m³: 3 basins

90% Homogeneous earth fill dam

good integration in the landscape after greening
Concrete dam

RB Thayabach

RB Wernersdorf
Flood events summer 2013

Retention basin Schöckelbach, Graz, 7th June 2013
M 09: Realizing and adapting object protection measures

Individual arrangements and self protection

Reduction of the damage potential
Minimisation of the risk
## Awareness

<table>
<thead>
<tr>
<th>Number</th>
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<tbody>
<tr>
<td>M14</td>
<td>Preparing information about flood hazard and flood risk for the public and providing it in a proper way</td>
</tr>
<tr>
<td>M15</td>
<td>To trigger active involvement regarding issues of flood hazard and flood risk</td>
</tr>
<tr>
<td>M16</td>
<td>To organize education activities for flood hazard and flood risk</td>
</tr>
</tbody>
</table>
Awareness

Information: brochures, leaflets, websites, workshops, cooperation with citizen groups ……..

http://www.bmlfuw.at
Common flood exercises

Flood drills by the district fire service with the involvement of Slovenian fire-fighting units (2007)

Practising different flood scenarios
## Preparedness

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<tbody>
<tr>
<td>M17</td>
<td>To set up and apply monitoring systems, forecast models and alert systems</td>
</tr>
<tr>
<td>M18</td>
<td>To elaborate civil protection plans to overcome critical flood situations</td>
</tr>
<tr>
<td>M19</td>
<td>To guarantee necessary pre-conditions for implementing civil protection plans</td>
</tr>
</tbody>
</table>
Recovery
(in case of flooding)

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>M20</td>
<td>To realize immediate measures and restoration at water bodies and flood protection construction directly after a flood event</td>
</tr>
<tr>
<td>M21</td>
<td>To assess, remove and adjust flood damages at structures and infrastructures</td>
</tr>
<tr>
<td>M22</td>
<td>To document the flood event and damage, as well as analysis the event</td>
</tr>
</tbody>
</table>
Prioritization of measures

List of questions
Organizational and financial effort (feasibility)

1. Is the realization of the measure in consideration of the organizational effort in the current editing cycle possible?

2. Is the realization of the measure in consideration of the financial effort in the current editing cycle possible?

Reduction of the hazard

Does the measure contribute to the reduction

1.…. of the flood risk due to retention?

2.…. of flood risk due to raising discharge efficiency?

RBMP: Conflicts, synergies, public information
**Process steps**

**Definition and information of responsible institutions**
- Information events, E-Mail, personal

**Information gathering**
- Group 01: State measures
- Group 02: State measures valid specific for APSFR
- Group 03: Measures valid specific for APSFR
- Group 04: Federal measures

**Working tools**
- Checklists
- telephone calls, interviews, workshops

**Coordination drafts FRMP with interested parties**
- Regional workshops

**Elaboration of FRMP for each APSFR (Workshops)**

**Control and coordination FRMP**
- by representatives of the Regional Government and project coordinator

**Modification FRMP**

**Report to the Federal Ministry**
- 22nd September 2014
Results Austria

391 FRMP Austria

> one for each APSFR

9 FRMP

> one for each state

1 FRMP

> one for Austria
Components of the first flood risk management plans

Conclusion
Preliminary flood risk assessment

Summary measures and their prioritization

Flood hazard + flood risk maps and conclusions drawn from this maps

Appropriate objectives description

Shared river basins, or sub-basins
Description of methodology, cost-benefit analysis
Description of the implementation of the plan

Description prioritization
Monitoring of the plan

List of competent authorities
Description of coordination within international river basins

Summary of public information
Measures / action taken

**Flood Risk Management Plans, Art. 7**

**Prioritization - Styria**

- **Event**
  - PREPAREDNESS: 17, 18, 19
  - RECOVERY: 20, 21, 22
  - PREVENTION: 01, 02, 03, 04, 05, 06
  - PROTECTION: 10, 09, 08, 07, 06, 05, 04, 03, 02, 01, 00

**Priority 1**
- M08: Planning and building of protection and regulation (water) construction

**Priority 2**
- M11: Undertaking and improving water supervision

**Priority 3**
- M16: To organize education activities for flood hazard and flood risk
- M18: To elaborate civil protection plans to overcome critical flood situations

To undertake in case of flooding:

- a, b, c
Water information system Austria (WISA)

- Draft of the national FRMP
- Catalogue of measures
- Environmental report
- Leaflet public information

- Flood hazard and flood risk maps for each APSFR
- FRMP for each APSFR
- FRMP Donau, Elbe, Rhein

http://wisa.bmlfuw.gv.at
International coordination, Art. 4 (3)

2. Where an international river basin district, or unit of management referred to in Article 3(2)(b), falls entirely within the Community, Member States shall ensure coordination with the aim of producing one single international flood risk management plan, or a set of flood risk management plans coordinated at the level of the international river basin district.

Coordination of the FD takes place in the existing bilateral river commissions (e.g. Drava, Mura) or in the international commissions (IKSD, ICPDR, IKSE)
Public participation (Art. 10) and next steps?

>> Public information
  - conference 21st January 2015 (~ 350 participants)
  - information meetings / workshops regional level

>> Public participation
  - dialogue with cities, communities and citizens
  - possibility to submit written comments until 21st July 2015
  - consideration of the comments (14) in the final FRMP

>> End of federal editing
  - 22nd December 2015

>> Reporting to the EU
  - 22nd March 2016

>> Realisation of the FRMP
Floods an issue in Austria

Quelle: Land OÖ

Quelle: wien.gv.at

Donau,
June 2013

Quelle: FF Korneuburg
After the flood 2002 all over Europe a lot of investments in flood protection caused a reduction of damage – see the consequences of the flood 2013 (damage 2002: 3,1 billion € - 2013: 900 mio €).

On the other hand at the same time there are rising costs for proper maintenance.

The EU Floods Directive shifts the focus on flood risk management – thus not only on structural measures. Hence, flood risk management plans with regard to the specific circumstances of each region are a crucial basis for the security and future development of living spaces.
Conclusion and challenges for the future

• Vulnerability has increased enormously
• Safety for everyone and everything is impossible
• Certain risks have to be accepted – dealing with residual risk
• Enhance public awareness for flood events e.g. through public relations, public information and citizen involvement
• Information, communication and participation are the keys to successful flood risk management
• Clear separation between private and public responsibilities are necessary
• Enhancement of existing floodwater alarm- and warning systems
• Grant more space for the rivers
• Be prepared for the unexpected - think the unthinkable - „Adaption“
Conclusion and challenges for the future

- Concepts must be insensitive to excessive loads
- Structural measures have a limited effect on exceptional natural events
- Closer collaboration between flood management, civil protection and land use planning is necessary - development of an integral flood protection action plan – cross border support
- Funds for the implementation of measures are frequently lacking – innovative financing concepts need to be developed, provision of necessary funds
- Technical issues are generally handled well, the necessary legal basis is still lacking in many instances (especially on the field of land use planning)
- Implementation of an expert platform for the exchange of flood information and experiences (international, national, local)
Living with floods

Living with floods and natural hazards has been part of peoples living space especially in the alpine areas for generations. Due to many historic events and constant threats these people have developed an increased awareness for floods.

Therefore, the local population should be involved and participate in the process of creating flood risk management plans. Local experience should especially be used when choosing the measures for the FRMP to reduce flood risks.
Thank you for your attention!

Donau, Grein, Lower Austria, June 2013